ADAPTATION TO ENVIRONMENTAL SHOCKS: INTERNATIONALIZATION RESPONSES TO MARKET LIBERALIZATION

by

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B.S.F.S., Georgetown University (1990)

Submitted to the Alfred P. Sloan School of Management in Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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ABSTRACT

The overarching objective of this dissertation is to obtain a better understanding of how firms react to radical environmental shocks, in particular how they change their degree of internationalization in response to the liberalization of their home economy. Internationalization is chosen as the dependent variable because it is commonly assumed to be a long-run predictor of performance. In the process of addressing this general issue, three sub-questions are identified. The first relates to the importance of industry versus firm level variables in explaining adaptation procedures. This issue is addressed by testing both trade based industry models and organization based firm adaptation theories. The latter analysis leads into a second sub-question which is whether firm level reactions are best explained by ecological theories of adaptation which focus on structural variables or constructivist theories which emphasize firm strategy variables as being key in the adaptation process.

The final sub-question attempts to define what exactly is meant by the term "internationalization." Whereas the analyses up until then adopt traditional definitions of internationalization, this final section of the research attempts to address the question "Do traditional measures of internationalization accurately capture the meaning of the term, and if not what might be some better sets of measures?" What is presented is an elaborated
conceptualization of internationalization which encompasses not only multiple "tangible" or physical measures but also highlights the importance of the "intangible" aspects of internationalization. Tangible measures are defined here as those which relate to the geographical dispersion of the firm, and include most traditional measures of internationalization such as exports or foreign direct investments. By contrast, intangible internationalization is used to describe the extent to which the firm's knowledge base meets international standards on a variety of aspects, regardless of where its physical components are located. It is shown that the latter rather than the former constitutes the real link between internationalization and performance. By introducing the element of intangible internationalization, this dissertation attempts to bridge the international business literature on foreign expansion with the strategy literature on firm competencies and capabilities.

The empirical component of the analysis is based on the Argentine case. Firm and industry data were collected for the periods before and after the initiation of the country's liberalization program in 1989.

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Lastly, I dedicate this dissertation to my family, including my parents and sister in the US as well as those family members in Argentina and Egypt, all of which have helped to shape who I am today. A special acknowledgment goes to the matriarchs of both sides of the family who shared in the beginning of this process but unfortunately could not see it come to a close.
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PART I
CHAPTER 1
Introduction

1.0 Executive Summary

The overarching objective of this dissertation is to obtain a better understanding of how firms react (or fail to react) to radical changes in their environment and to identify those factors which determine whether or not an industry or firm is successful in its adaptation. In particular, the case which is analyzed here is that of the adaptation process of firms to the rapid liberalization of their home economy. While there are many response variables one could choose to study, the one which is the focus of this dissertation is the level of internationalization of the firm or industry.

There are several reasons for focusing on internationalization as the key measure of success in this case. The first is that the fact that the ability of a nation to grow and prosper is increasingly becoming dependent upon how its firms perform in world markets (Levitt, 1983). International expansion is no longer considered an option or merely one approach among several. Rather, it has become a requirement for sustained growth. These changes in expectations have altered the way in which firm performance is evaluated. It is more often than not the exception to find an industry in which foreign players are
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irrelevant in assessing the relative performance of domestic firms. The result has been a broadening of the context in which firms are viewed as competing. Whereas the first part of the century saw the boundary broaden from the local to the national level, the latter part of the century has seen that boundary increasingly expand to the global level. As such, many industries and the firms within them are confronted with having to meet an additional performance criterion, that being the extent to which they are "internationalized."

A second reason for selecting internationalization as the main dependent variable is that one of the central objectives of the market reformers is to increase the level of this variable in the overall economy. The trend towards market liberalization is in part a resignation by national governments to the fact that markets are less and less separable, with the hope that greater exposure to foreign markets will boost the competitiveness of their domestic industries. If one accepts this argument, then a key measure in evaluating the effectiveness of such reforms is the degree to which firms become internationalized. As such, increased internationalization is often viewed as a reflector of higher firm performance.

The impact of an environmental shock, in this case liberalization, on firm performance, in this case internationalization, is a complex issue, as their are multiple theories as well as levels on which it can be analyzed. As such, the approach adopted in this dissertation mirrors the complexity of the issue being addressed. Multiple theories, levels of analysis, and methodologies are adopted. On the theoretical side, I choose to draw upon two streams of literature. The first of these is embedded in trade theory, while the second stems from organizational theories of adaptation. Though these two literatures come from different disciplines, in one instance economics and the other organization studies, they address fundamentally similar issues, namely the reaction of economic actors to changes in their environment. As is shown, the two groups of theories can be
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combined to provide complementary insights, each at different levels of analysis. By analyzing the two together, I identify those factors which, operating at different levels of analysis, conditionalize the insights which each set of theories offer.

The choice of theories points to the first of three sub-issues which flow out of the overarching objective of assessing the determinants of successful adaptation, that being the relative importance of industry as opposed to firm level factors in the adaptation process. The second issue builds off the first in that assuming that firm effects do have an influence, which is the appropriate behavioral assumption about the firm? The question is whether firm reaction to market liberalization is influenced primarily by largely uncontrollable structural variables or by ones more strategic in nature.

The last sub-issue, and perhaps most important and novel contribution of the dissertation, relates to the issue of whether or not traditional forms of internationalization accurately capture what is meant by the term and most importantly whether or not they provide a solid link to performance. Traditional definitions have tended to rely on physical geography as the key variable, be it in terms of markets, production, or the location of a firm's headquarters. What is proposed here is an expanded definition which makes a distinction between the tangible and "intangible" aspects of the internationalization process, with the former referring to the physical location of the firm's components and the latter to the extent to which those components operate and international standards. It is argued that by simply focusing on the first aspect, one runs the risk of incorrectly determining the degree of internationalization of a firm or economy.

The empirical component of the research is based on data collected in Argentina at the firm, industry, and macro-economic levels. Argentina provides a good test site for a number of reasons including the speed and comprehensiveness of market reforms which have covered both macro and micro aspects of the domestic and international components
of the economy. Furthermore, this is a case where the potential for increased international expansion by home-based firms exists as a result of market liberalization. It is also one which due to the recent nature of the events has not been researched extensively.

In order to satisfy the research agenda described above, the dissertation is organized into two sections. The first contains the core of the theoretical and analytical reasoning of the dissertation. Following a description of the reform process in Argentina in Chapter 2, Chapters 3 and 4 go on to address the issue of changes in internationalization at the industry, national, and provincial levels, in one case providing descriptive statistics and in the other developing and empirically testing a trade-based model of exports. Chapter 5 then turns to the issue of internationalization at the level of the firm, and addresses the question of whether structural or strategic variables are better predictors of firm adaptation. Chapter 6 then continues the analysis at the firm level but introduces the issue of tangible versus intangible forms of internationalization. This is followed by a summary of the overall conclusions flowing from the research.

The second part of the dissertation builds upon the discussion in Chapter 6 of tangible versus intangible internationalization and highlights the importance of making this distinction by presenting an in depth comparative case study of two leading Argentine firms, Siderar and Siderca. An overview of the general research framework is shown in Figure 1, which extends from market liberalization to changes in market structure and eventually changes in the level of internationalization.¹

¹ While feedback loops will not be analyzed explicitly in this stage of my research, they will be alluded to in the case study and addressed more formally in future work.
2.0  The Impact of Liberalization on Market Structure

The first of the core sections of the dissertation, Chapter 2, assesses the impact of liberalization policies on specific aspects of market structure. This analysis serves as the
basis for the remaining parts of the dissertation, which then model the effect of these changes in market structure on the internationalization process.

The market reforms included in this analysis cover those which are targeted directly at the domestic market as well as those which are aimed at affecting the way in which it interfaces with the global economy. This requires analyzing changes in all three major areas of the economy over which the government has control: fiscal, monetary, and trade/ regulatory policy. The challenge is then to identify the specific aspects of industry structure which are impacted by these reforms. In doing so, a dual approach is adopted. The first focuses around changes in the absolute levels of key traditional variables such as capital and labor costs. This approach to analyzing market structure is contrasted with what is labeled here as an "architectural"² approach, which focuses on the way in which the above traditional variables and actors are organized. In this context, the industrial architecture of a country can be thought of as the way in which the various input and output markets are organized and linked with each other. The value of making this distinction between traditional and architectural aspects of market structure lies in the fact that one can have two systems with the same traditional aspects (e.g., in terms labor and capital supply, number of competitors, etc.) but characterized by different architectures which produce differing results for the two systems.

Each of these approaches focuses on different aspects of industry structure as being important in explaining changes in industry and firm behavior. Among the economic structural variables which are tracked pre and post-liberalization are the supply of labor, capital, and technology, as well as level of industry concentration and substitute availability. By contrast, the architectural approach focuses on the organization of labor

² I borrow the term "architectural" from Henderson and Clark (1990) who uses it at the product level to describe how individual components are linked one to each other. Here I apply this concept to the industry and national levels of analysis.
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and capital as well as the adoption of management practices and organizational forms, as well as producer-consumer and supplier-producer relations.

3.0 Internationalization at the National, Provincial, and Industry Levels

The objective of Chapters 3 and 4 is to assess the impact of these liberalization policies on internationalization at the national, provincial, and industry levels of analysis. The first of these two chapters provides a descriptive analysis of trends in various aspects of the internationalization process since the beginning of the liberalization process. The subsequent chapter then attempts to establish a direct correlation between changes in certain key policy variables and export behavior. This is done through the development of a formal trade model which includes export and import taxes as well as export subsidies, three of the primary tools used by the government in distorting trade flows and whose use in recent years has been greatly reduced. The propositions flowing out of this model are then empirically tested used national industrial and export statistics.

In the first of these two chapters identifies several key trends in the internationalization process since liberalization, among these a growth in exports of more than 100 percent. In many ways more impressive, though, are changes in value-added, country of destination, and concentration of those exports. While exports overall have increased, their growth has been biased towards lower value-added products such as primary agricultural products. In addition, a majority of the growth in exports is attributable to increased exports to neighboring Mercosur nations, with little if not negative growth to other more developed parts of the world. Perhaps the most dramatic change, however, at a macro level has been the increase in exporter concentration. From 1990 to 1994 the top 30 exporters increased their share of exports from less than one-third to well over half of all exports.
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While the above trends are identified using descriptive statistics at the national level, the analysis in the following chapter attempts to link specific changes in policy tools at the industry level to changes in exports. This is done by developing an economic model of exports sales which incorporates export taxes and import tariffs as well as export subsidies and transportation costs. Using data of national exports by industry, it is shown that one can establish a direct negative relationship between percentage point reductions in export taxes and import tariffs, and export growth. This finding supports the claim that reducing import barriers can in fact encourage outward expansion.

4.0 Internationalization at the Firm Level

Chapter 5 moves the discussion down to the level of the firm in analyzing reactions to market liberalization. Whereas the aim of the preceding two chapters is to highlight changes in the internationalization of the economy and the industries which comprise it, the goal of this section is to determine which firms in specific are responsible for those aggregate changes. The assumption being made is that firm variances do in fact exist and matter, with different firms reacting differently to market shocks.

Central to this issue of how different firms react are the behavioral assumptions held about the firm regarding its ability to act independently. In this vein, a series of models are tested which span the spectrum of firm autonomy in decision making, extending from ecological or deterministic theories such population ecology (Hannan and Freeman, 1977, 1984; Young, 1988) on one end to constructivist theories such as strategic choice (Selznick, 1957; Best, 1990; Rumelt, 1984) on the other. The question is to what extent is the way in which a firm reacts to external shocks determined by imprinted factors such as the age of the firm and its size versus factors over which the firm has more control such as its product and pricing strategies. Through such an analysis, the goal is to not only identify those factors which have the greatest impact on a
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firm's propensity to react (or not react), but also to identify which behavioral assumption regarding the firm actually holds. If the null is taken as environmental determinism, then the hypothesis to be proven is that firm strategy does in fact affect the way in which these firms react to the liberalizing of the economy.

The two models of firm behavior which are analyzed each present distinct hypotheses regarding the impact of market liberalization on the various aspects of a firm's internationalization process. Those aspects which are addressed here focus on the propensity and extent of a firm's exports, as well as the country of destination of those exports. As is highlighted in Chapter 5, a central issue which divides the two main streams of thought on firm adaptation is the amount of credence given to inertia and the effects it has on firm reaction abilities. In the ecological perspective, it is assumed that those firms with greater inertia will be unable to adapt to the new environment as they are embedded in the former structure. The structural variables which normally correlate with inertia include firm age and size (Hannan and Freeman, 1984).

By contrast, the constructivist approach focuses on a host of different variables over which the firm has more control. Among the strategic variables on which firms differ and which have the potential to impact the extent to which they internationalize are the emphasis put on product quality, technology, and formal planning. These are all variables which reflect the ability of the firm to compete at international standards. Increased levels of each, everything else constant, should thus be associated with greater ability to internationalize.

In general, the results point to a general support for the impact of strategic decisions on firm reaction to environmental events, while at the same time acknowledging the fact that inertial pressures are present. Such a conclusion tends to support Hrebiniak and Joyce's (1985) idea of adaptation within constraints.
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5.0 Internationalization Reconsidered: Tangible vs. Intangible Forms

Chapter 6 and Part II of the dissertation build off of the previous ones by analyzing in greater depth different aspects of the internationalization process at the firm level. Up until now, the analysis focuses on traditional definitions of the internationalization process. The aim of this final section is to propose an alternative approach which makes a distinction between traditional "tangible" measures of the internationalization process and what are labeled here as "intangible" aspects. Such an analysis builds upon the issue of whether firms actually become "cosmopolitan" in outlook, to use Kanter's (1995) terminology, or remain essentially "local" firms serving international markets only on a residual basis.

The reason for making this distinction is that tangible or physical measures are often used as proxies for the ability of a firm to compete at an international level (Calvet, 1981; Dunning, 1988; Vernon, 1979; Buckley and Casson, 1985). While in many cases there may be a positive correlation between the two, it is claimed here that one can also have internationalized firms in terms of capabilities which do not sell in foreign markets. In the proposed terminology, internationalization at the intangible level is meant to measure the extent to which a firm operates at an international level, not necessarily in terms of sales but in terms of knowledge and orientation. And it is this form of internationalization which it is claimed is the real link between internationalization and performance, something which is empirically supported by the data in presented.

As Table 1 illustrates, the tangible and intangible aspects of the internationalization process exist at five different levels. Standard definitions have tended to focus on the left side of the table, and in most case in the two upper cells. What the right side of the table offers is an incorporation of skills into the definition of what it means to be internationalized. Even if a firm does not sell in foreign markets or have facilities in foreign countries, it can still operate at an international level if it sells to
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customers in the domestic market which demand world-class standards, adopts world-
class technology, or implements modern management practices. Furthermore, the
sophistication of one's suppliers and the level of local competition can have a strong
impact on one's ability to operate at international standards.

By ignoring the right side of Table 1, it is possible to incorrectly determine the
degree to which a firm is internationalized. The Argentine industrial group Techint
provides a nice case in which one can see the distinction between these two forms of
internationalization. Prior to the market reforms adopted by the government in 1991,
Siderar (currently a division of Techint but then the state-owned steel company) exported
70% of its production. In 1994, by contrast, only 30% of the firm's sales came from
abroad. However, in that period, the firm revamped its management and drastically
reduced its cost structure, such that it is now comparable to those of firms in the US and
Europe. Therefore, while the firm is closer to world class standards today than 4 years
ago and much more sophisticated in its management, looking solely at tangible measures
of internationalization, one would conclude that the firm has become less international,
whereas if an intangible measure is applied, the picture is just the opposite.

Table 1 - Internationalization Framework

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<th>FORM OF INTERNATIONALIZATION</th>
<th>Tangible</th>
<th>Intangible</th>
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<tr>
<td><strong>Market</strong></td>
<td>Location of Sales</td>
<td>Sophistication of Demand</td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td>Location of Facilities</td>
<td>Sophistication of Technology</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>Location of Mgmt.</td>
<td>Adoption of Mgmt. Practices</td>
</tr>
<tr>
<td><strong>Procurement</strong></td>
<td>Location of Suppliers</td>
<td>Sophistication of Suppliers</td>
</tr>
<tr>
<td><strong>Competition</strong></td>
<td>Location of Competition</td>
<td>Level of Competition</td>
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1. Introduction

Through the empirical results presented in Chapter 6 and the case studies in Part II, it is shown that both sets of measures, tangible and intangible, are influenced by a number of strategic and structural variables. Those strategies which emphasize quality and specialization are particularly important in predicting intangible internationalization. Firm size is also very important for both forms of internationalization. More importantly, however, the empirical results tying the various forms of internationalization to firm performance provide strong support for the importance of focusing on intangible, knowledge-based measures of internationalization.

6.0 Methodology

Given the multiple levels of theory being addressed in the thesis, it is necessary to adopt a methodological approach which mirrors these multiple levels. Three basic approaches are utilized. The first entails the use of public documents and national statistics. They are used to conduct most of the analyses in Chapters 2 through 4. The history of market reforms from the 1980s until present are analyzed from these sources and implications drawn regarding their impact on market structure. In addition, national industrial statistics are utilized to assess the impact of these market structure changes on internationalization at the national, provincial, and industry levels, as well as to test the hypotheses flowing out of the trade model developed in Chapter 4.

The remaining parts of the dissertation, by contrast, have as their primary sources of data an original survey and in depth case studies. In undertaking the survey, the first decision to be made was to define the population of firms. It was decided that the sample would include all firms in the province of Mendoza with more than 10 employees in six key industries. While Buenos Aires is the largest of the provinces, the choice of Mendoza offers several advantages. The first benefit stems from the fact that the economic mix of
1. Introduction

Mendoza is more representative of the typical region in Latin America than is that of Buenos Aires. Furthermore, firm sizes in Mendoza are more characteristic, in the sense that the majority of the economy is comprised of small to medium sized firms.

The industries which were targeted include beverages (wines, juices, bottled water), agro-industry (fruit and vegetable processing and packaging), metal-machinery, wood and furniture, petrochemicals, and "minería." These industries were chosen for several reasons, the first being their dominance in the local GDP. Together they represent roughly one-third of the GDP of the province, with the remainder being comprised primarily of services and energy. In addition, these sectors are ones which produce tradable goods and as such have been most impacted by the market reforms of the past 8 years. They are also local industries which for the most part hold the potential for becoming internationalized to a significant degree. By having a broad base of industries, one is also able to capture the impact of comparative versus competitive advantages on internationalization capabilities. Those sectors based on natural resources (primarily beverages and agro-industry) benefit from the inherent comparative advantage of the region, while others such as metal-mechanics have had to develop firm-specific competitive advantages.

In the end, the final sample contained 163 firms, roughly half the population of firms in those industries in the province with more than 10 employees. The results from the survey are used to test the various firm adaptation models presented in Chapter 5 as well as to empirically investigate the internationalization framework presented in Chapter 6 which distinguishes between its tangible and intangible forms.

In addition to the survey, in-depth case studies of the former state-owned flat-steel producer SOMISA (currently Siderar) as well as of the seamless steel tube producer

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While "minería" is translated as mining, its definition is somewhat different in Argentina than in the US. In this case the sector is comprised primarily of cement and ceramic related industries.
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Siderca are presented in Part II of the dissertation, which reinforce the importance of distinguishing between these two form of internationalization. The cases accentuate the point that looking solely at the tangible aspects of the internationalization process can produce misleading classifications.

A breakdown of the data sources required at each stage of the analysis can be found in Table 2.

Table 2 - Data Sources by Stage of Analysis

<table>
<thead>
<tr>
<th>Stage of Analysis</th>
<th>Primary Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ in Market Structure</td>
<td>Official statistics; existing literature</td>
</tr>
<tr>
<td>Δ in Internationalization: National, Provincial, and Industry Levels</td>
<td>Official statistics</td>
</tr>
<tr>
<td>Δ in Internationalization: Firm Level</td>
<td>Survey</td>
</tr>
<tr>
<td>Geographic vs. Cognitive Internationalization</td>
<td>Survey; case study</td>
</tr>
</tbody>
</table>

6.1 Selection Criteria: Country

What follows is the selection criteria used in choosing Argentina as the country in which to conduct this research. The goal was to select a country in which radical commercial and macroeconomic policy changes resulted in the equivalent of an environmental shock to which firms needed to react. Certain factors needed to satisfy this condition include the following:

Closed Economy: The country chosen must have possessed, prior to reform, a closed economy model, which sheltered domestic firms from international competition. In addition, if possible, this environment should have been one which did not necessarily encourage competition amongst domestic firms.
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Extent of Market Reform: The country selected must have undertaken a comprehensive series of market reforms which radically altered the competitive environment in which firms find themselves. Included in these reforms must be efforts to open the economy to international competition, both in terms of imports and foreign direct investment.

Speed of Reform: The length of time needed to implement the above changes must be relatively short, for two reasons. The first relates to the desire to study the reaction of firms to radical changes in the competitive environment. The degree to which these market reforms are radical, though, is negatively related to the amount of time needed to adopt them, as the longer the duration, the less poignant is the effect. Secondly, The faster the adoption of these reforms, the less the potential for unrelated external factors to influence the results.

International Potential: The country chosen must exhibit the potential for international expansion. It must possess the natural or human resources which if used in the proper manner could be internationally competitive. As a correlate, the country should have firms which have had some, be it only minimal, international experience.

Information Availability: The country must possess relatively reliable and complete macro and industry level statistics needed to conduct certain of the market analyses planned.

6.1.1 Case Chosen: Argentina

The case of Argentina meets all of the above criteria needed to explore the effect of market liberalization on firm internationalization strategies. With regards to the first criteria, Argentina for the 50 years prior to 1989 possessed an economic policy of import substitution. By the end of this period it possessed an internationalization coefficient of just 5% versus 30+% at the turn of the century (de la Balze, 1995). Most facets of the economy were heavily regulated, from pricing to capital flows and market entry.
Domestic firms were protected by high tariff barriers and the regulation of foreign direct investment.

Following the election of Carlos Menem as president in 1989, the country began a process of market reform and liberalization. These reforms have encompassed virtually every aspect of the economy, including the privatization of state-owned firms, the reduction of tariff barriers, the elimination of government subsidies, the opening of the capital and stock markets to foreign firms, the deregulation of many industries, and the adoption of austere monetary and fiscal policies. As a result in just five years the internationalization coefficient almost doubled.

As to the speed of reforms, the liberalization process began in 1989 but really picked up speed in 1991 with the adoption of the Convertibility Plan. While there are still areas of the economy which are slated for further liberalization, the majority of the changes planned have been adopted since 1991.

Argentina also possesses the potential to reach a higher level of internationalization than it currently enjoys. It is a country rich in both natural and human resources. Furthermore, it has an economy which prior to the adoption of import substitution policies in the 1940s was one of the most open in the world. It also possessed (and still does) a number of early multinationals, including the first ever from a developing country in 1890 (de la Balze, 1995).

As for the last criterion, Argentina possesses one of the best statistical databases in Latin America, and ranks first in the area of the timeliness of data, with 1994 and in some cases preliminary 1995 data available. This is particularly important in this case since the phenomenon being analyzed is a recent occurrence.

While Argentina meets the above criteria rather well, it does possess a number of peculiarities which may conditionalize the extendibility of the results. The first of these is the fact that the economy is dominated by family-owned companies. The share of the
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economy held by publicly-traded companies is relative small compared to more
developed economies. However, this is also a characteristic of many, though not all,
emerging nations, and as such is not a serious limitation. More peculiar perhaps is that
Argentina is one of the few emerging countries to have once been a member of the club
of rich economies. In the beginning of the century it was on par with France and ranked
above Italy and Spain on a per capita basis. As such, it possesses a legacy which other
emerging nations do not which may prove to be beneficial in reintegrating into the world
economy. On the other hand, fifty years is a long time even for institutionalized aspects to
persevere. Even with these potential conditionalizing factors, Argentina is an appealing
case to study the issues proposed.

6.2 Selection Criteria: Case Study

As with the selection of the country, a similar process was used to determine
which firm to target for a case study.

Industry Impacted by Market Reforms: The firm chosen should be active in an industry
which is strongly impacted by the market reforms, and which as a result is exposed to
international competition to a degree much greater than before the reforms.

International Potential: The firm must possess the critical scale and resources needed to
compete internationally. Prior, be it limited, international experience should also be
required, as the potential for change is greatest amongst those firms which have had at
least some exposure to foreign markets. On the other hand, the firm should not be one
which prior to liberalization would be considered world-class.

Tangible vs. Intangible Internationalization: In addition, the case chosen should be one
which allows for the distinction between the tangible and intangible aspects of
internationalization to be made.
6.2.1 Case Chosen: Siderar (Techint Group)

The case chosen, that of Siderar, meets the above criteria and also possesses a number of other attributes which make it appealing. The company, now part of the Techint industrial group, was up until recently part of the state-owned steel complex, SOMISA. Following its privatization in the early 1990s the firm was forced to adapt to an environment in which it was no longer protected by trade barriers nor the pockets of the State. As such, it meets the first criteria.

Regarding the second criterion international potential, Siderar is qualified in two aspects. Prior to privatization, the company had years in which exports accounted for over 70% of sales (though not at a profit and as such not to be confused with a world-class firm). Following privatization it gained access to the resources and skills of one of the country's leading industrial groups to aid it in improving its international position, which also relates to the firm's ability to meet the third aspect of the above criteria. Siderar presents itself as an excellent case to distinguish between tangible and intangible forms of internationalization. As part of the state complex, the firm was by most standards highly internationalized from the point of sales, though not from the point of capabilities, as reflected in the repeated losses posted by the firm. By contrast, following its sale to Techint, the firm has reduced exports as a share of sales to around 20%, but reduced costs and improved the ability of the firm to "compete" internationally by orders of magnitude. As such, from a traditional definitional standpoint, the company appears less international today than five years ago, but from a capability and competitiveness standpoint the case is just the opposite.

Another advantage associated with the selection of Siderar is that within the same industrial group is the firm Siderca, the largest exporter of seamless steel tubes in the world. In contrast to Siderar, Siderca, when it benefited from protectionism, made most of its sales domestically. As such, its reaction to market changes was to internationalize
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both its sales and capabilities. By comparing the two firms, I will be able to better highlight how in one case these two forms of internationalization go hand in hand, and how in another case they need not. Lastly, access to managers at all levels of the company has been approved by the CEO of Siderar, something which practically speaking is a necessity.

7.0 Expected Contributions

There are several contributions which I believe are made by this dissertation. On a methodological note, it was shown how adopting multiple levels of analysis and applying theories applicable for each of them can paint a more complete picture than if one restricts oneself to simply one level. In this case, it is shown how industry-wide factors such as tariff reductions can have a significant impact on behavior as well firm specific variables be they structural or strategic. While much is stated about the need for broader-based research approaches, it is relatively rare that they are actually conducted. This is an approach which I believe has proven fruitful in this instance and one which I plan on continuing to use in the future.

Aside from highlighting the benefits of adopting multiple levels of analysis, the results of this research also contribute to the debate on the behavioral assumptions we hold about firm independence to act. Overall, the empirical analyses tend to support a more constructivist perspective, though there are hints of inertia being prevalent in certain instances, thus supporting the conclusions of Hrebiniak and Joyce (1985) of adaptation within constraint. An important lesson which is also arrived at from conducting this analysis is that of knowing the details of the context in which one is operating. In this case, the inertial pressures one might assume to be correlated with size are more than counterbalanced by the dramatic differential access to capital also associated with size. As such, the importance of contextual knowledge cannot be overstressed.
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The last part of the dissertation presents possibly the most controversial and yet most interesting implications for academia, which is whether or not our current operationalizations of internationalization are in fact flawed or at least incomplete. In an era in which the most valuable goods are not necessarily physical objects but rather information, knowledge, and skills, should not the field of international business adapt its basic measures to take account of this shift. Traditional or tangible measures of internationalization still serve a purpose but do not convey the entire picture unless complemented by what this dissertation has described as the intangible ones.
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REFERENCES


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1. Introduction

Hanson, Gordon (1994) "Regional Adjustment to Trade Liberalization," mimeo.


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CHAPTER 2
The Impact of Liberalization on Market Structure

1.0 Introduction

In order to be able to analyze the impact of the recent wave of economic reforms in Argentina on internationalization behavior, one must first have an understanding of the reforms themselves and how they have affected the market structure in which firms find themselves operating. As such, the objective of this chapter is to provide an analysis of the major economic reforms initiated by the Argentine government since 1989. In doing so, each reform will be assessed in terms of its impact on specific aspects of market structure. The reforms to be analyzed include those which are targeted directly at the domestic market as well as those which are aimed at affecting the way in which it interfaces with the global economy. The challenge posed here is to identify the specific aspects of industry structure which are impacted by these reforms.

As described in the Introduction, the discussion of the reforms revolves around how they affect two key aspects of market structure. The first focuses around the changes in the absolute levels of key traditional variables such as capital and labor costs. This
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approach to analyzing market structure is contrasted with what is labeled here as an "architectural" approach which focuses on the way in which the above traditional variables and economic actors are organized. In this context, the industrial architecture of a country can be thought of as the way in which the various input and output markets are organized and linked with each other. Such a definition encompasses the effects not only of formal institutions but also of informal practices of the environment in which the firm is embedded (Granovetter, 1985). The value of making such a distinction between the traditional and architectural aspects of market structure lies in the fact that one can have two systems with the same traditional aspects (e.g., in terms labor and capital supply, number of competitors, etc.) but which are characterized by different architectures, thus producing differing results for the two systems.

Each of these approaches focuses on different aspects of industry structure and as such points to different factors as being important in explaining behavioral reactions. Each of them, though, can be split into those factors which impact the input markets and those which impact the output markets. A related taxonomy to that being presented here was used by Edith Obschatko (1994) in which she divided factors affecting the competitiveness of industry into those which directly affect the price of the product (e.g., international prices) and those which indirectly affect it (e.g., organizational structure, market regulation).

In the pages which follow, a brief description of the evolution of the Argentine economy in the years prior to the reform process is given. This is followed by a detailed description of the three areas in which the recent wave of economic reforms have been focused: monetary policy, fiscal policy, and trade/ regulatory policy. Throughout the discussion the implications which each of the reforms has on the traditional and

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1 I borrow the term "architectural" from Henderson and Clark (1990) who uses it at the product level to describe how individual components are linked one to each other. Here I apply this concept to the industry and national levels of analysis.
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architectural aspects of market structure will be addressed. The chapter concludes with an
assessment of the overall impact of the reform process on country's market structure.

2.0 The Years Leading Up to Reform

Argentina is the case of a country which in the beginning of the twentieth century
ranked among the most economically advanced in the world. By 1913, it had one of the
highest standards of living in the world, equal to those of France and Germany, and almost
twice that of Spain when measured on a purchasing power basis. The prosperity of its
economy rested on the aegis of a liberal constitution adopted during the middle of the
nineteenth century. During this period and up until World War II, the country also
possessed one of the world's most open economies. This integration into the world
economy began with the growth in exports of agricultural products. Originally this trade
was based on wool and leather, but then was replaced by grains and meat. It enjoyed
privileged trading and eventually investment relationships with Europe, particularly Great
Britain. This surge in exports was accompanied by an as impressive growth in foreign
direct investment in the country, which was targeted both at developing the infrastructure
needed to continue exporting as well serving the domestic market with consumer goods.
During the period 1920-1939, average inward foreign direct investment stood at 3.7
percent of GDP (de la Balze, 1995). Among the first foreign investors were Nestle, J&I,
Dupont, GE, and Michelin. By 1929, the economy was growing at an average annual rate
of almost 7 percent, accounted for 3 percent of world exports (versus .3 percent in 1990),
and had a coefficient of openness of 33 percent (Imports+Exports/2 as a percentage of
GDP).

Argentina's downturn began with the military coup of 1930, which broke the
continuity of the democratic system which had been in place since the 1800's, and with it
strengthened the power of corporatist groups. State intervention into the economy increased
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as witnessed by a near doubling of public spending as a share of GDP from 11 percent in the period 1915-1919 to 21 percent twenty years later. It was with the election of Juan Perón as president in 1946 that the growth of the welfare and interventionist state was greatest. The government undertook nationalization efforts and became heavily involved in foreign and local trade, banking, and insurance. Not only was the country becoming more statist but also more closed. The coefficient of openness dropped to below 12 percent as a result of heightened tariff and non-tariff barriers. In addition, FDI from abroad dropped substantially in the same period, in part due to Britain's "imperial preference" policy following the war.

During the next 25 years, the economy slowly moved along, with annual per capita GDP growth averaging 1-2 percent. Investment levels on the surface appeared to remain high as did the growth of the industrial sector (growing at an annual rate of 4-6 percent). However, these figures disguise underlying structural problems which inhibited local industry from becoming competitive and benefiting from economies of scale and specialization. These problems included high relative costs, excessive product diversification, and small plants with strong dependence on imported intermediate inputs, capital goods, and technology. These factors, combined with heavy protectionism, low levels of competition, and high levels of economic concentration, resulted in low levels of investment productivity (de la Balze, 1995).

With the removal of the military regime in 1983 and the democratic election of Raul Alfonsín as president, the country began its path towards market reform and liberalization (Bethell, 1993). Among the issues, which needed to be dealt with were a state structure which employed nearly 20 percent of the economically active population of the country, a system of subsidies on which much of the private sector depended, hyper-inflation, an exploding foreign debt, an aged infrastructure, and a coefficient of openness of only 6 percent. Initial efforts based on the Austral Plan, however, (de la Balze, 1995) did not meet
with much success, due in part to a lack of confidence on the part of the government. In fact, during this period, the reforms initiated by the government actually served to increase the role of the government in the economy, not decrease it. During the period 1973 to 1990, there were thirteen years of exchange controls and sixteen years of general price controls. As de la Balze states (p. 53, 1995), "The government was an active and disorderly participant in industrial development through subsidized credits, guarantees to the private sector, fiscal deferments, and a broad array of other government support programs." The result was a worsening of the economic crisis and the labeling of the 1980s as the lost decade for Argentina, in which GDP growth per capita averaged -2.5 percent (de la Balze, p. 49) and Argentina's ranking among the world's richest nations fell to number 26. It was not until the election of Carlos Menem in 1989 that the idea of reforming the economy was effectively translated into practice.

3.0 1989-1995: Remaking the Argentine Economy

While a professed Peronist, once in office, Menem surprised virtually everyone by effectively abandoning the historic populist economic outlook of his party and adopting sweeping market liberalization policies. These reforms affected both domestic and international economic relations, and covered three broad areas: monetary policy, fiscal policy, and trade/regulatory policy. As will be shown, reforms in each of these areas have had substantial impacts on the ways in which firms operate in Argentina, affecting both the levels of certain key traditional variables as well as the ways in which they are organized.

3.1 Monetary Reform

Of all the reforms adopted by the government since 1989, the one which has received the most attention and has served as the foundation upon which the success of other reforms is dependent is the Convertibility Law adopted in April 1991. It represented a
major change in both the exchange rate and monetary regimes of the country. On the one hand, the Law, which fixed the currency to the dollar on a one-to-one basis and required that the Central Bank fully back the monetary base in the form of foreign assets, had the goal of re-instilling confidence in the currency which following a decade of hyperinflation had been severely weakened, as attested to by the growing dollarization of local transactions. In addition to bolstering the credibility of the Argentine currency, the Convertibility Law, played a second more critical role. It formally laid out the primary objective of the Central Bank as being to above all else preserve the value of the peso, and as secondary functions to regulate the amount of money in the economy, to control the banking system, to administer reserves, and to act as the financial agent of the government. This change in mission accompanied by the freeing of the Bank from the auspices of the Executive Branch (particularly the Ministry of Economy) and making it accountable only to Congress, reduced the ability of the Bank to be used by the government as the lender of last resort, thus forcing a "de-facto coordination between fiscal and monetary policies" (FIEL, 1995b).

It is precisely this constraint on the Treasury and implications for fiscal stability, that are at the core of the success of the Law. It is difficult to quantify the overall impact it has had on the economy, for in addition to the direct effect on inflation, it has also had the indirect, but perhaps more important effect of lending credibility to the reform process as a whole. As such, the success of subsequent reforms cannot be deemed independent of Convertibility Law. There are, however, certain aspects of the economy on which the impact of the Law was both direct and immediate. The most visible of these was the inflation rate. As can be seen in Chart 1 (log scaling), by the end of the 1980s inflation had spiraled to levels never before seen in Argentina, reaching a peak of 4924 percent in 1989. Following the change in monetary policy in 1991, however, inflation plummeted to an annual rate of 84 percent in 1991 and 17 percent in 1992, and has in recent years held
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steady at below 5 percent. As one can see from the evolution of quarterly inflation rates in 1991, the Convertibility Law which was adopted in the beginning of the second quarter of the year dramatically reduced the level of inflation and set the trend for the years to follow.


It is impossible to fully capture the effect of this drop in inflation on the various aspects of market structure which affect the firm. However, it is possible to highlight those aspects, both traditional and architectural, which were strongest impacted by the drop. On the traditional side, the most evident change was the dramatic increase in the money supply of the country, due in large part to the return of capital which had fled the country in the previous decade. By some estimates, the amount of investments held by Argentines outside the country during the 1980s exceeded $50 billion. The monetarization of the economy as
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measured by M3* (domestic and $ denominated) increased three fold from June 1991 to December 1994, from less than $14 billion to more than $55 billion (Ministerio de Economía y Obras y Servicios Publicos, 1995c). As a share of GDP, M3* increased from less than 7 percent to roughly 19 percent during the same period. Though still below levels for more developed economies, it represents a dramatic change from the previous state.

Chart 2 - Monetarization Coefficients (M3*/GDP)

![Chart 2](chart2.png)

Source: Ministerio de Economía y Obras y Servicios Publicos, 1995c.

This increase in money supply was accompanied by both an increase in lending by the domestic financial system as well as a reduction in interest rates. Loans to the private sector increased from $14.3 billion in June 1991 to just under $48 billion in December 1994 (Ministerio de Economía y Obras y Servicios Publicos, 1995c). This increase in lending was due in part to the direct effect of the reduction of inflation on the return of capital to the country and indirectly to the increased confidence in the financial system which it instilled and which allowed for the reduction of bank reserve requirements from 79
percent on checking deposits to 43 percent during the same period. This growth in capital in the economy is also reflected in the dramatic growth in the capitalization of the stock market which rose from $2.9 billion in 1989 to $43.9 billion in 1994 (Ministerio de Economía y Obras y Servicios Publicos, 1995a).

As such, from the point of view of the firm, one of the most immediate impacts of the drop in inflation was an increase in the amount of capital in the domestic financial system available for loans. However, while the absolute amount of capital in the system increased, there were also changes in the architecture of the financial markets which impacted firms differentially depending on their relative position in the economy. Whereas in the 1980s official banks dominated the financial scene, by 1994 that trend had been reversed. Whereas official banks held well over 50 percent of deposits in the 1980s, that share was down to below 40 percent by 1994 (Ministerio de Economía y Obras y Servicios Publicos, 1995b). Furthermore, the share of foreign bank lending also rose during the same period as a result of the lifting off all discriminatory restrictions on foreign banks operating in the country.

The way in which this change affected the architecture of the financial markets is through differences in the composition of borrowers between official (particularly provincial and municipal) and private banks. Whereas the former tend to provide capital to a wide range of firms including small and medium sized ones, the latter focus primarily on large domestic and foreign firms. As the CEO of one the country's top private banks, Banco Roberts, commented, they would only lend to smaller clients if they had ties to one of their core clients, either in the form of being a supplier or customer. Otherwise, the risk of firm failure is too high to justify widespread lending to smaller firms. The resulting impact which this change in the distribution of funds in the financial system has on the overall market structure is to reduce the relative access to funds for smaller and medium sized players in the market vis-a-vis the large grupos. Furthermore, the rates which the two
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pay are significantly different. With access to foreign as well as domestic capital markets, the large grupos can obtain loans at interest rates of 10-12 percent. By contrast, smaller firms which must rely solely on domestic markets can expect to pay on the order of 20+ percent.

This change in the financial markets has thus served to contribute to the increased concentration of economic activity in the hands of a smaller group of players, as smaller players are forced out of the market. Forthcoming changes in the financial system should only serve to strengthen this trend. As Table 1 shows, well over half of the shares of most provincial banks are slated for privatization.

Table 1 - Slated Privatization of Provincial Banks

<table>
<thead>
<tr>
<th>Province</th>
<th>Percentage of Privatization Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entre Ríos</td>
<td>60%</td>
</tr>
<tr>
<td>Formosa</td>
<td>60%</td>
</tr>
<tr>
<td>Jujuy</td>
<td>70%</td>
</tr>
<tr>
<td>Mendoza</td>
<td>Over 51%</td>
</tr>
<tr>
<td>Misiones</td>
<td>100%</td>
</tr>
<tr>
<td>Río Negro</td>
<td>57%</td>
</tr>
<tr>
<td>Salta</td>
<td>70%</td>
</tr>
<tr>
<td>San Juan</td>
<td>Over 51%</td>
</tr>
<tr>
<td>San Luis</td>
<td>Over 51%</td>
</tr>
<tr>
<td>Santiago del Estero</td>
<td>95%</td>
</tr>
<tr>
<td>Tucumán</td>
<td>60%</td>
</tr>
</tbody>
</table>

Source: Ministerio de Economía y Obras y Servicios Publicos, 1995c.

The reduction in inflation has also impacted the firm in other ways. For the previous decade, firms were forced to operate in an environment in which relative prices between capital and labor were constantly changing as a result of differential inflation rates. As such, even if firms were able to access funds during this period the decision of whether to invest them in labor or physical capital was unclear. As such, the result was that even
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firms which could access capital refrained from domestic investments. The inflationary environment of the 1980s forced firms to be short-sighted for fear of increased future instability. Following the stabilization of prices, however, firms were able to more accurately determine relative prices and as such make the investment decisions which had previously been elusive more lucid.

Increased stability in the macro-environment accompanied by a growing economy has resulted in substantial increases in investment levels. According to official statistics (Chart 3) private investment as a percentage of GDP has increased from levels of 10 percent to more than 18 percent.

Chart 3 - Private Investment as a Percentage of GDP

![Chart showing private investment as a percentage of GDP from 1989 to 1994.]


A survey of over 200 leading firms conducted every six months by the Fundación de Investigaciones Económicas Latinoamericanas (FIEL) reveals a similar trend. The percentage of firms initiating substantial investments has increased from 50 percent in 1991
2. The Impact of Liberalization on Market Structure

to over 90 percent by June 1995 (FIEL, 1993, 1995a). The importance of this increase in investment is probably understated by the numbers due to the fact that many of the investments undertaken prior to the opening of the economy were done so under distorted incentives, not necessarily adding to the efficient operation of firms.

In addition to reducing inflation, the pegging of the peso to the dollar has had a dramatic effect on relative prices, both within the country and with relation to foreign products. Together with the opening of markets to foreign competition, the pegging of the peso to the dollar contributed to the diverging of relative prices between traded and non-traded goods. In the nine months following the adoption of the Convertibility Law, the prices of goods exposed to foreign competition stayed essentially flat. By contrast those not subject to foreign competition, primarily services, increased by 35 percent (Rojo and Canosa, 1992). While the growth of the latter has slowed since, the majority of what inflation has existed since April 1991 can be attributed to the non-traded sector. Whereas the prices of goods increased by only 14 percent from 1990-1994, those of private services grew by 153 percent, more than doubling the relative price of the latter (Ministerio de Economía y Obras y Servicios Publicos, 1995a). In most cases this divergences in relative prices could be dealt with through the adoption of a crawling peg devaluation system. However, in order to preserve confidence in the financial system this was not an option in this case.

The Convertibility Law has also had an impact on the relationship between domestic and foreign prices. By pegging the peso to the dollar at what has been considered by many to be an overvalued exchange rate, Argentine goods lost competitiveness vis-a-vis foreign ones. This has had several effects on the economy, both internally and with regards to its relationship with the external market. Given the quality of its workforce, Argentina was a relatively cheap labor location prior to the Law. However, the rate at which the peso was pegged resulted in average monthly wages increasing from $171 in 1989 to nearly $700 by
mid-1994 (de la Balze, 1995). In addition, foreign goods suddenly became relatively less expensive. Combined with a reduction in tariffs and other non-tariff restrictions, this change in relative prices had a dramatic impact on the importation of goods. Imports increased from $4.2 billion in 1989 to over $21.5 billion in 1994 (Ministerio de Economía y Obras y Servicios Publicos, 1995c). While much of this growth in imports was comprised of products which would not have been purchased otherwise, a sizable portion consisted of substitutes for locally produced goods, particularly intermediate products.

3.2 Fiscal Reform

The second major block of reforms encompass the area of fiscal reorganization. Since 1991, the public sector has achieved close to budgetary equilibrium taking into account interest on the public sector debt. This was the result of both a reduction in expenditures as well as an increase in revenue, with the former occurring first. The catalyst for the reduction of expenditures was the Economic Emergency Law passed by Congress in the last trimester of 1989. It suspended virtually all subsidies to the private sector and reduced extraordinary government expenditures, including industrial promotion arrangements as well as regional and export subsidies. This law was the beginning of what would prove to be a dramatic reduction in the role of the government in the economic life of the country. This was accompanied in 1990 by a physical downsizing of the national government. Starting in the first trimester of 1990, government employment was frozen and substantial limits imposed upon government purchasing. Furthermore, the number of secretaries and subsecretaries was reduced. In the following trimester, a reorganization plan for the national government was adopted with the goals of reducing permanent employment by one-third and reconcentrating power (FIEL, 1995b).

By far the most ambitious change in the role of government, however, was embedded in the privatization of state-owned enterprises. These firms which employed
2. The Impact of Liberalization on Market Structure

350,000 of the government’s roughly 1,000,000 workers were key mechanisms by which the government regulated the national economy. Unfortunately, they were also in general highly inefficient. At certain periods, the state railroad and steel complexes were reported to be losing on the order of one million dollars per day each. These inefficiencies were due to a number of factors including the fixing of rates for public services, inefficient investment patterns, and lack of local or foreign competition. It is estimated that the accumulated demand for financing between 1965 and 1987 by state-owned enterprises was $52 billion, or 90 percent of the country’s foreign debt as of 1988 (de la Balze, 1995).

The financial pressures imposed by such losses lead to the passage of the Government Reform Law of 1989, which set up the guidelines for the privatization of the various components of the complex of state-owned enterprises. Prior to this, government owned enterprises accounted for 7 percent of GDP, 4 percent of employment, and 21 percent of gross investment. The first of the privatizations took place in 1990 and involved the sale of 60 percent of the telephone company and 85 percent of the national airline. Since then, privatizations have affected over 60 state-owned firms, totaling $26 billion worth of net assets, and including such icons as YPF, ENTel, Aerolíneas, and Gas del Estado. Virtually every sector in which the government had a presence has been affected. In addition to those mentioned above, privatizations affected the following sectors: production, transmission and distribution of electricity, distribution of water and sewage, ports, railways, construction and operation of roads, TV and radio stations, chemicals, steel, petrochemicals, and defense companies (FIEL, 1995b).

These privatizations have impacted the structure of the economy in a number of ways. In terms of the architecture of the economy, they have significantly shifted the mix of private versus public ownership, the result being a greater emphasis on efficiency and hard budget constraints. This process was furthered by a dramatic increase in foreign participation in the economy. More than half of the assets during the privatization
2. The Impact of Liberalization on Market Structure

process have been purchased by foreign firms, thus increasing the level of competitive pressures faced by domestic firms. At the same time, this increase in foreign direct investment has helped lift the standards of many sectors to closer to international levels, as in the case of telecommunications. This increase in foreign direct investment was encouraged by the passage of laws in 1990 which treated foreign investments in the same way as domestic investments, eliminated government approval for the former, and abolished the "Buy Argentine" policy of the government. The result has been rather dramatic, with inward foreign direct investment reaching $2.5 billion in 1994 (AmericaEconomia, 1994), challenging Mexico as the largest Latin American destination.

Another aspect of market structure which has been impacted by the privatization process is industrial concentration. Since the beginning of the reform process, the share of the economy held by the largest grupos and firms has increased substantially. While this is a process which has been fostered by a whole host of reforms, it is one which has been particularly aided by the privatizations. Of those shares not sold to foreigners, the majority were acquired by five of the country's grupos: Perez Companc/Banco Rio, 13.9 percent; Techint, 7 percent; Astra, 5.2 percent; Sideco, 2.6 percent, Comercial de la Plata, 2 percent (de la Balze, 1995). Overall, the largest 500 firms' share of GDP increased from 23.4 percent in 1990 to 30.4 in 1994 (Mercado, 1991, 1995). As such, while the privatizations did increase the exposure of the economy to foreign competition, it also has contributed to a potentially anti-competitive increase in concentration. On the other hand, it can be argued that the economy was operating previously at an artificially low level of industry concentration as a result of protectionism.

In addition to replenishing the coffers of the government and reducing the need for subsidies, these privatizations, it was hoped, would help raise the level of productivity of these enterprises and the economy in general. In addition to the incentives imposed by hard budget constraints, the sale agreements also included future investment commitments by the
2. The Impact of Liberalization on Market Structure

purchasers. From 1993-1996, the required amount of investment by privatized firms totaled $8.4 billion (Ministerio de Economía y Obras y Servicios Publicos, 1995a). As can be seen from the list of sectors covered by the privatizations, many of them included ones which relate to the basic infrastructure or architecture of the economy. Improvements in services such as electricity, telecommunications, and transportation cannot only reduce the costs associated with doing business, but can also allow for the development of services previously not viable. The impact of these sales and other improvements in the economy have been felt in the productivity figures. Overall, the level of labor productivity of the economy increased by an impressive 26 percent from 1991 to 1994 as a result not only of the improvements in efficiency of those privatized firms but also because of the trickle-down effect on the efficiency of the rest of economy (Ministerio de Economía y Obras y Servicios Publicos, 1995b).

Table 2 - Privatizations: 1990-1993

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprises Sold</td>
<td>6</td>
<td>2</td>
<td>25</td>
<td>31</td>
<td>64</td>
</tr>
<tr>
<td>Services Licensed</td>
<td>3</td>
<td>7</td>
<td>9</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Oil Concessions</td>
<td>37</td>
<td>22</td>
<td>27</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Oil Contracts</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Market Sale of Shares</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Revenues Received</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(US$ million)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>1288</td>
<td>2348</td>
<td>1970</td>
<td>4130</td>
<td>9736</td>
</tr>
<tr>
<td>Debt Instruments</td>
<td>4165</td>
<td>2440</td>
<td>3039</td>
<td>2205</td>
<td>11849</td>
</tr>
<tr>
<td>Liabilities Transferred</td>
<td>0</td>
<td>0</td>
<td>1576</td>
<td>0</td>
<td>1576</td>
</tr>
</tbody>
</table>


Though the program of privatization at the national level has been as encompassing as any in recent history, the same cannot be said of the provinces. Much resistance has
come to privatizing provincial entities for fear of the impact which it would have on regional employment, which has already been hit hard by privatizations at the national level. Whether or not the federal branch can get the provinces to follow suit has yet to be seen.

While the elimination of subsidy programs and the selling off of state enterprises has helped to control the expenses of the government, the other half of the reforms which have helped return the country to fiscal stability relates to the tax code. The previous structure had the dual problem of not only providing the wrong incentives to economic actors but also of not having the political power to collect all the taxes due. Today the system has moved to one which favors the use of a VAT, as opposed to previous taxes which restricted transactions, such as export duties, stamp taxes on stock transactions, and other highly distortive taxes. Today the basic tax structure is based upon a broadly based 18 percent VAT on goods and services as well as on a reinforcement of the existing corporate and personal income taxes. The result has been a 67 percent increase in tax revenues between 1991 and 1994 from $28.7 billion to $48.0 billion. As such, the reform of the tax structure has affected both traditional and architectural aspects of the economy. On the one hand, firms and individuals are finding themselves paying more in taxes overall, which might be viewed as a depressant to growth. However, at the same time, the way in which those taxes are organized has also been changed in such a way as to encourage increased transactions.

3.3 Trade and Regulatory Reform

In the realm of trade policy many changes have been undertaken to open up the economy to foreign markets. The most significant of these has been the signing of the Mercosur Agreement liberalizing trade among Argentina, Brazil, Uruguay and Paraguay, and now Chile as well. The origins of the agreement can be traced back to before the
2. The Impact of Liberalization on Market Structure

Menem presidency, to 1986 when Argentina and Brazil launched the Program of Economic Cooperation and Integration. This was followed by the signing of the Mercosur Common Market agreement in 1988 and the eventual addition of Paraguay and Uruguay in 1991 and most recently Chile in 1996.

In addition to the Mercosur Agreement, there has also been a general trend towards reduced protectionism in recent years. De la Balze (1995) identifies three phases in the evolution of recent trade reform. The first began in 1988 and involved a reduction in the number tariff items subject to prohibitions or quantitative restrictions from 4000 to 3000. The average tariff rate was also reduced from 51 percent to 36 percent. The second phase which lasted from 1989 to February 1991 focused on the reduction of tariff rates, which fell to an average of 26 percent in 1989 and 17 percent by the end of 1990. The third phase which began in 1991 and lasts until today has focused on the establishment of a graded tariff schedule with 5 percent tariffs on raw materials, 11 percent on intermediate products, and 22 percent on finished manufactured goods.

Table 3 - Argentine Trade Reform: Tariff Rates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Tariff</td>
<td>22.3%</td>
<td>17.3%</td>
<td>9.3%</td>
<td>10.2%</td>
<td>9.1%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Dispersion²</td>
<td>12.9</td>
<td>5.4</td>
<td>8.9</td>
<td>5.1</td>
<td>5.7</td>
<td>7.2</td>
</tr>
<tr>
<td>Maximum Tariff</td>
<td>40.0%</td>
<td>24.0%</td>
<td>35.0%</td>
<td>20.0%</td>
<td>20.0%</td>
<td>32.0%</td>
</tr>
<tr>
<td>Most Frequent Tariff</td>
<td>37.0%</td>
<td>24.0%</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>10%</td>
</tr>
<tr>
<td>Average Statistic Tax³</td>
<td>na</td>
<td>3.0%</td>
<td>3.0%</td>
<td>10%</td>
<td>7.2%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

Source: FIEL, 1995b.

² Dispersion is defined as the standard deviation of tariff rates.
³ The statistic tax is an additional tax beyond the tariff which was originally imposed to reduce imports from Brazil but which as part of the Mercosur agreement is scheduled for elimination.
2. The Impact of Liberalization on Market Structure

These results are summarized in Table 3, which traces the progression of the average and most frequent tariffs since 1989. While they have been reduced substantially, it can also be seen, though, that it has not always been a linear evolution, particularly with regards to the growth and eventual reduction of the statistic tax. As such, while the economy is much more open today than in the late 1980s, signs of hesitation in tariff policy may have discouraged even further investment in the economy. Overall, however, the country has made major steps towards reintegration into the global economy.

This reduction in tariffs along with the rate at which the peso was pegged to the dollar has resulted in a dramatic increase in Argentine imports. The increase in imports has had two effects on the market structure of the economy. The most immediate effect has been to increase the competitive pressures in those industries in which imports compete. As was mentioned earlier, the prices of traded goods only marginally increased from 1990-1994. Firms are now facing greater pressures to improve their efficiency in order to survive. The exchange rate adopted has made the cost structures of many domestic firms untenable in the face of relatively cheap imports, particularly with regards to labor inputs. Ironically, it is also this increase in imports which has allowed many of those firms which have improved to do so. For, among those imports which have seen the greatest increases in this period is the capital goods sector⁴, whose imports increased from under $1.4 billion (34 percent of total) to over $9.4 billion (44 percent of total) in five years.

This growth in capital goods imports contributed in part to the growth in investment levels discussed earlier. Along with increased competitive pressures, higher levels of investment have aided Argentine industry in becoming more efficient. Increased investment in capital goods along with firm reorganizations have resulted in reduced labor requirements and as such higher levels of labor productivity. It has also increased the country's access to leading technologies embodied in the capital goods imports.

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⁴ Includes both capital goods and spare parts for capital goods.
Aside from reductions in import tariffs, the government has also eliminated the use of export-distorting mechanisms. These include the use of export subsidies as well as export taxes. In addition to the drop in these traditional variables, the architecture of exporting (as well as importing) has been simplified with the streamlining of registration and licensing requirements.

Aside from trade liberalization, there has been a widespread deregulatory effort targeted at many of the internal markets in the country, including energy, communications, and transportation. The first acts of deregulation came in 1989 with the liberation of certain prices and markets (Obschatko, 1994). This was followed by the abolition of wage and interest rate as well as exchange rate controls. November 1991 then saw the passage of the most sweeping deregulatory package to date, which covered internal markets for goods and
2. The Impact of Liberalization on Market Structure

services, external commerce, regulations covering regional product markets and capital intensive industries, and the capital markets (Obschatko, 1994). Many of these reforms were key in affecting the way in which firms operated.

Most of the regulations and bodies governing the sale of agricultural products were eliminated. These included the monopoly organizations covering the sale of grains, meat, fish, sugar, milk, and yerba mate. Taxes levied to finance these organizations were also abolished and their assets sold off. Commodity markets were not the only ones affected by this process. Regulations restricting retail trade, including restrictions on new businesses and hours of operation, were also eliminated by these reforms. Professional markets were also opened by easing the procedures for market entry and certification. In addition, capital markets saw the elimination of fixed margins for brokers, simplified measures for financial activities, and the elimination of taxes on the switching of titles (de la Balze, 1995)

An area of deregulation which has aided the internationalization process in particular relates to the transport sector. With the privatization of many of the road systems and the opening up of markets to competition, land transportation costs have dropped substantially. The cost of shipping products from Mendoza to São Paulo, for instance, fell by 30 percent from October 1990 to January 1994. Furthermore, ocean freight prices have also fallen dramatically, in part as a result of a depressed international shipping market, but also as a result of the deregulation of the port system. Taxes were reduced, ports privatized, and competition opened. The result has been reductions in ocean freight charges of over 50 percent in many instances according to the Comité de Conferencias de Fletes.
2. The Impact of Liberalization on Market Structure

Table 4 - Select Ocean Freight Cost Reductions: 1993-1995

<table>
<thead>
<tr>
<th>Freight Cost Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentine exports to Asian Far East ($/container)</td>
</tr>
<tr>
<td>Leather</td>
</tr>
<tr>
<td>Honey</td>
</tr>
<tr>
<td>Tobacco</td>
</tr>
<tr>
<td>Granite</td>
</tr>
<tr>
<td>Argentine exports to the U.S. ($/container)</td>
</tr>
<tr>
<td>Leather</td>
</tr>
<tr>
<td>Honey</td>
</tr>
<tr>
<td>Frozen fish</td>
</tr>
<tr>
<td>Frozen beef</td>
</tr>
<tr>
<td>Argentine exports to Europe (DM/container)</td>
</tr>
<tr>
<td>Leather</td>
</tr>
<tr>
<td>Honey</td>
</tr>
<tr>
<td>Tobacco</td>
</tr>
<tr>
<td>Tea</td>
</tr>
<tr>
<td>Autoparts</td>
</tr>
</tbody>
</table>


There is a key area, though, in which the official reforms have lagged behind the unofficial changes in the economy, which is the area of labor policies. As result of years of populist policies, Argentina developed a very rigid and expensive labor structure. Whereas social charges in countries such as the United States and Spain account for roughly 30 percent of gross wages, the corresponding figure in Argentina is on the order of 50 percent. In addition, until recently it was very difficult to reduce employment both as a result of legislation and the power of the trade unions. The dramatic weakening of the latter since the beginning of the reform process, though, has allowed for renegotiations of labor contracts which have allowed for downsizing in many instances, often to a degree greater than would be expected in a system in which the social charges are not as high. Given that an employer must pay an additional 50 percent of wages to the government, when given the opportunity many have cut the size of their permanent employment. In some cases this has been to eliminate "slack" or fat in the organization. In other cases, however, it has been to
2. The Impact of Liberalization on Market Structure

outsource services previously undertaken inside the firm so as to avoid directly paying the social charges. The weakening of the labor unions compounded with a failure to reform the labor laws has resulted in the growth of new ways of conducting business which revolve around subcontracting.

Many of the large firms have downsized their formal organizations by providing incentives to employees to establish their own businesses which would then supply the lead firm. In many instances these start-ups are given contract guarantees for a period of time or possibly seed capital. This way of conducting business, however, presents firms, both lead and supplier, with a number of challenges, amongst them that of developing the skills needed for effective inter-firm cooperation, something for which Argentine firms are traditionally not well known for. It also entails greater intra-firm specialization. Whereas most firms historically ranked rather high in terms of vertical integration, what appears to be happening is a movement towards more of a networked model. While this model does present smaller firms with an opportunity to survive as suppliers of larger industrial complexes, it poses a number of organizational challenges to which these firms have not been previously exposed.

4.0 Conclusions

As can be seen from the previous discussion, the market reform process which has taken place in Argentina since 1989 has been both dramatic and encompassing. Virtually all aspects of the economy have been impacted in one way or another. Throughout the discussion it was shown how these policy changes have not only affected the absolute levels of key traditional variables but also how they are organized and interact with the rest of the economy, thus altering the industrial architecture in which firms find themselves competing. In what follows the effects will be summarized using the framework introduced in the beginning of the chapter. In addition to distinguishing between those aspects which
are traditional versus architectural in nature, a distinction will also be made between those which pertain to input markets and those which relate to output markets. A summary of these variables is presented in Figure 1.

The first of these four quadrants focuses on the level of key traditional variables which affect the inputs a firm uses. Among those factors which have been impacted the most are the supply and cost of capital, technology, raw inputs, services, and labor. As was mentioned, the economy as a whole has seen an increase in the amount of capital available for lending. This has been accompanied by a reduction in average interest rates, in part due to more capital availability and improved country risk ratings. This has encouraged increased investment levels, particularly in capital goods and equipment. This trend, along with a reduction of tariff and non-tariff barriers, has improved the availability and affordability of importing leading technologies. Increased foreign direct investment has also played an important role in the upgrading of the technological standards of industry in the country.

The reduction of trade barriers, increased competition, and the overall improved efficiency of the economy have also helped to reduce the costs of many raw material inputs into the production process. The services used in by industry have also been greatly improved in terms of quality as well as cost. The privatization of many of the country's state-owned utilities and services has been central in improving the efficiency of basic infrastructure sectors such as telecommunication, electricity, energy, and transportation.

There are two areas, though, in which the reform process has actually resulted in an increase in costs: taxes and labor costs. As part of the fiscal objectives of the national government, tax revenues have increased substantially as a result of improved enforcement and simplified procedures. As such, the overall tax burden of those firms which are profitable has increased at a rate faster than their sales growth, though as will be discussed later reform of the tax system has also had efficiency benefits for industry. Even though the
2. The Impact of Liberalization on Market Structure

availability of labor is greater than before the reforms as a result of layoffs and higher workforce participation rates, the cost of that labor is relatively more expensive today as a result of the rate at which the peso is pegged to the dollar. In addition, serious reform of the social charges assigned to labor has yet to be enacted and as such keeps labor relatively expensive compared to the cost of other inputs.

As can be seen, virtually all of the key input markets have been affected by the reform process both in terms of supply and costs. The same can be said for key variables in the output markets or competitive arena. Two key factors have contributed to increasing the level of competition which local producers face. On the one hand, lowered trade barriers have not only controlled or lowered the prices of imported inputs but also those of final products against which Argentine producers must compete. On the other hand, foreign direct investment by leading multinationals has increased the pool of players operating in the local market. These two factors have combined to increase the availability of direct and indirect substitutes available to end users.

The increase in competitive pressures posed by foreign players has been offset to a small degree by an ongoing process of increased industry concentration. Those firms which have been most affected by the increased competition from abroad are small and medium-sized enterprises which do not have the access to resources or lack the scale necessary to compete in the new environment. Failure to meet new efficiency and quality standards have force many of these firms to close down, resulting in a heightened level of local industry concentration.

While the reform process has had a significant impact upon the level of many key traditional aspects of market structure, it has also had a major effect upon the way in which those variables are organized, or in other words the local industrial architecture. Again, these aspects can be divided into those which relate to the inputs or internal workings of the firm and those which relate to output markets. The former includes aspects such as the
organization of financial and labor markets, as well as the management/organizing principles of firms.

As was previously mentioned, the amount of capital available in the economy has increased several fold. However, the organization of the capital markets has changed so as to favor larger firms even more than before. This is true in both the banking sector and stock market, where smaller players have found few if any benefits from the growth in overall resources.

The opening of the economy has also resulted in the introduction of new management practices and standards. This has partly occurred through the entry of new foreign firms into the market, bringing with them their practices. It has also occurred more directly, though, through a growth in interest in management education (both locally and abroad) as well as increased use of foreign management consulting firms. McKinsey and Company for instance opened an office in Buenos Aires in 1990 and has seen rapid growth in business. Among the leading clients of these firms is the Argentine government. Many of the privatizations were coordinated by such leading consulting firms. International standards such as ISO9000 are also in the process of being adopted by local firms. Whereas these ratings were irrelevant in a closed economy, with more and more of local production going abroad, such internationally recognized standards are essential.

The management and organizing principles of firms have also been affected by changes in the labor markets. With the gradual freeing up of restrictions on employment reductions, many of the large firms find themselves increasing their levels of outsourcing to avoid paying the high cost of social charges associated with permanent employment. This has caused many firms to develop new ways of conducting business which focus on inter-firm cooperation and coordination.

The rules of the game by which business operate in the output markets have also changed as result of the reforms. The simplification of procedures, dissolving of
monopolies, and elimination of restrictions have allowed for a growth in transactions which was not possible under the previous system. In addition, they have spawned greater head to head competition and increased the importance of variables which were previously overshadowed. As many have said, the problem with Argentine business is not so much in manufacturing, as it is in selling what it produces. In an economy in which supply was limited, producers were not forced to develop their sales and marketing arms. As such, one of the greatest impacts which deregulation and the reform process as a whole has had on business in Argentina is in elevating the importance not only of being able to produce efficiently but also being able to effectively sell what one produces. The balance of power between the consumer and producer has changed through the increase in direct and indirect substitutes available to the consumer and as such if local industry is to prosper it must adapt to this new reality.

On the other hand, there have been a number of regulatory reforms which have strengthened the position of industry. Many of the regulations which were in place before the reforms served to restrict a firm's market potential. By no longer being bound by hour of operation restrictions or wholesale monopolies, firms have the potential to increase their volume of transactions. This is true both in the domestic as well as export markets. Domestically, distortive taxes used to support the regulatory establishment have since been eliminated or reduced. In international markets, there has not only been a reduction of export taxes but also a simplification of export procedures, thus encouraging heightened volumes at lower costs.
2. The Impact of Liberalization on Market Structure

Figure 1 - Traditional versus Architectural Aspects of Market Structure

**Market**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Traditional</td>
<td>Structural Aspect</td>
</tr>
<tr>
<td>- Labor supply/ cost</td>
<td>- Industry concentration</td>
</tr>
<tr>
<td>- Capital supply/ cost</td>
<td>- Substitute availability</td>
</tr>
<tr>
<td>- Raw input supply/ cost</td>
<td>- Trade barrier levels</td>
</tr>
<tr>
<td>- Technology supply</td>
<td></td>
</tr>
<tr>
<td>- Services cost</td>
<td></td>
</tr>
<tr>
<td>- Tax burden</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Architectural</td>
<td></td>
</tr>
<tr>
<td>- Organization of capital</td>
<td>- Producer-consumer relations</td>
</tr>
<tr>
<td>- Organization of labor</td>
<td>- Selling regulations</td>
</tr>
<tr>
<td>- Management practices</td>
<td>- Government procurement policy</td>
</tr>
<tr>
<td>- Organizational forms</td>
<td>- Exporting procedures</td>
</tr>
<tr>
<td>- Buyer-supplier relations</td>
<td>- Tax structure</td>
</tr>
<tr>
<td></td>
<td>- Nature of competition</td>
</tr>
</tbody>
</table>

As can been seen from the above discussion, the reform process undertaken by the Argentine government since 1989 has had a significant impact on a variety of aspects of the local market structure. It was also shown how just as important as their impact on the levels of critical traditional variables is their effect on the architecture of doing business in Argentina. The impact of these changes in the economy has begun to be felt. From 1990 to 1994 the economy grew by over 30 percent (third in world growth rankings behind China and Thailand) (Economist, 1994). Inefficient firms which were protected in the prior regime are being forced to either improve their capabilities or exit the market.

Having described the details of what is be called in this dissertation an environmental shock, the chapters which follow explore in depth how industries and then firms have reacted to these changes.
REFERENCES


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CHAPTER 3
Internationalization at the National, Provincial, and Industry Levels

1.0 Introduction

As was argued in the previous chapter, the economic reforms which the Argentine government has adopted since 1989 have impacted a whole host of structural factors. Among those aspects of the economy which have been most affected by the direct and indirect effects of these reforms is the degree of internationalization which the economy exhibits. Central to the policies of the reformers has been the increased integration of the country into the international economy. Topics surrounding this issue are the focus of the remaining chapters of this dissertation. In subsequent chapters the impact of these market reforms on internationalization will be explored at the level of the firm, drawing on firm-level theories of adaptation. By contrast, the objective of this chapter is to set the stage for this subsequent analysis by identifying trends in international trade at the national, provincial, and industry levels.

This chapter provides a descriptive analysis of the recent changes in the level of internationalization of the economy as a whole and of one province in specific, Mendoza.
3. Internationalization at the National, Provincial, and Industry Levels

The reason for presenting both national and provincial level data is two-fold. On the one hand, there are certain data which were accessible only at the provincial level and others only at the national level. More important, however, is the fact that the two subsequent chapters which focus on internationalization at the level of the firm are based on a sample of firms from the province of Mendoza, and as such for contextual and comparison purposes an analysis of the specific province is warranted.

2.0 Export Growth

The structural reforms discussed in the previous chapter have had a significant impact upon the level of internationalization of the Argentine economy. While still far below the level reached 60 years ago, the coefficient of openness of the economy has increased to over 10 percent from a low of 5 percent in early 1989. During the 1989-1995 period, Argentine exports increased 119 percent to reach levels of $21.0 billion. More dramatically, imports increased from $4.2 billion in 1989 to $20.1 in 1995 (or +379 percent), due in large part to the release of pet up demand with the dropping of tariff barriers and the growth of the domestic economy.

This growth in interaction with the international economy is a phenomenon which has impacted virtually all parts of the country. Of the 23 provinces in the country all but 2 saw their exports grow since 1988-89. The province of Mendoza, containing roughly 4 percent of the nation's population and representing a similar percentage of its GDP (Crecer, 1992), actively participated in this growth in internationalization. It saw its exports increase from $152 million in 1988 to $706 million in 1995 (Ministry of Economy, 1996). This growth of 365 percent, however, has been somewhat erratic, with exports rising rapidly until 1990, before falling for two years, and eventually recovering in 1993. This drop in exports can be explained in part by the coinciding upturn of the domestic economy in 1991 and the ensuing increase in domestic demand.
3. Internationalization at the National, Provincial, and Industry Levels

Chart 1 - Argentine Foreign Trade, 1980-1995

Source: Ministry of Economy.

In relation to the rest of the country, Mendoza improved its export ranking among the provinces between 1989 and 1994 from 7th to 5th place. However, in terms of export intensity, Mendoza still lags the average, by 9 percent when measured on a straight provincial average basis, and by 28 percent when weighted by GDP.
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Chart 2 - Mendoza Exports: 1988-1995

Source: Ministry of Exterior Commerce, Mendoza.

3.0 Composition of Exports: Level of Value Added

Much research has pointed to the level of value added of a country’s exports as a sign of the degree of economic development. Countries which are dependent upon the export of raw materials and commodities not only miss out on the potential to capture value-added rents, but also are subject to the higher degree of volatility of the commodity markets. In the case of Argentina and Mendoza in specific, this is an issue of central concern, given the high degree of dependence on relatively low value-added exports (primary products and energy, rather than higher value added agro-manufactured and industrial goods), a trend which appears to have been strengthened not weakened in recent years.
3. *Internationalization at the National, Provincial, and Industry Levels*

While there has been an overall growth in Mendoza exports, it has not been a uniform growth. This is a trend which while applicable to Argentina as a whole, is more pronounced in the case of Mendoza. As can be seen from Table 2, the nation as a whole has seen a shift away from higher value-added agro-manufactured and industrial products to primary products and energy exports. Whereas in 1989 the latter group of products accounted for roughly 25 percent of exports, by 1994 they had grown to account for 34 percent. Even within individual categories, there appears to be a trend towards lower value-added. In energy exports, for instance, which are dominated by YPF, the formerly state-owned oil company, there has been a shift from refined products to crude oil exports and natural gas. Whereas the latter represented 26 percent of exports in 1992, by 1994 that share had grown to over 61 percent (YPF Memoria, 1995).

Table 2 - Level of Value Added of Exports

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ARGENTINA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Value-Added</td>
<td>24.9%</td>
<td>33.9%</td>
</tr>
<tr>
<td>Primary Products</td>
<td>21.8%</td>
<td>23.6%</td>
</tr>
<tr>
<td>Energy</td>
<td>3.1%</td>
<td>10.3%</td>
</tr>
<tr>
<td>High Value-Added</td>
<td>75.1%</td>
<td>66.1%</td>
</tr>
<tr>
<td>Agro-manufactured Products</td>
<td>41.8%</td>
<td>36.7%</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>33.3%</td>
<td>29.4%</td>
</tr>
<tr>
<td><strong>MENDOZA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Value-Added</td>
<td>36.7%</td>
<td>51.5%</td>
</tr>
<tr>
<td>Primary Products</td>
<td>15.0%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Energy</td>
<td>21.7%</td>
<td>28.8%</td>
</tr>
<tr>
<td>High Value-Added</td>
<td>63.2%</td>
<td>48.5%</td>
</tr>
<tr>
<td>Agro-manufactured Products</td>
<td>43.7%</td>
<td>22.2%</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>19.5%</td>
<td>26.3%</td>
</tr>
</tbody>
</table>

Source: Ministry of Economy.
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In the case of Mendoza, the overall change has been more dramatic, but at the same time tempered by the growth of industrial exports. The province has always been, as with much of the country outside of Buenos Aires, an exporter of relatively low value-added products. However, in recent years, this trend has been strengthened even more. Whereas the relative share of low value-added exports has increased by 9 percentage points in the country as whole, they have experienced a growth of nearly 15 percentage points in Mendoza and now account for over half of the province’s exports.

Unlike the country as a whole, however, the province has witnessed a substantial growth in industrial exports, increasing from 19.5 percent of exports in 1989 to 26.3 percent in 1994. While this is encouraging news, if one looks below the figures, one realizes that there is another phenomena occurring. Much of this growth in industrial exports can be attributed to the export growth of one or two large firms in the metal-mechanic sectors, primarily IMPSA, and not necessarily as a result of increased exports by the entire Mendozan industrial sector. On the other hand, the production practices of these leading firms has been moving towards increased subcontracting. As such, while these smaller suppliers may not export on their own, they do participate in the internationalization process indirectly through supplying intermediary components to exporting firms. As such, while final goods exports may be concentrating, it does not necessarily mean that fewer firms are reaching international standards. In fact, this situation may prove to be a better internationalization model than one in which all actors try to export, as it allows for greater product specialization.

While industrial exports have grown, the other group of higher value-added products, agro-manufactured products, have witnessed not only a relative but also an absolute decline in exports. From a high of $135 million in 1990, agro-manufactured exports declined to barely $100 in 1994, with most of the decline coming from reduced processed fruit and vegetable exports. By contrast exports of unprocessed fruits and
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Vegetables have increased by a similar dollar amount, implying that the agro-industrial sector in specific has reacted to the market changes of the last five years by moving to lower value-added products, implying potential weaknesses in the international competitiveness of the sector. Even within the agro-manufactured exports there appears to be a move towards lower value added, as witnessed by the growth of table wines over fine wines.

The reason why this trend should be of concern to policy makers has to do with its tie to long-term economic growth. Cross-sectional research, including that of Jeffrey Sachs and Andrew Warner (1995) have shown there to be a negative relationship between natural resource exports and long-term GDP growth. Even when measured in the relatively short-term, the effects can be substantial. Among the most famous cases is that of Holland. In what has come to be known as the Dutch disease (Krugman, 1987), the discovery of untapped natural resources (in this case petroleum) resulted in the de-industrialization of the Dutch economy, as resources which would have otherwise been invested in industrial activities moved into natural resource exploitation.

The overall negative impact on the economy can be attributed to the fact that natural resource investments rarely lead to what are considered long-term competitive advantages (Porter, 1990), as the latter are rooted in the development of knowledge and human resources. Natural resources are products to which little value is normally added and which compete on commodity markets, markets which tend to be volatile and in which individual actors can have very little impact. While these investments may be attractive in extracting short-term economic rents, their negative impact is rooted in the long-term opportunity costs which they imply. For, lost investment in higher value creating activities today will have an impact of exponential proportions on future competitiveness.

The opening of the Argentine economy is in some ways comparable to the discovery of petroleum in Holland, as the incentive to fully exploit the country’s natural
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resources, which was previously muted due to the lack of markets, was suddenly increased. The challenge posed goes contrary to traditional economic theories of comparative advantage which would encourage the use of such resources. These theories, however, have been shown to have had little effectiveness in predicting the development of many of the success stories of the second half of the twentieth century, particularly the Tigers of East Asia. While one need not ignore the advantages which Argentina possesses in the area of natural resources, the key is to make use of them in a manner which also utilizes the country’s advantage in skilled labor to increase their value-added content.

4.0 Changes in GDP Composition and Export Intensities

The changes in export composition discussed above have taken place in the context of (and in some ways more dramatic) shifts in the composition of Mendozan GDP. Since the mid- to late-1980s, the Mendozan economy has witnessed a considerable shift away from industry and mining and towards what are generally classified as service industries (commerce, transportation, financial services, and social services). Together they have increased from roughly 40 percent of GDP in 1986 to nearly 57 percent in 1993. While agriculture has maintained its share of roughly 5.5 percent, industry and mining have seen not only their share (from 46 to 29 percent) but also their absolute levels decrease.

During the 1989-1993 period, the economy of Mendoza grew by 17 percent in real terms. By contrast, the industrial and mining sector shrunk by 25 percent and agriculture by 15 percent. Even though the economy has seen a dramatic shift away from tradable goods, as was mentioned earlier exports have increased substantially, implying that the export intensity of the tradable sector has increased even more than would be apparent. As Table 3 shows, the export intensity of the agricultural sector has increased by a factor of 1.61 since 1989. More revealing is the increase of industrial export intensity, whose level in 1993 was 3.21 times that in 1989. Despite this relative growth in the export intensity of
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the industrial and mining sector, it still lags far behind that of the agricultural sector which in 1993 had an export share of production more than 9 times higher than that in the industrial sector (down from more than 15 times in 1989).

Chart 3 - Mendoza GDP: 1986 and 1993

Source: Government of Mendoza.

Table 3 - Mendoza Indexed Export Intensities

<table>
<thead>
<tr>
<th></th>
<th>PRODUCTION (A)</th>
<th>EXPORTS (B)</th>
<th>EXPORT INTENSITY (B/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>1.0</td>
<td>0.75</td>
<td>1.0</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1.0</td>
<td>0.85</td>
<td>1.0</td>
</tr>
<tr>
<td>Agriculture/Industry</td>
<td>0.164</td>
<td>.185</td>
<td>2.52</td>
</tr>
</tbody>
</table>

Source: Ministry of Exterior Commerce, Mendoza.
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The implications which follow from this analysis support the conclusions arrived at earlier, that the Mendoza economy while in the process of changing is still disproportionately dependent on the agricultural sector, and one which is moving towards lower value-added products, for its export performance.

5.0 Exports by Product Category

An analysis of Mendozian exports by product reveals a greater inter-temporal consistency than is apparent when one examines only the split between industry agriculture. If one excludes energy, the leading five or six exports have been relatively consistent in their ranking over the last four years. From 1991 through 1994 the leading export of the province was fresh garlic, followed by canned olives and dried plums. The variability which was mentioned earlier appears to come in large part from non-core exports of the province which have either made temporary inroads such as crane parts in 1993, or others which have lost importance such as mosto.

Table 4 - Top 10 Exports from Mendoza ($ million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Garlic</td>
<td>54.1</td>
<td>36.3</td>
<td>48.0</td>
<td>48.0</td>
</tr>
<tr>
<td>Canned Olives</td>
<td>21.7</td>
<td>15.1</td>
<td>22.7</td>
<td>26.5</td>
</tr>
<tr>
<td>Dried Plums</td>
<td>9.4</td>
<td>6.6</td>
<td>9.2</td>
<td>15.0</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>9.2</td>
<td>6.9</td>
<td>9.8</td>
<td>10.2</td>
</tr>
<tr>
<td>Leather</td>
<td>8.9</td>
<td>6.8</td>
<td>8.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Bulk Fine Wine</td>
<td>7.6</td>
<td>7.5</td>
<td>8.7</td>
<td>8.6</td>
</tr>
<tr>
<td>Valves</td>
<td>0.0</td>
<td>0.7</td>
<td>0.4</td>
<td>8.0</td>
</tr>
<tr>
<td>Bulk Table Wine</td>
<td>0.9</td>
<td>1.1</td>
<td>3.1</td>
<td>6.1</td>
</tr>
<tr>
<td>Crane Parts</td>
<td>1.8</td>
<td>0.2</td>
<td>19.9</td>
<td>5.7</td>
</tr>
<tr>
<td>Ethyl Alcohol</td>
<td>3.5</td>
<td>2.5</td>
<td>4.9</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: Ministry of Exterior Commerce, Mendoza
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Another notable observation is that though the province is the heart of the Argentine wine industry, exports of all forms of wine totaled less than $20 million in 1994. Furthermore, the majority of the modest growth during this period came in the form of increased low-quality table wine exports to countries such as Paraguay, as opposed to finer wines whose main export markets are the United States and Japan.

6.0 Country of Destination of Exports

Along with the change in the composition of exports over the past five years has been a rather dramatic change in the destination of those exports, largely in part to the growth in importance of Mercosur. Whereas in 1989, Mercosur accounted for 15 percent of Argentina’s exports, by 1994 that figure had doubled to 30 percent. In the case of Mendoza, the province is even more dependent upon the trading bloc, with 45 percent of exports heading for other Mercosur nations, with Brazil accounting for the vast majority. While this growth in trade with its neighbors was part of the intent for establishing the bloc in the first place, it also holds potential drawbacks. The main threat is the fact that while Brazil is a large market with strong growth potential, it does not possess the sophisticated demand present in the United States, Europe or Japan, which account for 30 percent of Mendoza’s exports and 39 percent for Argentina as a whole (both of which have been decreasing). As such, competing in the Brazilian market does not necessarily force local firms to confront the leading edge in global competition.

In addition, the types of products being exported from Mendoza to Mercosur and the rest of Latin America tend to be lower value-added in nature. This is supported by the fact that Brazil is the leading importer from Mendoza of a whole host of raw or semi-processed agricultural products. By contrast, the more sophisticated exports such as machine valves, crane parts, ferrous alloys and other metals have the US, Japan, and Europe as their main markets. Wine is another good example, in which the fine and bottled
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segments have the US and Japan as their main markets while the growing segment, table wine, has Paraguay as its leading destination. Given the composition of exports, this trend towards increased trade with Mercosur will only serve to strengthen the shift towards lower value-added products. It will be unfortunate if this trend does in fact continue, for in contrast to the rest of Argentina which exports most of its industrial goods to neighboring countries, Mendoza is able to export its industrial products to some of the most advanced economies in the world, implying that the relative competitiveness of Mendozan industrial products is higher than that of Argentina as a whole.

Table 5 - Leading Importers of Mendoza Exports

<table>
<thead>
<tr>
<th>Products in which Brazil is the no. 1 Importer</th>
<th>Products in which the US, Japan, or Europe is the no. 1 Importer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh garlic</td>
<td>Fine wine</td>
</tr>
<tr>
<td>Canned olives</td>
<td>Retention valves</td>
</tr>
<tr>
<td>Dried plums</td>
<td>Parts for cranes</td>
</tr>
<tr>
<td>Canned peaches</td>
<td>Ferrous alloys</td>
</tr>
<tr>
<td>Onions and shallots</td>
<td>Apple juice</td>
</tr>
<tr>
<td>Fresh plums</td>
<td>Silicon manganese</td>
</tr>
<tr>
<td>Pears</td>
<td>Leather</td>
</tr>
<tr>
<td>Fresh apples</td>
<td>Calcium silicon</td>
</tr>
<tr>
<td>Olive oil</td>
<td>Bottled wines</td>
</tr>
<tr>
<td>Fresh grapes</td>
<td>Grape juice</td>
</tr>
<tr>
<td></td>
<td>Tartaric acid</td>
</tr>
</tbody>
</table>

Sources: Ministry of Exterior Commerce, Mendoza.

While such a conclusion regarding the destination of exports may run counter to the objectives of Mercosur, the concern is that the result may be not only trade creation but also trade diversion (Krugman, 1987). Economic models have shown trading blocks to potential negative effects on welfare if their impact is to direct trade away from what would otherwise be one’s economically logical markets, in other words if they displace trade with former partners. The concern is that this may be true in the case of Argentina. If it is, the issue of market sophistication becomes central to the argument, which relates back to the
issue of value-added content. If one's trading block partners possess less sophisticated markets than outside the block, the demand pressures to become more competitive and to compete at world-class standards are reduced. Porter highlights this point in *The Competitive Advantage of Nations* (1990). Over the long-run these reduced pressures will cripple the ability of a country's firms to operate outside the block.

While one should not ignore the economic incentives which compel firms to increase sales within the trading block, one should also be conscious of what is occurring outside the block. As such, one approach is to adopt a tapping procedure of select more advanced markets. By directly participating in these markets one can extract knowledge and information which can then be used to increase one's position in one's home and block markets. Such an approach differentiates the role each market serves in the firm's overall strategy. The importance of Europe, the US and Asia, therefore, may not be due to their overall market size potential but rather the learning which can arise by operating in those markets. It is for this reason that withdrawing from the more advanced markets could be harmful in the long-run.

**7.0 The Impact of a Remote Geographical Location**

Despite the growth of its exports, Argentina and Mendoza in particular are still somewhat hampered by their geographical location. While exports originating in the Mendoza totaled $450 million in 1994, only $207 million of product went straight from the province to export markets, primarily Chile, of which only a small part originated in Mendoza. The implication of this situation is that with the continued growth of trade with other Mercosur countries, Mendoza will become increasingly dependent upon domestic transportation capabilities.

Fortunately, trucking costs have declined substantially since the opening of the economy. If this trend continues and as investments are made in the national road system
and competition increases in the transportation sector, the geographical handicap which Mendoza possesses should become less of an obstacle for future exports. By January 1994, the cost of shipping product from Mendoza to São Paulo, for instance, had fallen by 30 percent from its level in October 1990. Furthermore, shipping costs have also fallen dramatically, in part as a result of a depressed international shipping market, but also as a result of deregulation of the port system. Taxes were reduced, ports privatized, and competition opened. The result has been reductions in shipping freight of over 50 percent in many instances (see Chart 6).

Chart 6 - Select Ocean Freight Cost Reductions: 1993-1995

<table>
<thead>
<tr>
<th>Argentine exports to Asian Far East ($/container)</th>
<th>Freight Cost Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leather</td>
<td>-73</td>
</tr>
<tr>
<td>Honey</td>
<td>-46</td>
</tr>
<tr>
<td>Tobacco</td>
<td>-34</td>
</tr>
<tr>
<td>Granite</td>
<td>-29</td>
</tr>
<tr>
<td>Argentine exports to the U.S. ($/container)</td>
<td></td>
</tr>
<tr>
<td>Leather</td>
<td>-55</td>
</tr>
<tr>
<td>Honey</td>
<td>-10</td>
</tr>
<tr>
<td>Frozen fish</td>
<td>-12</td>
</tr>
<tr>
<td>Frozen beef</td>
<td>-37</td>
</tr>
<tr>
<td>Argentine exports to Europe (DM/container)</td>
<td></td>
</tr>
<tr>
<td>Leather</td>
<td>-62</td>
</tr>
<tr>
<td>Honey</td>
<td>-62</td>
</tr>
<tr>
<td>Tobacco</td>
<td>-33</td>
</tr>
<tr>
<td>Tea</td>
<td>-48</td>
</tr>
<tr>
<td>Autoparts</td>
<td>-68</td>
</tr>
</tbody>
</table>

Source: Comité de Conferencias de Fletes.

8.0 Exporter Concentration

A trend which has intensified over the past five or six years is the increased concentration of exports in the hands of a smaller group of firms. This is due in part to the increase in general concentration in Argentine industry as a result of increased efficiency-
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based competition. However, the degree of consolidation in the export markets far surpasses that of the economy as a whole, implying that the trend towards concentration has been much prevalent in the tradable sectors.

For the economy as a whole, the largest 500 firms' share of GDP increased from 23.4 percent in 1990 to 30.4 in 1994. By contrast the proportion of exports controlled by the 30 largest exporters increased from 32.6 percent to 55.0 percent during the same time period. One of the potential explanations of this difference is that while the economy is in the process of opening and exposing its firms to competitive pressures to improve quality and costs, it is not a pressure which is felt uniformly throughout the economy. There are still many sectors, insulated from the direct pressures of tradable markets (though impacted indirectly), which have been slower to reform. The competitiveness of the nontradable sector, however, also has implications for the tradable sector, as it provides many of the service inputs. As such, lack of encompassing reform may inhibit the ability of the tradable sector to expand its exports in the future. A second possibility is that rising concentration is a result of the rapid increase in primary and energy exports, which are typically accounted for by relatively few and large firms, many of them foreign owned.

The growth in the concentration of exports appears to be occurring at the provincial level as well as at the national level, as revealed in interviews with Mendozan government officials (official figures still pending). In contrast to the nation as a whole, however, it is not clear as of yet whether the concentration of exports in Mendoza is occurring amongst the largest firms in terms of overall sales. Interviews show that many of the largest firms are content to exploit the domestic market in which they are dominant rather than go abroad. Whereas slightly smaller firms do not have that luxury. This is an issue which deserves increased attention in future research.

As alluded to earlier, this growth in concentration may not necessarily be a bad thing, though, if these lead firms are effectively able to elevate the competitiveness of their
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supplier systems. It may be that in order to be internationally competitive, it is necessary to consolidate the sale of final products in a smaller number of firms. However, as long as these firms embrace the supplier community and help to upgrade it to international standards, the benefits of internationalization can be disseminated to a broader population than simply those who export the final product. Unfortunately, this is only true in the case of exports of industrial products, unlikely but possible in the case of agro-manufactures, and certainly not true in the case of primary and energy products given their limited value added.

9.0 Imports

While the focus of the analyses conducted here is on export behavior, it is worth briefly addressing changes in import behavior, as they indirectly have an effect on the former. The most apparent of these changes is the sudden and dramatic increase in the overall level of imports. As mentioned earlier, imports increased from $4.2 billion in 1989 to $21.5 billion in 1994. More important than the overall figure, however, is the change in composition of these imports. Two groups of imports accounted for the majority of the growth, these being consumer goods and capital goods. The growth in consumer goods can be traced to the rapid growth of demand in the economy in the early 1990's and the reduction of import prices due to falling tariff levels and increased competition. More interesting, however, is the growth in imports of capital goods and spare parts for capital goods. These imports increased from $1.4 billion in 1989 to over $9.4 billion in 1994, and from 33% of total imports to nearly 44%.

With the reduction of import prices, many firms have seized the opportunity to make long overdue capital investments so as to improve their competitiveness. This trend is consistent with the overall increase in investment levels in the economy, and is one which will be key to the future health of the economy. In addition, this growth in capital goods
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Imports will help to strengthen the competitiveness of the country's export industries in the long-run.

As with the export of Argentine industrial goods, most of the country's capital goods imports come either from the United States or Europe. The implication is that if current trends continue the country will improve its terms of trade with other Latin American nations, but at the expense of its terms of trade with advanced countries.

10.0 Conclusions

Several macro-level internationalization trends were identified in this chapter. The most apparent of these is the sizable growth in the absolute level of exports, having grown by more than 100 percent since the beginning of the market reform process. However, there are also a number of trends beneath the surface (Toulan and Guillén, forthcoming) which while less apparent, are just as important. Among these trends is an overall shift towards lower value-added products. This has been accompanied by a change in the distribution of countries of destination for Argentine and Mendoza exports. Since 1989 there has been a dramatic shift, in large part as a result of the Mercosur Agreement, towards increased trade with Argentina's neighbors, in particular Brazil. In the case of the latter exports have increased 400 percent. While this growth in trade is welcome, the only concern is that this biased growth in trade may in the long-run impact the competitiveness of Argentine export industries, as the products demanded by the Mercosur market have tended to be of lower value-added, thus reinforcing the trend identified earlier.

Two other leading trends were identified. The first of these relates to a growing concentration of exporting activities in the hands of a few players. While this trend mirrors a process occurring in the economy as a whole, its magnitude is increased in the case of exports. Lastly, it was shown that just as exports have experienced a dramatic increase since liberalization, so have imports, particularly of capital goods. This is a trend which
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will only help the long-run competitiveness of the export sector, though possibly at the expense of other domestic-based industries.
REFERENCES


Mercado. (1992) "Las 250 Empresas Que Más Exportan" (May), pp. 51-58.


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CHAPTER 4
International Trade Model

1.0 Introduction

Having in the previous chapter described the overall impact of the reform process on a variety of internationalization measures, the objective of this chapter is to see whether or not specific relationships can be identified between changes in certain key structural variables such as export taxes and import tariffs and changes in export behavior. In doing so, this chapter will draw heavily upon international trade theory in developing the model. The objective is to see how well industry-wide trade variables can predict changes in export behavior and whether or not they leave much of the variance unexplained. In doing so, the issue of the importance of industry versus firm effects is introduced, an issue which is elaborated upon in the subsequent chapter.

The hypotheses derived from the model are tested empirically using national trade and industrial statistics for the period 1990-1995. The results lend support to the importance of changes in export taxes and import tariffs in influencing export behavior. By contrast, no support is found for the importance of transportation cost and export subsidy reductions.
4. International Trade Model

International trade theory is among the oldest branches of economics. Its roots can be traced to David Ricardo's theory of comparative advantage (Dornbusch, et al., 1977), which today still serves as the basis for much of the research in the field. From this original model of relative productivity differences, other have developed to address differences in relative factor endowments (Heckscher-Ohlin models), the existence of specific factors, and increasing returns (monopolistic competition). The outcome of each of these models is a prediction of which goods will be produced in each country and by inference which ones will be exported and imported by each country (assuming homogenous demands). All of these models, however, were conceived with the assumption of no artificial barriers to trade. Since their original formulation, these models have been revised to include the effects of trade barriers such as tariffs, quotas, and subsidies. During the era of import-substitution in Latin America (1940s through mid-1980s), all three of these tools were used extensively in managing trade flows. Various justifications were used including infant industry arguments (Helpman and Razin, 1991; Tomer, 1993; Baldwin and Venables, 1995), in which protection against foreign competitors was given to industries in their early phases so as to allow them to develop and mature.

2.0 Model Specification

The model which follows attempts to integrate the various forms of market barriers described above so as to show what the expected impact of changes in them would be on the development of trade patterns. In specific, three forms of market distortions are included in the model. In addition to import tariffs, Argentine policy pre-liberalization made extensive use of export taxes as well as export subsidies. The model assumes that one has an industry with total supply of product, \( S_T \), to sell. It splits its sales between the domestic market (\( S_D \)) and the export market (\( S_X \)). For purposes of convenience, \( S_T \) is set equal to one, such that \( S_X \) and \( S_D \) can be viewed as sales shares.
4. International Trade Model

(1) \[ S_T = S_X + S_D = 1 \]

The value of sales made to the export market is determined by export demand \( D_X \) and the price \( P_X \) which is received for the sale of those exports. This price is constrained by the international price \( P_I \). In addition, however, the price which the exporter receives is also affected by three other variables, two of which were alluded to above. The first is whether or not that industry is subsidized by the government. In the case of Argentina, export promotion via subsidies was used as a way of promoting the development of certain industries. In this case, the effect of the subsidy \( r \) - expressed as a percentage of the value of the product) is to increase the effective price which the exporter receives. On the other hand, there are also two factors which can serve to decrease the effective export price, export taxes \( t_X \) and transportation costs \( z \). In the case of Argentina, the use of export taxes pre-liberalization was common practice, used to regulate domestic supply by limiting export potential. The case of Argentina is also one in which transportation costs, particularly in heavy industries, could serve as a major handicap. Given the country's remote geographical location vis-a-vis the world's major markets, the additional transportation burden could in certain instances reduce the effective price enough that exports were not economically viable, particularly when also combined with sizable export taxes. The relationship between these variables is described in Equation (3). Again, the three distorting factors are expressed in percentage terms. This results in the supply function for exports expressed by Equation (4).

(2) \[ S_X = P_X D_X \]
(3) \[ P_X = P_I (1+r) / (1+t_X+z) \]
(4) \[ S_X = P_I D_X (1+r) / (1+t_X+z) \]

The amount of product which an industry devotes to the export market is not dependent solely upon \( P_X \) and \( D_X \). Given that the firm has a constraint upon supply, \( S_T \),
4. International Trade Model

which it must divide between the domestic and export markets, the relative price which it receives in the domestic market will affect what share of its output it devotes to the export market. As such, Equation (4) needs to also be constrained so as to account for this supply constraint.

\[
(5) \quad S_X = S_T - S_D
\]

In order to satisfy this constraint, a domestic supply function is needed. Critical to such a function is the description of domestic prices. One approach is to start with the international price \( P_I \) and work backwards, incorporating the major market distortions. In this case, the two which are incorporated address the issues of import tariffs (\( t_{IM} \)) and transportation costs (\( z \)). If one assumes that the international price, \( P_I \), is the competitive price, then domestic prices for tradable goods should be as high or higher than \( P_I \). Tariffs and transportation costs can provide domestic producers with a price buffer, thus allowing them to raise domestic prices above \( P_I \) by a margin of \( t_{IM} + z \).\(^1\) For simplicity sake, the domestic price, \( P_D \), is assumed to equal the international price plus any transportation costs and tariffs which an importer would be forced to incur. The result is the domestic demand function expressed in Equation (8). While this may be a rather simplistic model of domestic pricing, as other factors such as the efficiency of the distribution system and non-tariff barriers would also have an impact upon domestic pricing, the objective of this model is to show what the directional impact of changing the variables described is, and not to determine what their absolute levels would be.

\[
(6) \quad S_D = P_D D_D
\]

\[
(7) \quad P_D = P_I (1 + t_{IM} + z)
\]

\[
(8) \quad S_D = P_I D_D (1 + t_{IM} + z)
\]

\(^1\) Again \( t_{IM} \) and \( z \) are expressed in percentage terms.
4. International Trade Model

Combining Equations (5) and (8) results in Equation (9) which can be used to express international price as a function of export supply, domestic demand, import tariffs and transportation costs (Equation 10). Substituting \( P_t \) into Equation (4) produces an export supply equation which in its simplified form (Equation 13) is a function not only of export demand, export subsidies, export taxes, and transportation costs, but also of domestic demand and import tariffs.

\[
(9) \quad S_X = S_T - P_t D_D(1+t_{IM}+z) \\
(10) \quad P_t = (1-S_X) / D_D(1+t_{IM}+z) \\
(11) \quad S_X = [(1-S_X)(1+r)D_X] / [(1+t_{IM}+z)D_D(1+t_X+z)] \\
(12) \quad S_X/(1-S_X) = D_X(1+r) / [D_D(1+t_{IM}+z)(1+t_X+z)] \\
(13) \quad S_X = (1+r)D_X / [D_X(1+r) + D_D(1+t_{IM}+z)(1+t_X+z)]
\]

Equation (13) provides the basis from which one can analyze the directional impact of changes in those variables described above on industry exports. As one might expect, the first derivative of \( S_X \) with respect to \( r \) is positive, signifying an increase in export subsidies will result in an increase in exports. By contrast, FOC2 is negative, implying an increase in export taxes will result in a decrease in exports.

\[
\text{FOC1} \quad \delta S_X / \delta r = D_X D_D(1+t_{IM}+z)(1+t_X+z) / [D_X(1+r) + D_D(1+t_{IM}+z)(1+t_X+z)]^2 > 0 \\
\text{FOC2} \quad \delta S_X / \delta t_X = -D_X D_D (1+r)(1+t_{IM}+z) / [D_X(1+r) + D_D(1+t_{IM}+z)(1+t_X+z)]^2 < 0
\]

These conditions result in the following trade-theory based hypotheses for empirical confirmation:

H1(T): Those industries which prior to market liberalization received export subsidies and post liberalization do not will, everything else held constant, experience a decrease in exports.
4. International Trade Model

H2(T): The greater the decrease in export taxes, the greater will be the increase in exports.

As FOC3 points out, an outcome which is not necessarily obvious at first thought is the impact of import tariffs on export behavior. As a result of the supply constraint imposed above and the fact that import tariffs affect the domestic price which can be charged, one obtains a negative relationship between changes in import tariffs and export levels. The higher the import tariff, the higher the domestic price one can charge and the more attractive the domestic market is relative to the export market. Inversely, the lower the tariff, the lower the domestic prices and the more attractive is the export market.

\[ \frac{\delta S_X}{\delta t_{IM}} = -D_X D_D (1+r)(1+t_X+z) / [D_X(1+r) + D_D(1+t_{IM}+z)(1+t_X+z)]^2 < 0 \]

This leads to the following hypothesis:

H3(T): The greater the decrease in import tariffs, the greater will be the increase in exports.

The last first order condition which is of interest here is that relating to transportation costs. As one might expect the first derivative of exports with respect to transport costs is negative, the higher the freight costs, the lower the level of exports.

\[ \frac{\delta S_X}{\delta z} = -D_X D_D (1+r)(2+t_X+t_{IM}+2z) / [D_X(1+r) + D_D(1+t_{IM}+z)(1+t_X+z)]^2 < 0 \]

In addition to changes in import tariffs and export subsidies and taxes, one of the side-effects of the recent wave of reforms in Argentina has been the deregulation and subsequent improved efficiency of the transport sector, both domestically and internationally. In general, this reduction in transport costs has benefited all potential exporters. Differential impacts across industries are relatively small and as such it would be difficult to formulate a hypothesis which tied export behavior to changes in transport costs by industry. What can be proposed, however, is a hypothesis regarding the country of destination of exports.
4. International Trade Model

H4(T): The greater the drop in transport costs to a particular country, the more that country will be the target of increased exports.

Such a hypothesis flows out of the fact that the model described above can be easily modified such that \( S_X \) is transformed into \( S_{X_i} \) and calculated for each country of destination i.

The trade-theory based model described above has produced four hypotheses which address the relationship between four key variables which have been impacted by the recent reforms in Argentina and export behavior. In the section which follows, these hypotheses will be tested empirically using industry level data on Argentina for the period 1990-1995.

3.0 Methodology and Data

As mentioned in the Introduction, the objective of this chapter is to analyze the impact of market reforms on internationalization behavior at the industry level. In specific, the hypotheses presented earlier attempt to model the relationship between changes in exports and changes in the levels of subsidies, taxes, tariffs, and transportation costs. This section presents an empirical test of these hypotheses using OLS regressions and national industrial statistics. Hypotheses 1(T) through 3(T) are incorporated, along with a number of control variables, into the regression equation presented below (14).

\[
\Delta X = \beta_1 + \beta_2 \Delta X_T + \beta_3 \Delta IMT + \beta_4 PROMO + \beta_5 P&D + \beta_6 AGR + \beta_7 S/E + \beta_8 INVEST + \epsilon
\]

The change in industry exports (\( \Delta X \)) is regressed against a number of independent variables. The first of these addresses Hypothesis 1(T). \( \Delta X_T \) stands for the percentage point change in export taxes between 1990 and 1995. Likewise, Hypothesis 2 (T) is proxied for by the percentage point change in import tariffs (\( \Delta IMT \)) during the same time
4. International Trade Model

period. Lastly, PROMO is a dummy variable signifying whether or not the industry was the recipient of export promotion subsidies prior to market liberalization.

In addition to these three primary test variables, four controls are also included, P&D, AGR, S/E, and INVEST. The first of these is also a dummy variable, indicating whether or not the industry was directly affected by either privatization or deregulation. In addition, AGR is meant to represent whether or not the industry falls into the primary or processed agricultural products sector, an area in which Argentina has a comparative advantage as a result of the richness of its land, and a sector in which it is highly competitive on an international basis. One might expect with the liberalization of trade for exports from this sector to grow particularly quickly.

Lastly are included two variables which relate to the amount of resources and relative productivity in each industry. The first, S/E, is a measure of the average sales per employee in the industry in 1994. Industries with very low values would most likely find it difficult to be active in the export market. The second rough measure of industry productivity is the average new fixed investment per establishment in 1994. On the one hand, those industries with higher levels of investment can be construed as being in a better position to enter or expand sales to the export market. On the other hand, certain sectors have received high amounts of foreign direct investment, not for the purpose of using the country as an export base but rather to satisfy local demand, and thus one would not expect there to be a positive correlation between investment and exports. As such, the direction of this relationship is indeterminate.

With regards to the dependent variable, two measures are used. The first is the percentage growth rate of exports in US$ from 1990 to 1995 in each industry. In addition, an alternate measure, the natural log of absolute export growth is used. The reason for doing so is to see whether the impact of the various variables is in fact relative or absolute. In the latter case, however, only those firms which experienced a growth in exports (69 of
4. International Trade Model

the 84 in the sample) were included to satisfy the non-negative requirement of the ln function.

The industry data which was used to empirically test the model described above came from two distinct industrial databases of the Argentine Office of Statistics and the Census (INDEC), one which covers international trade and the other which covers domestic industrial statistics. The data for firm exports, import tariffs and export taxes came from the yearly publication entitled Comercio Exterior Argentino. Exports are reported in US$ for each of the 99 categories of products used in the SA (Sistema Armonizado) nomenclature. In addition, the government reports for each category the amount of import tariff and export taxes collected each year in US$, which allows one to obtain a rough estimation of the average tariff and tax rates paid in each category. In each case data was collected for 1990 and 1995, the year just before the economic reforms took place and the most recent year available, thus allowing one to calculate relative changes in each of the variables. In addition, this source provided information on the country of destination of exports in both time-periods.

The second primary data source used was the Census of Manufactures of 1994, which provided control data on average firm size and investment rates per industry. The complication which arises unfortunately is that the Census is based on a distinct, uniquely Argentine, system of classification of economic activity, containing 166 divisions. As such, a line-by-line matching of divisions with the categories of the SA nomenclature was required. In a few instances, such a match was not possible and as such the category was dropped from the data base. After removing these categories along with those which were as yet not in use, the final data base consisted of 84 SA determined industries.

The remaining variables were formed as dummy variables to indicate whether or not the industry received export subsidies prior to liberalization, whether or not it was directly affected by privatization and/or deregulation, and whether it was a comparative advantage
industry. The classification of the first two dummies was based on information obtained from various government and academic papers. As for the third dummy, those industries which fell under the grand rubrics of primary and processed agricultural products were deemed to be comparative advantage industries. These are industries in which Argentina has been a leading producer and at times exporter, taking advantage of the country's land wealth.

As with any use of government data, the issue of reliability for use in micro analysis comes up. In the case of Argentina, though denied by the government, the issue of fraud within the customs authority is of concern, as it may affect the real amount of duties paid. Today this is mostly of concern only when one talks of imports as the virtually all export constraints have been eliminated, and as such the impact on the dependent variables should be minimal. The effect is also minimized if one assumes that these practices occurred across the board, thus affecting all industries.

4.0 Descriptive Statistics

Despite the need to drop certain industry categories as a result of the nomenclature matching issue described earlier, the sample of 84 industries includes 99.8 percent of the country's $12.3 billion of exports in 1990 and 98.8 percent of the $20.1 billion in 1995. As one can see from the descriptive statistics in Table 1, the non-weighted average level of exports per industry has increased in the period being analyzed by over 60 percent, from $147 million to $237 million. In addition, the non-weighted average growth rate in the period was 1476 percent. Since the weighted growth rate is only 63 percent, what this indicates is that previously small export industries grew at a faster pace than previously large ones.
4. International Trade Model

Table 1 - Descriptive Statistics: Exports

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SE</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>X(90) ($'000)</td>
<td>146,757</td>
<td>30,904</td>
<td>19</td>
<td>1,374,105</td>
</tr>
<tr>
<td>X(95) ($'000)</td>
<td>236,845</td>
<td>48,096</td>
<td>6</td>
<td>2,169,398</td>
</tr>
<tr>
<td>ΔX (%)</td>
<td>1476</td>
<td>808</td>
<td>-100</td>
<td>54,492</td>
</tr>
</tbody>
</table>

In addition to a growth in export levels, there were also considerable changes in the several of the independent variables in the model. The average export tax fell from roughly 5 percent to virtually 0 percent. It was essentially eliminated in all but a small handful of industries. Import tariffs also exhibited a rather substantial decline, though not as significant as that of the export taxes. The average tariff fell by nearly 30 percent in the 1990-1995 time period, as did the dispersion of tariff rates as indicated by the standard error.2

Table 2 - Descriptive Statistics: Export Taxes and Import Tariffs

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SE</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT(90) (%)</td>
<td>4.8</td>
<td>0.6</td>
<td>0.0</td>
<td>27.3</td>
</tr>
<tr>
<td>XT(95) (%)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>1.9</td>
</tr>
<tr>
<td>ΔXT (% pt.)</td>
<td>-4.8</td>
<td>0.6</td>
<td>-27.3</td>
<td>0.0</td>
</tr>
<tr>
<td>IMT(90) (%)</td>
<td>10.5</td>
<td>0.7</td>
<td>0.0</td>
<td>29.3</td>
</tr>
<tr>
<td>IMT(95) (%)</td>
<td>7.6</td>
<td>0.5</td>
<td>0.0</td>
<td>21.0</td>
</tr>
<tr>
<td>ΔIMT (% pt.)</td>
<td>-2.9</td>
<td>0.6</td>
<td>-22.3</td>
<td>8.4</td>
</tr>
</tbody>
</table>

2 The average tariff presented here may differ from that presented in the previous chapter, as this is a weighted average rate. Those tariff rates reported by the government are flat averages.
4. International Trade Model

5.0 Regression Results

As previously mentioned, two versions of the model described in Equation (14) were tested, the first using percentage growth in exports as the dependent variable and the second using the natural log of absolute export growths. Table 3 presents the regression results using the first definition. As one can see, the overall model is statistically significant as measured by the F-statistic at the .08 percent level. In addition, support is found for two of the three hypotheses being tested in this model. The first result provides support for Hypothesis 2(T), which predicts a negative relationship between changes in export taxes and export growth. Similarly, support is found for Hypothesis 3(T) and the idea that reductions in import tariffs place downward pressure on domestic prices, thus increasing the relative attractiveness of foreign markets. In both cases, the coefficients on the variables are significant, in the case of ΔXT at the .03 percent level and in the case of ΔIMT at the .09 percent level.

By contrast, no support is found for Hypothesis 1(T) which predicted a negative relationship between prior export promotion and current exports. While this could be the result of the crudeness of the measure and the relatively small number of industries which were the beneficiaries of this programs, an alternative explanation is that in some cases these subsidy programs did in fact help improve the competitiveness of the industry (Helpman and Razin, 1991; Tomer, 1993; Baldwin and Venables, 1995) and place it in a better position post liberalization to take advantage of new export opportunities. As such, a non-uniform effect of these programs would produce a null result using a linear model. As for the control variables, none of them are statistically significant.
4. International Trade Model

Table 3 - \( \Delta X = \) Percentage Change in Exports

Regression Statistics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.38</td>
</tr>
<tr>
<td>R Square</td>
<td>0.15</td>
</tr>
<tr>
<td>Adjusted R</td>
<td>0.07</td>
</tr>
<tr>
<td>Square</td>
<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>71.45</td>
</tr>
<tr>
<td>Observations</td>
<td>84.00</td>
</tr>
</tbody>
</table>

Analysis of Variance

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Sum of Square</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>7.06</td>
<td>67235.74</td>
<td>9605.11</td>
<td>1.88</td>
<td>0.08</td>
</tr>
<tr>
<td>Residual</td>
<td>76.00</td>
<td>388014.31</td>
<td>5105.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>83.00</td>
<td>455250.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coefficients | Standard Error | t Statistic | P-value | Lower 95 percent | Upper 95 percent |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.50</td>
<td>13.66</td>
<td>0.11</td>
<td>-25.71</td>
<td>28.72</td>
</tr>
<tr>
<td>( \Delta X T )</td>
<td>-400.08</td>
<td>179.98</td>
<td>-2.22</td>
<td>-758.54</td>
<td>-41.61</td>
</tr>
<tr>
<td>( \Delta IMT )</td>
<td>-259.69</td>
<td>152.08</td>
<td>-1.71</td>
<td>-562.59</td>
<td>43.21</td>
</tr>
<tr>
<td>P&amp;D</td>
<td>-15.36</td>
<td>19.39</td>
<td>-0.79</td>
<td>-53.98</td>
<td>23.27</td>
</tr>
<tr>
<td>PROMO</td>
<td>10.14</td>
<td>45.67</td>
<td>0.22</td>
<td>-80.82</td>
<td>101.09</td>
</tr>
<tr>
<td>AGR</td>
<td>-32.05</td>
<td>23.23</td>
<td>-1.38</td>
<td>-78.32</td>
<td>14.21</td>
</tr>
<tr>
<td>S/E</td>
<td>-0.02</td>
<td>0.10</td>
<td>-0.17</td>
<td>-0.21</td>
<td>0.17</td>
</tr>
<tr>
<td>INVEST</td>
<td>0.00</td>
<td>0.01</td>
<td>0.20</td>
<td>0.84</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

In contrast to the model which uses the percentage change in exports as the dependent variable, the model of the natural log of the absolute change in exports produces rather different results. On the one hand, the overall significance of the model is higher than that of the model just presented. However, in this case none of the hypotheses being tested are supported. What one does find, though, is that two of the control variables have now become statistically significant. The positive coefficient on S/E implies that the larger the output per employee, the more the industry's exports grew, as was expected. By contrast, those industries which increased fixed investment more tended to export less. This provides support for the idea that much of the foreign direct investment entering Argentina is not targeted for export-oriented but rather market-seeking activities.
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In interpreting the results of the second regression, though, one has to remember that because of the non-negative requirement for the dependent variable when using a \( \ln \) function, the results in this case only pertain to those industries which saw exports stay flat or grow during the period in question. It excludes those industries (15 in total) which saw absolute export levels decrease. Therefore, the extendibility of the results of the regression can only be applied to other export growth industries.

Table 4 - \( \Delta X = \ln \) of Absolute Change in Exports

<table>
<thead>
<tr>
<th>Regression Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
</tr>
<tr>
<td>R Square</td>
</tr>
<tr>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>Standard Error</td>
</tr>
<tr>
<td>Observations</td>
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<th>Analysis of Variance</th>
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<td>Sum of Square</td>
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<tr>
<td>Mean Square</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>Significance F</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Error</td>
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<tr>
<td>t Statistic</td>
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<tr>
<td>P-value</td>
</tr>
<tr>
<td>Lower 95 percent</td>
</tr>
<tr>
<td>Upper 95 percent</td>
</tr>
<tr>
<td>Intercept</td>
</tr>
<tr>
<td>( \Delta X T )</td>
</tr>
<tr>
<td>( \Delta A M T )</td>
</tr>
<tr>
<td>P&amp;D</td>
</tr>
<tr>
<td>PROMO</td>
</tr>
<tr>
<td>AGR</td>
</tr>
<tr>
<td>S/E</td>
</tr>
<tr>
<td>INVEST</td>
</tr>
</tbody>
</table>

The last of the four hypotheses derived from the trade model presented earlier relates to the impact of relative changes in transportation costs on the country of destination of exports. Unfortunately, a statistical analysis of the impact of reduced transportation costs
4. International Trade Model

On export destinations would require not only a history of the evolution of transportation costs by destination, but also data on a number of control variables, including the evolution of import tariffs for each destination country. Unfortunately, such an analysis is beyond the data limitations of this research. General trends, however, can be identified.

As was discussed in the previous chapter, the deregulation of the transport sector along with the process of privatizing the ports has resulted in a rather substantial reduction in freight charges, both terrestrial and oceanic. On average the cost of terrestrial freight between the major cities of Argentina and those of the neighboring Mercosur countries dropped by 19 percent from October 1990 to January 1994. While this is a considerable drop, the drop in oceanic freight has been even more dramatic, with price reductions averaging 30-40 percent. The implication which follows is that the percentage point drop in freight charges to regions outside Mercosur such as Europe, Asia, and the US has been greater than that for neighboring Mercosur members, and as such the impact on exports should be greater in the case of the former. Everything else held constant, one would expect to see higher export growth rates to areas outside Mercosur.

While there has been a significant shift in the mix of destination countries for Argentine exports, it has not been in the direction which transport cost changes alone would predict. What has occurred is that the share of exports accounted for by Mercosur nations (including Chile), has doubled in recent years as can be seen from Chart 1, from less than 19 percent of total exports in 1989 to nearly 40 percent in 1995. While there may in fact be a transportation effect, it is overwhelmed by other factors, primarily the completion of the Mercosur agreement and the reduction of trade barriers between members. An alternative explanation as proposed by Rauch (1990) might be that even a relatively large drop in transport costs may not make a country's products competitive in very distant markets because the transport costs are still high in absolute terms while a
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relatively small drop in transport costs to neighboring countries where presumably the absolute transport costs are less may have a sizable impact.

However, an argument against this hypothesis is that not only has the share of exports to certain regions such as the US and Asia dropped as a percentage of total exports, but their absolute levels have been flat or decreased in real terms, indicating possible trade diversion. As such, the data, while not disconfirming Hypothesis 4(T), also fail to find support for it.


6.0 Conclusions

This chapter has attempted to establish a direct correlation between changes in key macro-economic tools and exports at the level of the industry. A model incorporating export subsidies and taxes as well as import tariffs and transportation costs was developed
and empirically tested using national industrial and trade statistics. From this model, four trade theory based hypotheses were developed. Of these, statistical empirical support was found for Hypotheses 2(T) and 3(T) which predicted a negative relationship between changes in export taxes and import tariffs on the one hand and export growth on the other. This relationship was shown to hold on a proportional rather than absolute basis. By contrast no support was found for the hypothesized positive relationship between exports subsidies and export growth. In addition, no support was found for the differential impact of transportation cost reductions on the country of destination of exports.

The general conclusion is that an industry level focus is useful in explaining part but by no means all of the variance in export behavior. As such, the next chapter moves to the level of firm to identify what firm specific factors may account for the remaining variance.
REFERENCES


Hanson, Gordon (1994) "Regional Adjustment to Trade Liberalization," mimeo.


CHAPTER 5
Internationalization Responses at the Firm Level

1.0 Introduction

In its most simple terms the question being posed here can be stated as, "How do firms react to radical environmental shocks, in this case the liberalization of the domestic economy?" Much has been written on how firms adapt (or fail to adapt) to significant changes in their environment. In most cases, the behavioral response variables analyzed relate to firm survival rates and/or performance. Relatively little work has been done, though, on the issue of how firms react to sudden environmental changes in terms of their internationalization strategies. This is partly due to the fact that environmental shocks which would have a strong influence on one's international strategy are relatively rare occurrences. In most cases, these types of major contextual shifts take place over the course of a decade or more, thus both muting the effect of the change and confounding potential results with other events. The case of economic reform in Argentina since 1989, however, presents itself as one of those rare occurrences in which one does witness radical environmental changes occurring in a relatively short period of time and which have strong implications for the internationalization strategies of firms.
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The objective of this paper is to exploit this opportunity to analyze how firms adapt their international strategies when confronted with an environmental shock. In doing so, emphasis is placed on the importance of firm-level effects in predicting adaptation responses. This stands in contrast to the industry-level approach which dominates the trade theory and classical industrial organization literatures and which places preeminence on industry differences in explaining variances in adaptation outcomes. While the impact of industry effects is not ignored in this paper and is in fact tested, the focus is placed on two streams of firm, as opposed to industry, adaptation literature. On one end of the spectrum are what could be considered ecological theories while on the other are so-called constructivist (Van de Ven and Poole, 1995) models of the firm. The goal is to determine which sets of firm characteristics, structural or strategic, are most important in affecting the way in which firms have reacted to the recent wave of market reforms. In this context, three standard measures of internationalization are utilized. These include export propensity, extent, and country of destination. The empirical component of the paper comes from an original survey of 163 Argentine firms conducted in the first half of 1996.

The paper itself is comprised of 7 sections. It begins with a discussion of the rationale behind the choice of dependent variable. This is followed by an elaboration of the theoretical underpinnings of the research and then the hypotheses to be tested. The next section provides the reader with a background of the Argentine context and why it is appropriate for the issue being addressed here. The empirical component of the paper then follows, with a discussion of the methodology and a presentation of the empirical results. Finally, the paper closes with a set of conclusions and implications.

Before entering a more detailed discussion of the theoretical foundations of the paper, it is worthwhile discussing the choice of dependent variables, as market liberalization impacts a whole host of economic variables, not just ones related to internationalization. There are several reasons for focusing on these variables, however.
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The first is the fact that the ability of a nation to grow and prosper is increasingly becoming dependent upon how its firms perform in world markets (Levitt, 1983). International expansion is no longer considered an option or merely one approach among several. Rather, it has become a requirement for sustained growth. These changes in expectations have altered the way in which firm performance is evaluated. There are few industries in which foreign players are irrelevant in assessing the relative performance of domestic firms, either through their exports, foreign direct investments, or some combination of the two. The result has been a broadening of the context in which firms are viewed as competing. Whereas the first part of the century saw the boundary broaden from the local to the national level, the latter part of the century has seen that boundary increasingly expand to the global level. As such, many industries and the firms within them are confronted with having to meet an additional performance criterion, that being the extent to which they are "internationalized."

A second reason for selecting internationalization as the main dependent variable is that one of the central objectives of the market reformers is to increase the level of this variable in the overall economy. The trend towards market liberalization is in part a resignation by national governments to the fact that markets are less and less separable, with the hope that greater exposure to foreign markets will boost the competitiveness of their domestic industries. If one accepts this argument, then a key measure in evaluating the effectiveness of such reforms is the degree to which firms become internationalized.

In this paper, the measures of internationalization used center around traditional export measures. These include changes in behavior regarding export propensity, extent, and country of destination. A discussion and analysis of additional internationalization measures can be found in Toulan, 1996.
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2.0 Theoretical Foundations

The theoretical underpinnings of this research rest on the assumption that firm effects matter (Rumelt, 1991), and that firms will react differently to market shocks based on a variety of firm characteristics. This stands in contrast to the views of adherents to the "classical school" in economics (Bain, 1951; Stigler, 1963; Scherer, 1971) in which industry effects are assumed to be at the root of all differences in firm behavior. This is an approach which has carried into much of the international trade theory literature, which predicts firms will tend to survive or fail in a global setting depending on the relative comparative advantage of the industry in which they operate.

By contrast, if one adopts the assumption that firm effects matter, the central issue becomes the degree of freedom the firm possesses in responding to changes in its environment. As mentioned, theories of firm adaptation span the spectrum from ecological approaches (Hannan and Freeman, 1977, 1984; Young, 1988), where the survival of firms is based on environmental selection, to constructivist or strategic choice approaches (Selznick, 1957; Best, 1990; Rumelt, 1991), where firm-level choices influence the probability of successfully adapting. The objective of the next few pages is to identify these contrasting viewpoints and their underlying assumptions, as well as the central role which organizational inertia plays in differentiating these theories.

Ecological theories are based on the assumption that there are so many constraints being imposed upon the firm, both internally (i.e., fixed investments) and externally (i.e., regulation) that the firm is in fact unable to adapt to environmental changes. This inability to act is due to the structural inertia which these constraints impose upon the firm. Population ecologists do acknowledge that firms may in fact attempt to change but that these strong inertial pressures prohibit the firm from changing as fast as its environment. The result is a selection process in which populations of firms are selected out for survival depending on whether their specific characteristics match the prevailing environmental demands.
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Population ecologists, however, also claim that while inertia may be prejudicial to a firm in the long-run it is in fact a pre-condition for initial survival. This is based on three assumptions (Hannan and Freeman, 1984). They claim that "selection in populations of organizations in modern society favors firms with high reliability of performance and high levels of accountability" (p. 154). These characteristics, however, require that the firm be highly reproducible. On the other hand, those factors which make it highly reproducible, also make it resistant to structural change. Therefore, strong levels of reproducibility generate strong inertial pressures. As such, structural inertia is in fact the result of trying to satisfy environmental demands and can help a firm survive in periods of relative stability. However, in the context of this paper, in which the focus is on radical environmental changes, the factors associated with heightened levels of inertia will in fact hinder one's ability to survive.

As the previous discussion reveals, inertia plays a central role in ecological theories. While there are various forms of inertia, that identified by Miller and Chen (1994) seems most appropriate in this situation. They define competitive inertia as "the level of activity a firm exhibits when altering its competitive stance in areas such as pricing, advertising, new product or service introductions, and market scope" (p. 1). It depends on three factors: the incentives of managers to act; awareness of action alternatives; and constraints on capacity to act. Its effect is strongest when there are few incentives to act and few alternatives, as well as when the firm is bureaucratic, insular, and complex. As Miller and Chen, as well as others, allude to, there is the potential for varying degrees of inertia.

While population ecologists stress the overwhelming dominance of inertia, strategic choice and other constructivist theories stress just the opposite. While most of them acknowledge the presence of environmental constraints, emphasis is placed on the ability of firms to act independently and react to changes in their environment. Haveman (1993) points to five leading theories which fall under the heading of constructivism. These
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include structural contingency theory (Burns and Stalker, 1961; Woodward, 1965); strategic management theory (Chandler, 1972; Rumelt, 1974); resource dependence theory (Pfeffer and Salancik, 1978); organizational learning theory (March, 1981; Levitt and March, 1988); and metamorphic change models (Miller and Freisen, 1984; Tushman and Romanelli, 1985). All of these approaches assume that organizational changes are the reflections of managerial decisions and strategies.

Certain authors such as Hrebinia and Joyce (1985, p. 346) have attempted to move beyond the "binary distinction between strategic choice and environmental determinism." By mixing the two approaches, they come up with four positions in which a firm could find itself. These include the two pure-plays of high environmental determinism/low strategic choice and high strategic choice/low environmental determinism. However, they also claim that a firm could find itself in a position in which both factors are low, which they define as adaptation by chance. Similarly, one could have the situation in which both factors are high. In this case, firms adapt but within certain constraints, resulting in differentiated or focused strategies.

In what follows, the ecological and constructivist theories discussed above will be tested in the context of radical economic reform, the objective being to determine whether firm reaction in times of dramatic environmental change more closely follows the predictions of ecological or constructivist theories, or whether in fact the it lends support to the intermediary position of Hrebinia and Joyce.

3.0 Hypotheses

As previously mentioned, the belief against which the hypotheses which follow are contrasted is that only industry effects matter. In the context of this paper in which the focus is on internationalization responses to the opening of the economy, classic trade theory would predict that those firms operating in comparative advantage industries would
be most likely to react positively to such changes. By contrast, the hypotheses which follow focus on the impact of various firm-level effects as predicted by two theoretical approaches. Each of these, ecological determinism and constructivism, have associated with them distinct hypotheses regarding the impact of market liberalization on a firm's level of internationalization. In general, constructivists would argue that firms should react in a manner so as to align themselves with the changing economic incentives arising from the economic reforms. With the reduction of barriers and the resulting broadening of potential market boundaries, one would expect firms to devise strategies to increase their levels of internationalization. In contrast, ecological theories will tend to stress the effect of structural inertia which prohibits the firm from reacting to changes in economic incentives. When change is observed, it should be the result of an environmental selection process based on firm structural characteristics. Four traditional market measures of internationalization are used: export propensity, extent, mode, and country of destination. In each case, the focus is placed on the level of change in the variable (i.e., change in export share of total sales), as opposed to their absolute levels (an issue which is addressed in Toulan, 1996).

The most basic and common measure of market internationalization is whether the firm is an exporter or a pure domestic player. This binary measure is one which has been used in much of the international management research. It reflects the belief that the internationalization process is not necessarily a linear one, and as such going from zero percent of sales in foreign markets to five percent requires a greater effort, both in terms of change in mentality and application of resources than moving from five percent of sales in foreign markets to ten percent. Therefore, the simple fact that one has entered the international market, regardless of the scale of that entry represents a fundamental change in behavior. On the other hand, the issue of what percent of its sales the firm exports is also important, as it indicates whether the firm views foreign markets as being central to its strategy or simply as an outlet for excess capacity. In the same vein, the change in the
relative importance of foreign market sales to overall sales over time is an indicator of the direction in which the firm's strategy is evolving. As will be discussed, the contrasting theories being tested here would predict the same directional movement for export initiation and export growth, and as such the two variables are combined into the same hypotheses below.

The change in behavior, from being simply a domestic player to an exporter or increasing its existing presence in foreign markets, is dependent upon a number of firm characteristics. These characteristics can generally be broken down into two broad categories, structural and strategic. In general, the former will tend to be associated with ecological theories of firm adaptation, as structural characteristics are ones over which the firm has relatively little control. By contrast, adaptation correlated with strategic variables is better described by constructivist theories of firm behavior which put stress upon the ability of firms to devise and implement decisions in reaction to environmental changes.

Among those structural variables which have received the most attention in both the organizational change and international management literature is firm size. Among the best treatments of this issue is the work of Heather Haveman (1993), in which she studies the impact of deregulation of the California savings and loan sector on firm behavior. In many ways, Haveman's study is very similar to that being conducted here, though her emphasis is solely on the role of firm size and her change variable is product as oppose to geographic diversification. The applicability of her general framework remains valid, however. As Haveman points out, there are two schools of thought on the relationship between firm size and adaptive abilities. One body of literature builds upon the Weberian theory of bureaucracy (1978). It emphasizes that larger organizations have greater internal differentiation and as such are more structurally complex by nature (Pugh et al, 1969; Blau, 1970). This increased level of complexity demands higher levels of formalization and decentralization of decision-making. The result is a positive correlation between size and
5. Internationalization Responses at the Firm Level

levels of bureaucratization, with the latter being identified as one of the main factors contributing to structural inertia. As such, an ecological approach would in general predict that because of their greater susceptibility to inertial pressures, larger firms would be less likely to adapt to environmental changes than smaller ones (Kelly and Amburgey, 1991). This leads to the first ecological hypothesis to be tested:

H1(E): In response to a shock larger firms will be less likely to begin exporting or increase their level of exporting than smaller firms, which are subject to lower levels of structural inertia.

This hypothesis is also suggested by the claim that larger firms possess more slack resources and as such are structurally buffered from having to respond rapidly to changes in their environment.

The second stream of literature on the relationship between firm size and adaptability claims that, in contrast to the opinions elaborated above, larger organizations are in fact more fluid. Haveman (1993) points to the fact that many of the aspects of organizational complexity are in fact correlated with higher propensities to adopt innovations, such as specialization of personnel, decentralization, and slack resources (Miller and Chen, 1994). In this case, the last of these is viewed as providing the firm with a greater ability to experiment with new strategies and enter new product and geographic markets. Furthermore, a minimum scale investment may be needed in order to successfully adapt to the environmental change. In this case, simply entering the export market would entail investing in establishing foreign market contacts and distributive capabilities. In other words there may be a fixed cost for internationalizing. Normally this is an obstacle which is potentially prohibitive to firms only at the extremely small end of the size spectrum, and as such the size effect may not be linear across the entire spectrum.

As Calof (1994) points out, the relationship between size and export behavior is one of the most widely analyzed relationships in international management. Bonaccorsi
(1992), using a database of over 8000 Italian firms, found that size was positively associated with export propensity. Three reasons were given for the result: the need for resources to internationalize; greater levels of risk aversion amongst smaller firms; and lifecycle stages in which firms first focus on the domestic market when they are small and eventually move up to international markets.

As such, the constructivist perspective in general views the relationship between size and change as positive, and while constructivist approaches stress the decision-making ability of firms, they do acknowledge the importance of resource constraints in the ability of a firm to implement its specific strategy. Therefore in this case, firms with greater access to resources will be better able to effectively enter the export market. This is true not only because of potentially better access to financial resources but also to human resources as well. This leads to the first constructivist hypothesis:

H1(C): In response to shocks, larger firms will be more likely to begin exporting or increase their levels of exports than smaller firms, as they have greater access to resources.

The second structural variable which has also received much attention in the adaptation literature (though less so in the international management literature) relates to firm age (Kelly and Amburgey, 1991). The most dominant viewpoint on this issue is that older organizations tend to be more resistant to change. This is due to the fact that older organizations have had time to formalize relationships and standardize routines (Stinchcombe, 1965). As such, structural stability increases monotonically with age (Kelly and Amburgey, 1991), and with increasing stability comes increasing resistance to change. Therefore, structural inertia also increases monotonically with age (Hannan and Freeman, 1984), thus reducing a firm's ability to adapt to environmental changes. In the specific context being studied, older firms will tend to be more deeply embedded in the local
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environment as a result not only of professional but also of social contacts, thus reinforcing the mental barrier to external expansion.

While there have been certain researchers which have found that older firms have a greater propensity to change (Boeker, 1989), the dominant viewpoint on the issue is that the inertial forces associated with age outweigh whatever potential benefits may be associated with it. This therefore leads to the second ecological hypothesis to be tested:

H2(E): Older firms will be less likely to initiate export activities or grow their existing exports than newer firms which have fewer historic ties to the domestic market.

Aside from the two structural variables discussed above (size and age), there are also a host of strategic variables which according to constructivist theories of adaptation should influence the success or failure of a firm in reacting to environmental change. It has been shown by researchers in the international management literature (Dominguez and Sequeira, 1993) that a key strategic predictor of export propensity is an emphasis on product and service quality (in the case of developing countries, this is particularly true for non-traditional exports). While it is possible that a firm could export products which are inferior to those sold in the domestic market, it is more often the case, particularly for developing countries, that international quality standards will be at least as high as domestic ones, if not higher. As such, those firms which adopt a strategy which emphasizes quality will tend to be more successful at internationalizing than those which do not. Quality itself, though, is a multifaceted being. On the one hand, one can emphasize quality in the operations of the firm. In the case of Argentina, a rough measure of operating quality is estimated by the share of a firm’s technology which is foreign. This is true in part because foreign machinery tends to be newer, as until recently it was virtually prohibitive to import capital goods. It is also true because the vast share (over 90 percent in the sample of firms surveyed here) of the technology which is foreign comes from the US or Europe, which in
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general are of superior quality to local or regional technologies. This leads to the following hypothesis:

H2(C): Firms which use mostly foreign technology in their production process will be more successful at internationalizing than those which do not.

Human resource management is also relevant to the quality issue addressed above, for a quality mentality is something which encompasses not only the final product but also the inputs used to produce it. In those sectors in which a sizable share of these inputs is human capital, the quality of one's workforce can be critical in determining the quality of the final output. Higher quality personnel, both at the technician and management levels will improve a firm's chances at being successful in the export market (Osterman, 1994). On the one-hand, better qualified technicians will contribute to the quality of the final product. On the other hand, higher-educated managers are in general better equipped to exploit new opportunities and are less resistant to change. Therefore,

H3(C): Firms which give importance to human resources development and education will be more successful at internationalizing than those which do not.

A third aspect of quality relates to the product quality itself and the importance the firm attributes to product quality in being successful abroad

H4(C): Firms which view product quality as being critical will tend to internationalize more than those which do not.

While an emphasis on quality may be a requirement for international success, it is by no means the only one. One must also be price-competitive, thus the following hypothesis:

H5(C): Firms which are price conscious will tend to internationalize more than those which are not.
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The last two hypotheses may seem contradictory, as it is often thought that quality comes at the expense of the price and vice versa. However, the reality is that one must satisfy both demands, particularly in a competitive international arena.

In addition to the firm's strategies regarding quality and pricing, two other critical strategic issues relate to the level of specialization of the firm and the type of interface it has with its customers. Given that most of the firms in this sample are relatively small by international standards, the issue of firm specialization becomes of particular importance not only for exporting but for overall firm competitiveness. Given the limitations of firm resources, in order to invest the required resources needed to reach international standards, one must limit the scope of one's activities. One way this has been done in Argentina is through the increased use of subcontracting. With changes in labor laws this is now a feasible option where it was not before. Therefore,

H6(C): Those firms which increase their level of specialization via increased subcontracting will be more competitive and thus more likely to succeed in entering foreign markets.

As mentioned, the type of interface the firm has with its customers can also be crucial in affecting its success at internationalizing. Haveman (1993) found that firms which depended upon relational as opposed to transactional interfaces found it more difficult to expand into new markets. Those firms which view their competitive strength as lying in the personal relations of the managers (not to be confused with firm level relations) will find it difficult to enter into new geographically distant markets where they will be forced to compete on a transactional basis. As such,

H7(C): Firms which depend upon the personal relations of their managers for customer development will be disadvantaged in trying to enter the export market.
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It is possible that one could also see the opposite relationship predicted in H7(C) in those instances in which the firm uses close relationships with foreign firms to expand its international presence. And, given that the sample of firms are relatively small, personal relations can equal institutional relations. However, finding such a relationship would require a level of sophistication in foreign markets beyond those believed to be possessed by the current sample of firms.

Lastly, an issue alluded to in the earlier hypothesis on human resources is that of managerial mentality. An internationalized mentality can be considered a prerequisite for market internationalization, particularly in this case with the rapid opening of the economy. The way in which the firms view these changes is in many ways representative of the degree to which the mentality of management is internationalized. As such, those firms which can view the positive potential of the economic reforms and changes in their environment will be more likely to be successful internationally than those which are either neutral or negative regarding the reforms.

H8(C): Those firms which are most likely to internationalize post-liberalization will be those which view the economic reforms and changes in their environment in a positive light.

While the above hypotheses are appropriate for both entry into the export market (propensity) as well as growth within it (extent), there are some factors which are relevant only to the latter. These factors include export age and planning. As was previously discussed, firm age is assumed to have a negative effect on internationalization as a result of the structural inertia associated with it. However, this may not be the case with export age. If it is assumed that there is a learning curve associated with exporting, then those firms with the most experience (i.e., those which have been exporting the longest) should have been in a better position to increase their international position following the market reforms than those which were recent entrants into the export market.
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H9(C): Those firms which began exporting earlier will be in a better position post-economic reform to increase their levels of exports than new entrants.

Another indicator of the importance which the firm assigns to foreign markets is whether or not it devises a formal export plan. Those which have adopted such practices would be expected on average to be more successful at growing their foreign sales than those which do not.

H10(C): Those firms with formal export plans will be better positioned to increase their levels of exports than those with no formal process.

As mentioned, the third measure of internationalization being analyzed is the country of destination of one's exports. As has been mentioned, the reason why internationalization is viewed as being important in increasing the competitiveness of a country's firms is that it exposes them to both increased competition and customer demands, which together increase the pressures on the firm to continuously improve. In most cases, simply participating in the export market will convey some of these pressures, though it does depend on how these markets are served (i.e., via distributors versus proprietary infrastructure). However, not all markets exert the same levels of competitive pressures. Certain markets are more sophisticated both in terms of competitive rivalry and customer demands. In other words, some markets operate closer to world class standards than others. If this were not the case, the advantages associated with entering foreign markets described above would not exist. As such, in addition to looking at what share of a firm's sales are exported, it is also important to analyze to which markets those exports are headed. For, even though the other Mercosur markets may appear attractive for a host of reasons, they are in most cases less sophisticated than those of Europe, North America, or Asia and as such will have less of an impact on increasing pressures to perform.
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In terms of the two theoretic perspectives being contrasted, ecological theories which stress the structural inertia to change would lead one to predict that,

H3(E): Firms will tend to expand post-liberalization into the same markets as pre-liberalization but on a larger scale.

Empirically, this hypothesis means that the geographical distribution of exports should not change, even if the absolute value of those exports increases.

Table 1 - Summary of Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Internationalization Aspect Impacted</th>
<th>Predicted Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(E) Firm size</td>
<td>Export propensity/ extent</td>
<td>Negative</td>
</tr>
<tr>
<td>1(C) Firm size</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>2(E) Firm age</td>
<td>Export propensity/ extent</td>
<td>Negative</td>
</tr>
<tr>
<td>2(C) Foreign technology use</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>3(C) Human resource quality</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>4(C) Product quality emphasis</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>5(C) Price conscientiousness</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>6(C) Firm specialization</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>7(C) Personal relations</td>
<td>Export propensity/ extent</td>
<td>Negative</td>
</tr>
<tr>
<td>8(C) Reform mentality</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>9(C) Export age</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>10(C) Formal export planning</td>
<td>Export propensity/ extent</td>
<td>Positive</td>
</tr>
<tr>
<td>3(E) Inertia</td>
<td>Country of destination</td>
<td>No pattern change</td>
</tr>
<tr>
<td>4(E) Related market expansion</td>
<td>Country of destination</td>
<td>Growth in Mercosur exports</td>
</tr>
</tbody>
</table>

At the same time, however, less radical ecological views would predict that if there is differentiated expansion, firms will first enter those markets in which structural inertia is less of a liability, in other words countries which relatively similar to the home market.

H4(E): Firms will expand into markets which most closely resemble the domestic market.

In the case of Argentina, this would imply expansion into other Mercosur nations.

By contrast, constructivist theory implies that firms will expand into markets which match
the strategy they adopt. Given this varies according to the individual strategy adopted by each firm, no across-the-board hypotheses are made here.

4.0 The Argentine Context

Argentina presents itself as an excellent case for exploring the issues of firm adaptation discussed above. The broad scope of the market reforms and the speed with which they were accomplished combined to produce a genuine environmental "shock." In the course of five years, the country went from a tightly-regulated closed economy to one which is quickly becoming internationalized and in which the State plays a much more reduced role. Few countries offer such a quasi-experimental setting in which to address these issues. The paragraphs which follow briefly describe the breadth of these reforms and their impact on the economic environment.

The current reform process has affected virtually every aspect of the economy, but those which had a significant impact on the internationalization of economic and business activity can be classified into three broad areas: monetary policy, fiscal policy, and trade and regulatory policy. Of all the reforms adopted by the government since 1989, the one which has received the most attention and has served as the foundation for the other reforms is the Convertibility Law of April 1991, which fixed the currency to the dollar on a one-to-one basis and required that the Central Bank fully back the monetary base in the form of foreign assets. The most visible impact of the Convertibility Law was a reduction of the inflation rate, which by 1989 had peaked at nearly 5,000 percent in 1989 (Ministerio de Economía, 1995). Following the change in monetary policy in 1991, however, inflation plummeted to an annual rate of 18 percent in 1992, and to less than 5 percent by 1995. The drop in inflation resulted in a dramatic increase in the money supply, due in large part to the return of capital which had fled abroad in the previous decade. The monetarization of the economy as measured by M3* (domestic and dollar denominated) increased three fold from
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June 1991 to December 1994, from less than $14,000 million to more than $55,000 (Toulan and Guillén, 1996).

On the fiscal side, two key laws were enacted to bring about structural reform. The first of these, the Economic Emergency Law (1989), suspended virtually all subsidies to the private sector and reduced extraordinary government expenditures (e.g., industrial promotion arrangements, regional subsidies). The result has been a balancing of the budget which in turn has aided in the reduction of interest rates. The second of these laws, the Government Reform Law (1989), set up the regulatory framework for the transfer of firms and assets from the public to the private sector. Privatizations have since affected over 60 state-owned firms, totaling $26 billion worth of assets.

In the realm of trade policy many changes have been undertaken to open up the economy to foreign markets. In addition to the completion of the Mercosur agreement which liberalized trade among countries in the Southern Cone, there has been a general trend towards reduced protectionism in recent years. The average and most frequent tariffs have both been reduced by over 50 percent since 1989. In addition to trade liberalization, many of the internal markets in the country have also been deregulated, including energy, communications, and transportation. The latter in particular has been important in increasing the internationalization potential of Argentine firms. Through the reduction of taxes, the privatization of ports, and the opening of competition, ocean freight charges have fallen by over 50 percent in many instances.

The impact of the monetary, fiscal, trade and regulatory reforms has begun. Between 1990 and 1994 the economy grew by over 30 percent. In addition, the overall level of internationalization of the economy has increased substantially. Since 1989, exports have more than doubled and imports have increased nearly four-fold. The result has been a doubling of the country's coefficient of openness.¹

¹ Coefficient of openness is defined as half the sum of imports and exports of goods and services over GDP.
5.0 Methodology

In order to best address the hypotheses discussed above, it was decided that a survey methodology would be appropriate. In undertaking the survey, the first decision to be made was to define the population of firms. It was decided that the sample would include all firms in the province of Mendoza with more than 10 employees in six key industries. While Buenos Aires is the largest of the provinces, the choice of Mendoza offers several advantages. The first benefit stems from the fact that the economic mix of Mendoza is more representative of the typical region in Latin America than is that of Buenos Aires. Furthermore, firm sizes in Mendoza are more characteristic, in the sense that the majority of the economy is comprised of small to medium sized firms.

The industries which were targeted include beverages (wines, juices, bottled water), agro-industry (fruit and vegetable processing and packaging), metal-machinery, wood and furniture, petrochemicals, and "minería." These industries were chosen for several reasons, the first being their dominance in the local GDP. Together they represent roughly one-third of the GDP of the province, with the remainder being comprised primarily of services and energy. In addition, these sectors are ones which produce tradable goods and as such have been most impacted by the market reforms of the past 8 years. They are also local industries which for the most part hold the potential for becoming internationalized to a significant degree. By having a broad base of industries, one is also able to capture the impact of comparative versus competitive advantages on internationalization capabilities. Those sectors based on natural resources (primarily beverages and agro-industry) benefit from the inherent comparative advantage of the region, while others such as metal-mechanics have had to develop firm-specific competitive advantages.

2 While "minería" is translated as mining, its definition is somewhat different in Argentina than in the US. In this case the sector is comprised primarily of cement and ceramic related industries.
5. Internationalization Responses at the Firm Level

As for selecting only firms which were classified as having more than 10 employees, the rationale was that, even though most firms in the province fell below this mark, in order to have the potential of being internationally competitive in the industries chosen, a minimum scale would be required. Furthermore, by excluding very small firms, it was possible to sample a much larger segment of the population. There were also very important logistic reasons for selecting this population. Among the most important reasons is the fact that due to firm closures, there is no one accurate list of firms active in each sector. In its place three lists from various government agencies including the Census were combined. After the elimination of duplications, we were left with a sample of slightly over 400 firms. In order to confirm firm addresses and phone numbers (most of which had been changed in recent years), however, we needed to contact each firm individually. In doing so it turned out that roughly 25 percent of those 400 firms no longer existed or were the same firm under different names. As such, we were left with a population of roughly 300 firms.

In order to obtain a significant number of firms, it was decided that using a mail survey would not be sufficient. Furthermore, there are certain questions on the survey which might require explanation. As such, it was decided that the survey would be filled out in person. Each firm in the sample was sent a fax (or letter for those without fax) introducing the project and explaining which types of information would be required during the interview. Thirty interviewers were then identified, all fourth or fifth year business administration students at the National University of Cuyo. Each interviewer was required to go through a two hour training program to insure that each had a good understanding of all questions on the survey. The interviewers were then each assigned a number of firms to contact to set up an interview time. Originally 250 firms were randomly drawn and assigned to the interviewers. When firms expressed a disinterest in participating they were replaced with other firms randomly drawn from the population. In the end, the entire
5. Internationalization Responses at the Firm Level

population was contacted and the final number of firms responding was 163, or roughly 55 percent of the population of firms with more than 10 employees in the sectors chosen.

The descriptive statistics from the survey can be found in Appendix B. As can be seen, these are small firms. The sample ranges from firms with sales of a couple hundred thousand dollars to over $300 million, with the vast majority falling in the $1-10 million range. As such, these are firms which for the most part are excluded from directly participating in international capital markets. As with size, there is a wide disparity in firm age, though most firms are between 30 and 40 years of age. Currently, 48 of the 163 firms sell abroad (up from 37 in 1989), though 63 have at one point or another exported. Of those which do export, 40 percent of their production is sold abroad. Other statistics regarding firm strategies can be found in the appendix.

The average interview lasted one and one-half hours, with interviews being conducted between the middle of April and the middle of June 1996. The questionnaire itself was designed over a period of several months and pre-tested on a small sample of firms. It included two types of questions, data-based questions such as sales distributions, and point of view questions such as firm impressions of the recent economic reforms.3

6.0 Empirical Results

With the data from the survey described above, empirical tests were run for each of the hypotheses. The bulk of these, those relating to the propensity and extent of internationalization, were tested using logistic and OLS regressions. Each of the hypotheses relating to these two measures of internationalization was operationalized with the variables defined in Table 2. In addition, industry dummy variables were included in the models to test the comparative advantage hypothesis. In the case of Mendoza, due to the

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3 Because the latter is subject to personal biases, the individuals targeted for the interviews were either the owner of the firm or other top managers.
5. Internationalization Responses at the Firm Level

quality of the land the industry which most benefits from natural advantages is the agroprocessing sector (AGR), which trade theory would predict should witness a stronger than average response to market liberalization. By contrast, the sector which appears to be at the greatest natural disadvantage due to the province’s geographical location is the metal-mechanics sector (MET), leading one to expect a negative relationship between it and increased internationalization.

Table 2 - Independent Variable Definitions

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>Firm age in years(^4)</td>
</tr>
<tr>
<td>SALES AVG</td>
<td>Sales average 1993-1995 in US$ million</td>
</tr>
<tr>
<td>PRICE</td>
<td>Views quality as essential for export markets</td>
</tr>
<tr>
<td>QUALITY</td>
<td>Views price as essential for export markets</td>
</tr>
<tr>
<td>FORTECH</td>
<td>Majority of firm technology is foreign</td>
</tr>
<tr>
<td>UNIV+</td>
<td>% of workforce with university degrees or higher</td>
</tr>
<tr>
<td>TECH. C.A.</td>
<td>Technology as competitive advantage</td>
</tr>
<tr>
<td>PERS. C.A.</td>
<td>Personal relations as competitive advantage</td>
</tr>
<tr>
<td>SUBCON</td>
<td>Increased subcontracting in last 5 years</td>
</tr>
<tr>
<td>REFORMS</td>
<td>View reforms as detrimental</td>
</tr>
<tr>
<td>AGR</td>
<td>Agro-processing firm</td>
</tr>
<tr>
<td>MET</td>
<td>Metal-mechanics firm</td>
</tr>
<tr>
<td>EXSUBS(^5)</td>
<td>Previously received export subsidies</td>
</tr>
<tr>
<td>EXPAGE</td>
<td>Years since firm’s first export</td>
</tr>
<tr>
<td>EXPPLAN</td>
<td>Firm has a formal export plan</td>
</tr>
</tbody>
</table>

The first model has internationalization propensity as its dependent variable. It measures, given that a firm was not already an exporter, whether or not it began exporting

\(^4\) While the majority of the literature measures firm age in absolute terms as measured here, it was thought that the relationship may not be linear and that the difference between a firm which is 99 and 100 years old is not the same as that between a firm which is 1 and 2 years old. As such, three alternative specifications for age were used, including ln(AGE) and SQR(AGE), as well as a dichotomous variable for whether or not the firm was founded before or after the reform process began. In all cases, however, the results are essentially the same, and as such it was decided to remain with the first and most basic specification.

\(^5\) Prior to 1989 the Argentine government had a rather extensive export promotion program for certain industries in the form of export subsidies. With the market-liberalization, however, came the elimination of these programs. While these programs may have helped to expose firms to foreign markets and thus increase their international experience, they also allowed firms to export which under normal circumstances would not be cost-competitive. As such with the removal of these subsidies, one could expect such firms to perhaps reduce their levels of exports. For this reason, a dummy variable (EXSUBS) was used to identify those firms which received previously received export subsidies.
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following the market reforms (EXPYES). In this case a logistic regression was run, with
the dependent variable taking on the value of 1 if the firm became an exporter between 1989
and 1995 and 0 otherwise. As Table 3 reveals, the model as a whole had a high Chi-square
value of 26.1, significant at the 1 percent level. More importantly, though, the results point
to four variables as being important factors influencing whether or not firms began
exporting following the market reforms. All of these variables (FORTECH, PRICE,
SUBCON, and REFORMS) are strategic in nature.

As predicted in Hypothesis 2(C), firms which used mostly foreign technologies
tended to be more likely to initiate export activities following the reforms than those which
used primarily domestic technologies. This result points to the importance of high quality in
a firm's operations for being successful in international markets. While the use of foreign
technology as a proxy for operations quality is appropriate in a case such as Argentina's,
one would most likely have to find other proxies if the same study were to be undertaken in
the US or Europe, where most of the technologies being imported come from. In addition
to an emphasis on quality in one's operations, the data also point to the importance of being
price competitive as well, supporting Hypothesis 5(C).

The last two hypotheses receiving support from the regression results are those
relating to firm specialization and outlook. As predicted by Hypothesis 6(C), those firms
which following the reforms adopted the strategy of increased subcontracting (and thus
increased vertical specialization) were also more likely to initiate export activities. Given the
structure of Argentine industry prior to the economic reforms, it is easy to understand why
such a strategy could be so important. Prior to the reforms, most firms were heavily
vertically integrated for several reasons. In addition to lower levels of competition, labor
laws also made it very difficult to streamline operations.

The final significant factor from the regression lends support for Hypothesis 8(C),
regarding the internationalization of management mentality. In this case, the variable
5. Internationalization Responses at the Firm Level

REFORMS is coded on a Likert scale from 1 (very positive) to 7 (very negative). As such, a negative coefficient on the variable is interpreted as meaning that those firms which view the economic reforms not as an opportunity but rather as a menace were less likely to increase their level of internationalization. Such a relationship is potentially circular, the reforms which were addressed in this question relate for the most part to issues of domestic market liberalization such as the elimination of price controls, lowering of inflation, and reform of the financial system. Furthermore, there are also firms which began exporting because the reforms threatened their domestic market and as such have a negative impression of the reforms. In any case, the importance which this result shows is that firms which have a management mentality which is open to new opportunities will be more successful at internationalizing than those which are more defensive.

Table 3 - Logistic Regression Results: EXYES (Firm Becomes an Exporter)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFORMS</td>
<td>-.8904</td>
<td>.4308</td>
<td>4.2720**</td>
</tr>
<tr>
<td>MET</td>
<td>.0641</td>
<td>.8979</td>
<td>.0051</td>
</tr>
<tr>
<td>UNIV+</td>
<td>.0001</td>
<td>.0358</td>
<td>.0000</td>
</tr>
<tr>
<td>AGR</td>
<td>1.1186</td>
<td>1.0426</td>
<td>1.1512</td>
</tr>
<tr>
<td>AGE</td>
<td>-.0116</td>
<td>.0177</td>
<td>.4327</td>
</tr>
<tr>
<td>FORTECH</td>
<td>.9057</td>
<td>.4263</td>
<td>4.5139**</td>
</tr>
<tr>
<td>PRICE</td>
<td>1.5901</td>
<td>.7859</td>
<td>4.0941**</td>
</tr>
<tr>
<td>QUALITY</td>
<td>.7205</td>
<td>.7136</td>
<td>1.0193</td>
</tr>
<tr>
<td>TECH C.A.</td>
<td>-.6525</td>
<td>.9111</td>
<td>.5129</td>
</tr>
<tr>
<td>PERS C.A.</td>
<td>-.5876</td>
<td>31.0918</td>
<td>0.446</td>
</tr>
<tr>
<td>SUBCON</td>
<td>1.3523</td>
<td>.7594</td>
<td>3.1711*</td>
</tr>
<tr>
<td>SALESAVG</td>
<td>-.0380</td>
<td>.0626</td>
<td>.3638</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.0773</td>
<td>1.7451</td>
<td>1.4170</td>
</tr>
</tbody>
</table>

* p<10%, ** p<5%
N=102
5. Internationalization Responses at the Firm Level

What one also notices from the regression results is that neither of the industry variables is a significant predictor of firm behavior. This provides further support for the idea that while industry effects may narrow the opportunity set of a firm, they do not do so to the extent that firm variance is eliminated altogether.

The focus of the second model was, given that a firm was an exporter in either 1989 or 1995, how did the share of its sales to foreign markets (EXPSHARE) change during this period. In this case, only the subsample of firms which were in fact exporters was used, which totalled 43 firms. Given the continuity of the dependent variable an ordinary least squares (OLS) regression was run. The results are presented in Table 4. As one can see, the model as a whole has a robust F-statistic, significant at the 1 percent level. Furthermore, the adjusted R² is a healthy .36, signifying that the variables included help explain over one-third of the variance in changes in foreign market sales between 1989 and 1995.

In addition, five individual variables revealed themselves as being statistically significant. The first of these, firm size (SALES AVG), is among the strongest results in the regression. Size as measured by dollar sales appears to have had a very strong positive impact on growth in foreign market sales. This result lends support to Hypothesis 1(C) which states that due to favored access to resources, larger firms will be in a better position to take advantage of the new opening of the economy and increase their foreign presence. By contrast, the data contradict the prediction of Hypothesis 1(E), which states that due to increased inertia larger firms will find it more difficult to change and as such one would view smaller changes in their foreign market shares than for smaller, more easily adaptive firms.

This support for the constructivist rather than the ecological approach does not mean that inertia is not active but that in this case the resource constraints imposed upon smaller firms much outweigh whatever inertia may result from large firm size. The fact that
5. Internationalization Responses at the Firm Level

capital is very tight in Argentina, and that smaller firms have an even harder time than large ones at accessing it lends support to this hypothesis. Furthermore, size is a relative term, and what is large in Argentina is not necessarily so in other more developed parts of the world. Both of these conditions point to the importance of analyzing the context in which one is operating, as in this case the same result might not occur in a country in which access to capital is of no problem.

The second significant independent variable lends support to Hypothesis 2(E) which states that older firms will be less likely to change as a result of built up structural inertia. In the sample, firm age had a significantly negative effect on growth in foreign sales. Again, it is important to have an in-depth understanding of the population with which one is working. For, most of the older firms in Argentina are also family-controlled, with deep roots both socially and economically in the local region. These firms have also been reluctant to undertake a professionalization of their management system. In any case, in contrast to firm size, firm age does in fact appear to have a strong inertial effect.

Of the hypotheses regarding firm competencies, the only one which received support in the results was the negative impact of personal relations on foreign sales. Those firms which considered their personal relations to be a competitive advantage appear to have found it difficult to move into foreign markets which in general work on a transactional basis, lending support to Hypothesis 7(C). This result is one which is of particular importance for policy makers but which at the same time is amongst the most difficult to deal with, as it would entail changing the culture of the individual firms and the local economy as a whole to move them towards a more formalized way of dealing with clients, one which is increasingly independent of the individual personalities. Such a change is also not without risks, and should not be taken to the extreme, for one would not want to eliminate personal ties but rather transform them into institutional ones.
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Of the last two significant variables in the regression the first relates to Hypothesis 8(C), the way in which the firm views the recent wave of economic reform. Once again, a positive relationship is found between an openness to market reforms and increased internationalization.

Table 4 - Regression Results: EXPSHARE (Change in Share of Sales Abroad)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPAGE</td>
<td>.333312</td>
<td>.351859</td>
<td>.947</td>
</tr>
<tr>
<td>PERS.C.A.</td>
<td>-31.769319</td>
<td>16.409250</td>
<td>-1.936*</td>
</tr>
<tr>
<td>MET</td>
<td>3.381439</td>
<td>11.065354</td>
<td>.306</td>
</tr>
<tr>
<td>REFORMS</td>
<td>-6.851861</td>
<td>3.649053</td>
<td>-1.878*</td>
</tr>
<tr>
<td>EXPPLAN</td>
<td>16.325020</td>
<td>9.332215</td>
<td>1.749*</td>
</tr>
<tr>
<td>UNIV+</td>
<td>-.085454</td>
<td>.259567</td>
<td>-.329</td>
</tr>
<tr>
<td>TECH.C.A.</td>
<td>12.313309</td>
<td>10.161613</td>
<td>1.212</td>
</tr>
<tr>
<td>PRICE</td>
<td>1.018801</td>
<td>9.066578</td>
<td>.112</td>
</tr>
<tr>
<td>QUALITY</td>
<td>-1.053399</td>
<td>8.740962</td>
<td>-.121</td>
</tr>
<tr>
<td>EXPSUBS</td>
<td>-9.859321</td>
<td>7.878490</td>
<td>-1.251</td>
</tr>
<tr>
<td>AGR</td>
<td>-3.184738</td>
<td>9.362543</td>
<td>-.340</td>
</tr>
<tr>
<td>AGE</td>
<td>-1.034413</td>
<td>.330529</td>
<td>-3.130***</td>
</tr>
<tr>
<td>FORTECH</td>
<td>-2.116689</td>
<td>5.180366</td>
<td>-.409</td>
</tr>
<tr>
<td>SUBCEN</td>
<td>3.742153</td>
<td>9.656199</td>
<td>.388</td>
</tr>
<tr>
<td>SALESAVG</td>
<td>.347711</td>
<td>.110320</td>
<td>3.152***</td>
</tr>
</tbody>
</table>

(Constant) | 51.694086 | 23.925659

* p<10%, ** p<5%, ***p<1%
N=43

The last independent variable to be discussed relates to whether or not the firm has a formal export plan (EXPPLAN). As predicted in Hypothesis 10(C), those firms which adopted such a policy tended to increase their foreign sales more than those which did not. This variable is perhaps the most direct strategic variable relating to a company's foreign strategy. The other strategic variables included here have an impact on the firm's foreign
strategy only indirectly, as they influence other aspects of the firm's operations, i.e.,
product quality, pricing, worker education, etc. which in turn affect the probability of
success abroad. As such, the significance of an export plan lends strong support to the
constructivist perspective which emphasizes the efficacy of managerial actions.

In order to test the overall significance of the constructivist approach vis-a-vis the
ecological one a test for the significance of adding constructivist variables to the basic
ecological model was conducted for each of the two regressions displayed above. For, just
because individual coefficients alone are not significantly related to the Y variable does not
mean that the variables taken together do not have a significant impact on Y. In the first
model of whether or not the firm became an exporter, the following test was used to
accommodate the logistic specification:

\[ c = -2\log(L2/L1) \]

in which L1 is the fitted likelihood of the complete model and L2 is that of the model less
the constructivist variables\(^6\). The resulting value c follows a chi-square distribution. In this
case the c = 24.2 which is significant at the 1 percent level (with 8 degrees of freedom).

For the linear regression of change in export sales, a similar test was used, though
the specification is as follows:

\[ F = [(R^2_2 - R^2_1)/df] / [(1 - R^2_2)/df] \]

with \( R^2_1 \) coming from the constrained regression and \( R^2_2 \) coming from the unconstrained
one. In this case the resulting F = 2.10, which is significant at the 6 percent level given the
appropriate degrees of freedom. As such, in both case, the addition of constructivist
variables is significant in improving the explanatory power of the models.

The last group of hypotheses relate to the country of destination of a firm's exports.
In order to test Hypotheses 3(E) and 4(E), exports were divided into two categories: those

\(^6\) In this case, L2 is based on the model with only AGE, SALES AVG, AGR, MET and the constant on the
right hand side.
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destined for Latin American markets, and those destined for the rest of the world (primarily
the U.S. and Europe). Nonparametric tests were then conducted among those firms which
exported both in 1989 and 1995 to see whether the distribution between these two
categories had in fact changed during the this period. No significant change in distribution
would support Hypothesis 3(E) while an increase in exports to other Latin American
markets would support Hypothesis 4(E).

Surprisingly, the results of the Sign test mildly contradict both hypotheses. Of the
31 firms which exported in both periods, eight saw their percent of exports to the rest of
Latin America decrease, while only two saw it increase. This produced a 2-tailed binomial
P-value of .109 in favor of a significant increase in the share of exports to countries outside
Latin America.

7.0 Conclusion:

The objective of this paper has been to explore both theoretically and empirically the
impact of environmental shocks on firm behavior, in particular internationalization
behavior. It was shown that in contrast to classical industrial organization and trade
theories, firm effects do in fact have a strong effect on how firms adapt. By contrast, no
support was found for industry as being a critical variable. Within the domain of firm
effects, two points of view were contrasted: ecological determinism and constructivism.
Overall, the data tended to support a more constructivist approach to firm behavior. One's
strategic choices do in fact tend to have an impact on one's reaction to changes in the
environment. In the case of one's internationalization responses to market liberalization,
support was found for the hypotheses regarding operations quality, price
conscientiousness, specialization, and formal planning among others.

On the other hand, partial support was also found for the idea of competitive inertia.
As predicted by ecological theories, older firms were less likely to increase their levels of
internationalization. By contrast, though, negative support was found for the claim that larger firms are also more susceptible to inertia. They in fact were the ones more likely to increase their penetration of foreign markets. Again, however, as was previously mentioned, it is important to keep in mind the context in which any population of firms operate. While size may be extremely important to access resources in the Argentine context, it may not be the case in other locations in which resource markets are more fluid.

What these results point to is a general support for the impact of strategic decisions on firm reaction to environmental events, while at the same time acknowledging the fact that inertial pressures are present. Such a conclusion tends to support Hrebinjak and Joyce's (1985) idea of adaptation within constraints.

While the focus here was on firm reaction to major shocks, whether or not the relative weights of these two opposing forces are the same when the environmental changes are more minor in nature is another question. Is an environmental jolt in fact necessary for firm strategy to outweigh structural inertia? With the slowing of the reform process in Argentina, such a comparative analysis may be possible in the future.
REFERENCES


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1.0 Introduction

The opening and internationalization of national economies has had the effect of imposing upon firms an additional performance requirement, that being the extent to which they themselves are internationalized. Implicit in this logic is the assumption that internationalization is positively correlated with competitiveness and through it with improved financial performance. The validity of this assumption, however, is dependent upon the manner in which internationalization as a concept is defined and operationalized. Unfortunately, the definitions which are usually adopted tend to be overly narrow and often unidimensional in nature, in most cases focusing on easily measured physical or tangible attributes.

The argument which this paper presents is that internationalization is a multidimensional concept and that overly simple measures may often fail to establish the link between it and competitiveness. What will be presented in its place is an elaborated definition which encompasses not only multiple "tangible" or physical measures but also
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

highlights the importance of the "intangible" aspects of internationalization, which it will be argued are the real link to competitiveness. Tangible measures are defined here as those which relate to the physical dispersion of the firm, and include most traditional measures of internationalization such as exports or foreign direct investments. By contrast, intangible internationalization is used to describe the extent to which the firm's knowledge base meets international standards on a variety of aspects, regardless of where its physical components are located. In presenting this argument, it will be shown that by relying solely on traditional tangible measures, one runs the risk of inaccurately assessing the level of internationalization of a firm, in some cases overstating and others understating its true level. Furthermore, an argument will be presented for why a firm's scope of intangible internationalization can in fact be broader than that of its tangible internationalization.

By introducing the element of intangible internationalization, this paper attempts to bridge the international business literature on foreign expansion with the strategy literature on firm competencies and capabilities. The former has tended to adopt as its unit of analysis the physical dispersion of the firm, be it in terms of markets or operations. In fact, the field of international business grew out of the desire to explain why one saw firms operating in multiple geographies. Starting with Hymer (1968) a variety of theories were put forth to explain this phenomena. These included financial market disequilibria, Bain-type market entry barriers (Hymer, 1968), goods and factor market imperfections (Kindleberger, 1969), product cycle explanations (Vernon, 1966, 1979), and transaction cost economics (Teece, 1986; Dunning, 1988). The latter, in particular Dunning's O-L-I framework, began to address the importance of firm-specific (Ownership) advantages in the internationalization process. However, these firm competencies were only used to explain why one observed the expansion of firms abroad, as opposed to being the focus of the internationalization process themselves.
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

By contrast, the strategy literature on firm competencies and resources (Prahalad and Hamel, 1990; Teece, Pisano, and Shuen, 1990; Barney, 1991) has as its unit of analysis the knowledge and resource base of the firm. Two arguments can be presented for why it is time for the internationalization literature to do the same. On the one hand, due to improvements in communication, the globalization of information is occurring as fast if not faster than the globalization of physical markets. Therefore, knowledge is not as geographically constrained as it used to be, and as such the internationalization of one's knowledge base is not necessarily tied to one's tangible internationalization. On the other hand, there are industries which by nature are not prone to tangible internationalization (normally referred to as nontradables) but which at the same time can acquire an internationalized knowledge base.

It is this distinction between tangible and intangible internationalization which is the focus of this paper. These concepts are explored empirically using data stemming from an original survey of Argentine firms. There are several reasons why this distinction in forms of internationalization is of particular interest for firms from emerging markets such as Argentina. The first was alluded to above. In the past if a firm wanted to operate at world-class standards, it was handicapped if it was not physically present in one of the leading markets. In other words, the internationalization of one's intangible assets was constrained by the internationalization of one's tangible assets. Today, however, this strict requirement does not necessarily hold. In fact, the globalization of certain markets has actually aided others in remaining local. Firms in more remote parts of the world can access the latest technologies and practices without necessarily internationalizing their physical presence. What this implies is that firms in emerging markets have the opportunity to increase the international scope of their intangible assets without necessarily increasing the scope of their tangible ones.
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In addition, many of these emerging countries view increased internationalization as a way of improving the productivity of their economies. As will be argued, however, simply internationalizing one's tangible components does not automatically imply the same will occur with one's intangible ones. In addition, Argentina is a country of relatively small firms, many of which may find it prohibitive to undertake tangible internationalization but not necessarily intangible internationalization.

The empirical component of the paper is comprised of two parts. The first assesses the impact of various firm characteristics on one's propensity to internationalize the tangible and intangible components of the firm. This is followed by an analysis of the relationship between these two forms of internationalization and firm performance. It is shown that those factors relating to intangible internationalization are in fact better predictors of superior performance than are those relating to tangible internationalization.

The paper itself is divided into six sections. The first consists of a review of current conceptualizations of internationalization so as to provide a context for where this research fits into the literature. This is followed by a theoretical discussion of the concepts being proposed, distinguishing between the various forms of tangible and intangible internationalization. This section also addresses the issue of when the former is a requirement for the latter and when it is not. The third section then presents the research approach and methodology adopted to empirically test the framework being proposed. This is followed by a discussion of how each concept was operationalized. The penultimate section then presents the empirical results based on the survey of Argentine firms. Finally, the paper closes with a discussion of the conclusions and implications stemming from the research.
2.0 Current Conceptualizations of Internationalization

As previously mentioned, there is a growing pre-occupation among firms with the issue of becoming internationalized. It is believed that doing so will result in increased competitiveness and eventually increased returns. Unfortunately, this correlation is not as simple as it may seem. This section attempts to describe the current state of the literature on internationalization measures, accentuating the fact that virtually all of it stresses the tangible or physical aspects while ignoring the intangible or knowledge-based ones. As has been pointed out by others, oftentimes measures of internationalization are selected based on data availability rather than conceptual reasoning (Ramaswamy, Kroeck and Renforth, 1995). In many situations there may be no other choice than to depend of what is available. However, acknowledging this handicap is not an excuse for not striving for more accurate operationalizations.

Though the field of international business can solidly trace its roots back some thirty years (Hymer, 1968; Kindleberger, 1969), most of the research conducted during this period has focused on identifying those factors which help to predict the propensity to become or the degree to which a firm already is internationalized\(^1\). In doing so, however, relatively little attention has been devoted to defining the dependent variable itself.

In general, two basic approaches to defining internationalization can be identified: that which focuses on one single criterion and that which tries to incorporate a host of measures into the definition. The single criterion, approach has tended to be the most popular in part because of the its simplicity and ease of interpretation. Sullivan (1994) identifies three of what he considers to be the most popular of such measures: foreign subsidiary sales as a percentage of total sales (Stopford and Dunning, 1983); foreign assets as a percentage of total assets (Daniels and Bracker, 1989); and the number of foreign subsidiaries (Stopford and Wells, 1972). While these measures are easily attainable and

\(^{1}\) See Dominguez and Sequeira, 1993 and Sullivan, 1994 for a partial list of such studies.
have the virtue of being comparable across firms, they are also susceptible to a number of problems. The one focused on here was alluded to earlier. Each of these measures is based on the tangible internationalization of the firm, that is to say the geographical dispersion of various aspects of the firm's value chain. It is assumed that with this physical expansion comes the benefits touted of internationalization (i.e., increased competitiveness and profitability). While on average this may be the case, the true source of these benefits may not necessarily be these tangible aspects, but rather the intangible ones with which they are associated. However, because this correlation between tangible and intangible internationalization is not a one-to-one correlation, one may also encounter instances in which tangible internationalization does not in fact contribute to improved competitiveness and performance.

This glitch in the chain of causality may explain in part why there is no consensus in the literature as to the effect of tangible internationalization on performance. Sullivan (1994) identifies 17 single criterion studies, which try to tie internationalization to performance. In each case, either foreign sales or foreign assets is used as the dependent variable. Of these studies, some found there to be a positive impact while other found the effect of internationalization on performance to be negative. Still other studies found no correlation at all. Aside from differences in populations and techniques, part of the variance in these results may be due to the explanation being offered here, that what is important in internationalization is not necessarily that one expands physically but that one operates at international standards.

In addition to single criterion measures of internationalization, other researchers have adopted more inductive frameworks in which a host of internationalization characteristics are used. The external validity of such approaches, however, has hampered their wide-spread adoption. More recent attempts to use multiple measures have attempted to be more systematic. Among the most detailed and discussed of the latter is Sullivan's
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(1994, p. 331) internationalization index. He defines his degree of internationalization (DOI) index as having three attributes: "performance (what goes on overseas, Vernon [1971]), structural (what resources are overseas, Stopford and Wells, [1972]); and attitudinal (what is top management's international orientation, Perlmutter [1969])." Each of these attributes relates in one way or another to the framework being presented in this paper. However, in each case Sullivan incorporates into his operationalization of these attributes only tangible measures of internationalization, such as the geographic location of sales, assets, and profits. Even the attitudinal attribute is proxied for by the geographic experience of management. Such measures are often used because of difficulties in data accessibility, particularly when the study is reconstructive, using second-hand as opposed to primary data sources.

While Sullivan's index has succeeded in refocusing efforts on better measuring the concept of internationalization, it attempts to do so by essentially combining existing measures to form a unitary index. What follows not only presents new measures of internationalization, but also attempts to redefine the concept itself, so as to make correlations which are currently implicit more explicit.

3.0 Internationalization Reconceptualized

As mentioned, the drawback of the above definitions of internationalization is that they leave the relationship between it and competitiveness implicit. They adopt the assumption that by physically operating in foreign markets in one way or another, one will automatically be forced to become more competitive. While these variables may often be correlated, it is contended here that they need not always be so, and that when they are, it is often due to other variables (intangible ones) with which these tangible measures themselves are correlated.
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The aim of this paper is to propose an alternative conceptualization of internationalization which distinguishes between its tangible and intangible components. In doing so, inspiration is drawn from the work of Kanter (1995) who writes about the difference between "cosmopolitan" and "local" firms. The reason for making this distinction between tangible and intangible measures is that the former are often used as proxies for the ability of a firm to compete at international standards. However, one can also have firms which are internationalized in terms of capabilities but which do not sell or operate in foreign markets, and as such do not appear to be international according to traditional measures. In the proposed redefinition, intangible internationalization is meant to measure the extent to which a firm has the ability to compete at an international level not necessarily in terms of sales but rather in terms of knowledge-base and orientation. The implication which this holds for the field is a broadening of the population of firms which are the focus of international business so as to include certain firms which previously were classified as domestic in nature. On the other hand, it also calls for a reevaluation of firms which satisfy the traditional tangible measures but which fail when it comes to the intangible ones.

The distinction being made here is particularly important in the case of developing countries which view internationalization as a way of elevating the productivity of their economies. After forty years of failed import-substitution policies, much of Latin America is turning to the export-promotion model which appears to have been successful for so many SE Asian countries. A potential danger of such a reorientation, however, lies in the assumption that simply increasing one's levels of exports will serve as a growth engine for the economy. The export promotion regimes of Korea and the other Asian Tigers were coupled with a knowledge acquisition process in which technologies and practices from abroad were assimilated, and adapted when necessary, into the industrial structure of firms and industries. As such, their process of growth is better characterized as one of tangible
and intangible internationalization. By focusing primarily on the former, with its more visible measures, one runs the risk of forgetting about the latter, which can be the real source of growth.

In addition, by emphasizing solely the tangible measures of internationalization, one automatically excludes much of the economy from participating in the internationalization process. Non-tradable sectors are excluding from becoming "internationalized," as are certain segments of firms in tradable sectors, such as very small ones, which are handicapped in selling and/or operating abroad. However, while these segments of the economy may be excluded from tangible forms of internationalization, the same is not true when it comes to intangible forms. Firms of all sizes and sectors have the potential to internationalize their capabilities and knowledge-bases.

What these claims imply is that there is not necessarily a one-to-one correlation between tangible and intangible internationalization. An example helps to clarify this distinction. Before privatization in 1993, Siderar (the Argentine state flat steel company) appeared to be highly internationalized using traditional tangible measures (Toulan, 1996). It was selling on the order of 70% of its output on the international market. By contrast, following privatization, that figure dropped to roughly 25-30%. Therefore, using traditional measures, the firm appeared to actually deinternationalize. However, in the years since the privatization, the firm has dramatically increased its productivity and product quality through capital and organizational investments, such that today the firm is much closer to world-class operating standards than when it was exporting the bulk of its production. Furthermore, if one delves into the case in more detail, one discovers that the firm was exporting so much because domestic customers refused to purchase the firm's steel due to quality and service problems. The firm was forced to sell its output to international steel traders who could find markets for inferior quality steel, though at prices which caused the firm to lose huge amounts of money. By contrast, the steel that the firm
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does export today is of a much higher quality and half of it is sold directly to customers in the developed markets. As such, simply looking at gross export levels would provide a misleading perception of the true ability of the firm to compete internationally.

The group which currently owns Siderar, Techint, also possesses another firm, Siderca, which produces seamless steel tubing. In an earlier period, Siderca also underwent a similar upgrading of capabilities. In its case, however, this increase in intangible internationalization was also accompanied by an increase in tangible internationalization. Because of differences in relative minimum efficient scale and other industry specific characteristics, the firm was forced to internationalize in physical terms if it wanted to reach international standards. What this example shows, therefore, is that under certain circumstances the two aspects of internationalization will be correlated while under other circumstances they need not be.

As illustrated in Table 1, five forms of both tangible and intangible internationalization are identified. Standard definitions have tended to focus on the left hand side of the table, and in most cases on the upper two cells. What the right side of the table offers is an incorporation of skills into the definition of what it means to be internationalized. Even if a firm does not sell in foreign markets or have facilities in foreign countries, it can still operate at an international level if it sells to customers in the domestic market which demand world-class standards, adopts world-class technologies, or implements modern management practices. Furthermore, the sophistication of one's suppliers and the level of local competition can have a strong impact on one's ability to operate an international standards.
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Table 1 - Internationalization Framework

<table>
<thead>
<tr>
<th>FORM OF INTERNATIONALIZATION</th>
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<tbody>
<tr>
<td>Tangible</td>
</tr>
<tr>
<td>Market Location of Sales</td>
</tr>
<tr>
<td>Operations Location of Facilities</td>
</tr>
<tr>
<td>Management Location of Mgmt.</td>
</tr>
<tr>
<td>Procurement Location of Suppliers</td>
</tr>
<tr>
<td>Competition Location of Competition</td>
</tr>
<tr>
<td>Intangible</td>
</tr>
<tr>
<td>Sophistication of Demand</td>
</tr>
<tr>
<td>Sophistication of Technology</td>
</tr>
<tr>
<td>Adoption of Mgmt. Practices</td>
</tr>
<tr>
<td>Sophistication of Suppliers</td>
</tr>
<tr>
<td>Level of Competition</td>
</tr>
</tbody>
</table>

What the example of Techint alluded to is that even within the same company, tangible and intangible internationalization may be correlated in certain circumstances and not in others. Following a brief elaboration of the various cells in Table 1, the paper will address a key question relating to this issue, which is, "When does a firm need tangible internationalization in order to achieve intangible internationalization?"

Before continuing, however, a brief elaboration of the specifics of the different forms internationalization is needed. The order of the discussion will flow from those aspects which have received the most attention in the literature to those which have received the least. The first form which cuts across both aspects of internationalization relates to the markets which a firm serves. In this case, the degree to which a firm is internationalized on a tangible basis is dependent upon the physical location of its sales. The most typical measure of internationalization used, firm exports, relates to this form. By contrast, the intangible aspect of market internationalization refers not necessarily to where one's customers are located but rather to whom they are and what demand requirements they impose upon the firm. In some ways, this aspect relates to the issue identified by Porter (1990) when trying to decide where to locate one's home base. He points to the sophistication of home market demand as being important in influencing one's overall ability to be competitive. However, internationalization in this context is still viewed in
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tangible terms, that is selling abroad. By contrast, this framework identifies the possession of world-class customers as a form of internationalization in and of itself, be they located in one's home market or abroad.

This distinction between the location and "quality" of demand is particularly important in the case of Argentina (Toulan and Guillén, 1996). With the completion of Mercosur, many Argentine firms view themselves as internationalizing through increased sales to and foreign direct investment in Brazil. While on a physical level they are in fact internationalizing, the same is not always true at an intangible level. Certain segments of the Brazilian market are less developed when compared to that of Argentina and as such participation in them will not necessarily increase competitive pressures to improve firm performance. Firms which serve customers in markets with more sophisticated demand conditions such as the United States or Europe, by contrast, should be considered to have reached a higher level of internationalization. Even if a firm had just 20% of its sales in more sophisticated markets and the remaining 80% of its sales at home, the fact that it is able to sell at all in these markets should classify it as being more international from an intangible perspective than a firm which sells the bulk of its output abroad but to less sophisticated markets.

While such a generalization may be true on average, there are exceptions. For, each national market has a spectrum of demand sophistication, and in any one market there are segments which approach world-class standards. As such, who one sells to in one's local market is just as important as to whom one sells in foreign markets.

Aside from the physical location of sales, the second most prevalent measure of internationalization focuses on the location of a firm's operations and facilities. Again, however, while the physical dispersion of one's facilities may infer that one is sophisticated enough to coordinate dispersed activities, it need not imply that those facilities are operating at international standards. By contrast, the level of technology which one has in place is a
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better indicator of one's ability to compete internationally regardless of whether one's facilities are located in just one market or spread amongst several.

A third tangible measure of internationalization which is sometimes used is the location of one's management. There exists an entire stream of literature (Doz and Prahalad, 1981; Prahalad and Doz, 1981; Bartlett and Ghoshal, 1986; Hedlund, 1986) whose focus is the management of multinational subsidiaries. The topics covered in this literature include the role of ex-patriots and the centralization versus decentralization of control. In all cases, however, the underlying issue being addressed is the physical dispersion of workers and in particular management. In recent years, the trend towards physically dispersed bases of competence has come to represent higher levels of internationalization. The benefits associated with this physical dispersion, though, are not automatic, but rather are tied to the ability of the firm to take advantage of them. This leads back to the issue of intangible internationalization at the managerial level, among the most critical of all the internationalization forms for long-run success. Whether one's knowledge base is internationalized at the management level relates to the degree to which the firm's management operates according to leading-edge methods. Central to this ability is the effort devoted to the development of a firm's human resources, both formally in terms of training and informally in terms of developing a culture and set of values which push for continuous improvement and which encourage comparisons not solely with one's current competition but also with world class competitors.

A firm need not have its management be physically dispersed in order to adopt these practices. It may, however, need to tap into foreign sources to maintain its link with what is occurring outside its home market. Again, the case of Techint presents itself as a good example, a firm which has developed into one of Latin America's best managed companies (Marcus and Kirsis, 1994). Even though the vast majority of its management is located in
Argentina, it has developed institutional ties with some of the leading universities in the world in order to foster the development of its human resources.

Whereas the previous two forms of internationalization have focused primarily on issues internal to the firm, the next two return to the firm's interaction with external actors. The first of these relates to the suppliers of the firm. On the one hand, the physical dispersion of one's suppliers can serve as an indicator of the tangible internationalization of a firm's supply network. However, what is really important is the extent to which the suppliers themselves are internationalized. Whether or not one's suppliers operate at world-class standards can have a large impact on one's ability to do so oneself. A common complaint of many large Argentine firms is that attempts to become more competitive and expand internationally are often thwarted by the fact that their suppliers are unable to make the needed changes. As such, the intangible internationalization of one's procurement can have a direct impact upon the tangible internationalization of the firm as a whole.

The last of the five forms of internationalization identified in Table 1 relates to one's competitors. A tangible measure in this case relates to the markets in which one competes. It is generally assumed that the more markets in which one competes, the more competitive one will be. However, as in the location of demand, the real question is not so much how many competitors does one face, but rather what is the caliber of that competition. One could be faced with competing against the best firms in the world even when operating in just one market. While this is more likely to be the case in the Triad regions, it can also be the case in less traditional markets if leading edge firms are present in one form or another, be it through exports or local production. Even if the last condition is not met, one can still be forced to operate at or close to world-class standards through the threat of potential entry. This is most easily seen in the case of traded goods in which firms are forced to operate at standards within a range of foreign competition equal to the increase in transaction costs associated with importing the product (i.e., transportation costs, tariffs,
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fees, etc.). The lower those costs the greater the effective level of competition, regardless of whether foreign firms actually enter the local market.

Throughout the above discussion, importance has been given to distinguishing between the tangible and intangible aspects of internationalization. It has also been alluded to, however, that in certain circumstances the tangible aspects are required in order to obtain the intangible ones and in other circumstances they are not. Whether or not this is the case is heavily dependent upon the nature of the industry in one's particular market, and relates to the distinction made by Porter between global and multidomestic industries (1987), though the correlation is not always in the direction one might think. This approach can be applied to all five forms of internationalization. In addressing this issue, the question to keep in mind is "When does one need to be physically present abroad in order to attain world-class standards?"

In terms of market internationalization, when one sells to customers which themselves operate in a global industry, in which case the leading edge players are geographically concentrated, one may or may not have to physically internationalize one's sales. If a firm is fortunate enough to be located in a country which is the base for one or more of the these players, one need not go outside one's national boundaries in order to find the sophisticated demand associated with intangible market internationalization. By contrast, when a firm is located in a peripheral country for its industry, it may be required to be present abroad if it wishes to serve firms demanding international standards.

With regards to the tangible internationalization of one's operations, the nature of one's own industry is key. If a firm is operating in a global industry which demands a very large minimum efficient scale, it may be forced to remain located in its home market, as operating multiple facilities in foreign countries could result in a less than optimal operating structure, thus hurting one's ability to operate at internationally competitive levels. There is another implication of such an industry structure, though, in the sense that if the minimum
efficient operating scale exceeds the size of one's local demand, one will be forced to sell in foreign markets, thus physically internationalizing one's sales. This was the case for Siderca, operating in the seamless tube market. There are also other circumstances, though, in which one may have to invest in operations abroad in order to be able to reach international standards. This is particularly true when access to the latest technologies and/or processes is restricted, be it as a result of large amounts of tacit knowledge or legal barriers.

While one may have to physically internationalize one's managers in order to staff foreign operations, it is not necessarily required if the objective is to internationalize their skills and orientation. If one is operating in one of the leading academic regions of the world one need not go abroad in order to find talented managers, and even if one is located in a peripheral region one can always hire from other regions or send one's employees abroad for management education. However, they do not necessarily have to be posted abroad in order to develop these skills. And, as for developing an internationalized orientation which strives for attaining world-class standards, this is something which is developed by top management and firm culture. While having managers abroad may help foster this mentality it is by no means required nor does it guarantee it.

The issue of the internationalization of one's suppliers is in many ways parallel to that of market internationalization. If one's suppliers operate in a global industry, once again one's geographical location vis-a-vis leading suppliers will determine whether or not one needs to tangibly internationalize one's procurement.

Lastly, on the issue of competitors, if one's home market is also the home market to leading players in the industry or at least a market in which those firms operate (either via exports or FDI), one need not physically internationalize to receive the competitive benefits of going up against world-class firms. On the other hand, if one operates in a closed market with relatively few competitive pressures, one may still be able to draw upon the lessons to
be learned from leading firms by undertaking forms of competitive benchmarking, which
do not necessarily require that one actually compete against those firms. This is a practice
which Siderar undertakes heavily even though its foreign sales are limited.

The above discussion has outlined an alternative view of internationalization by
distinguishing between various forms of tangible and intangible internationalization. It was
also reasoned under which conditions the former is a requirement for the latter and when it
is not. The remaining sections of the paper attempt to take the concepts discussed above
and empirically investigate them using a sample of Argentine firms. As previously
mentioned the empirical component of the paper is divided into two parts. The first attempts
to identify those factors which influence the level of tangible and intangible
internationalization of the firm. In this context, a mix of strategic and structural variables
are analyzed. In general, it is predicted that strategies which emphasize various aspects of
firm quality as well the development of specialized resources will be positively correlated
with both forms of internationalization but particularly with the intangible forms. Of the
structural characteristics, firm size is predicted to have the most significant positive impact.
In this case, though, it is forecast that size will be most influential when it comes to tangible
forms of internationalization which may require relatively large capital investments.

The second part of the empirical analysis then attempts to tie the various forms of
internationalization to firm performance, so as to determine the relative impact of the
tangible versus intangible aspects of the internationalization process. It is predicted that in
genral the intangible measures will tend to have more of an impact on firm performance
than the tangible ones, thus providing support for the idea that they are in fact the real link
between internationalization and competitiveness. A schematic of the empirical approach
being adopted can be found in Figure 1.
4.0 Research Approach and Methodology

In order to best address the various forms and aspects of internationalization, it was decided that a survey methodology would be most appropriate. As previously mentioned, the research itself was undertaken in Argentina. The country poses itself as an interesting testing ground for issues relating to internationalization for a number of reasons. Having recently emerged from a half-century of protectionist policies, Argentina is in the midst of a dramatic increase in the level of internationalization of the economy, both tangibly and intangibly. Firms are being confronted with increased pressures and challenges all along their value chains. It is also an interesting case for the reason that the goal behind the recent economic reforms was to increase the competitiveness of Argentine firms by raising their level of internationalization. Whether or not these firms need tangible internationalization in order to achieve this goal, however, is still unresolved. Through an analysis of the impact of the various tangible and intangible aspects on performance, insights into this issue may be obtained.

In undertaking a survey, the first decision to be made was to define the population of firms. It was decided that the sample would include all firms in the province of Mendoza with more than 10 employees in six key sectors. While Buenos Aires is the largest of the
provinces, the choice of Mendoza offers several advantages. The first benefit stems from
the fact that the economic mix of Mendoza is more representative of the typical region than
is that of Buenos Aires. Furthermore, firm sizes in Mendoza are also more characteristic, in
the sense that the majority of the economy is comprised of small to medium sized firms. It
also possesses both industries rooted in natural comparative advantages as well as ones
which were forced to develop competitive advantages in order to survive.

The province of Mendoza is located in the central-eastern part of Argentina, 600
miles from Buenos Aires and just across the Andes mountains from Santiago, Chile. In
area, Mendoza is roughly the size of Pennsylvania, though its population is much less,
roughly 1.5 million. The City of Mendoza, however, is the fourth largest in Argentina,
representing two-thirds of the province's population. The economy of the province is
rooted in agriculture. Known as the wine capital of Argentina, Mendoza accounts for
roughly 75% of the country's production of wine, as well as for much of its fruit and
vegetable production, a large portion of which is exported. From its origins in agriculture,
however, the economy has proceeded to diversify in the 20th century. Out of the need to
provide machinery for the agricultural sector grew a rather sizable metal-mechanics
industry, which has since expanded beyond solely providing machinery for harvesting and
processing into areas such as turbines and cranes. Exports of machinery began in the
1960's and have grown steadily. More recent industries in the province include petroleum
refining and petrochemicals, as well as cement and the production of wood related products
(CRECER, 1994). As with 22 of Argentina's 24 other provinces, Mendoza has
experienced an impressive growth in trade in recent years. Mendoza saw its exports
increase from $152 million in 1988 to $702 million in 1995 (Ministry of Economy, 1995).

The industries which were targeted for study include beverages (wines, juices,
bottled water), agro-industry (fruit and vegetable processing and packaging), metal-
machinery, wood and furniture, petrochemicals, and "minería". These industries were chosen for several reasons, the first being their dominance in the local GDP. Together they represent roughly one-third of the GDP of the province, with the remainder being comprised primarily of services and energy. In addition, these sectors are ones which produce tradable goods and as such have been most impacted by the market reforms of the past 8 years. They are also local industries which for the most part hold the potential for becoming internationalized to a significant degree. By having a broad base of industries, one is also able to capture the impact of comparative versus competitive advantages on internationalization capabilities. Those sectors based on natural resources (primarily beverages and agro-industry) benefit from the inherent comparative advantage of the region, while others such as metal-mechanics have had to develop firm-specific competitive advantages.

As for selecting only firms which were classified as having more than 10 employees, the rationale was that, even though most firms in the province fell below this mark, in order to have the potential of being internationally competitive in the industries chosen, a minimum scale would be required. Furthermore, by excluding very small firms, it was possible to sample a much larger segment of the population. There were also very important logistic reasons for selecting this population. Among the most important reasons is the fact that due to firm closures, there is no one accurate list of firms active in each sector. In its place three lists from various government agencies including the Census were combined. After the elimination of duplications, we were left with a sample of slightly over 400 firms. In order to confirm firm addresses and phone numbers (most of which had been changed in recent years), however, we needed to contact each firm individually. In doing

\[^2\] While "minería" is translated as mining, its definition is somewhat different in Argentina than in the US. In this case the sector is comprised primarily of cement and ceramic related industries.
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so it turned out that roughly 25% of those 400 firms no longer existed or were the same firm under different names, resulting in a population of roughly 300 firms.

In order to obtain a significant number of firms, it was decided that using a mail survey would not be sufficient. Furthermore, there are certain questions on the survey which might require explanation. As such, it was decided that the survey would be filled out in person. Each firm in the sample was sent a fax (or letter for those without fax) introducing the project and explaining which types of information would be required during the interview. Thirty interviewers were then identified, all fourth or fifth year business administration students at the National University of Cuyo. Each interviewer was required to go through a two hour training program to insure that each had a good understanding of all questions on the survey. The interviewers were then each assigned a number of firms to contact to set up an interview time. Originally 250 firms were randomly drawn and assigned to the interviewers. When firms expressed a disinterest in participating they were replaced with other firms randomly drawn from the population. In the end, the entire population was contacted and the final number of firms responding was 163, or roughly 55% of the population of firms with more than 10 employees in the sectors chosen. The average interview lasted one and one-half hours, with interviews being conducted between the middle of April and the middle of June 1996. The questionnaire itself was designed over a period of several months and pre-tested on a small sample of firms. It included two types of questions, data-based questions such as sales distributions, and point of view questions such as firm impressions of the recent economic reforms.³

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³ Because the latter is subject to personal biases, the individuals targeted for the interviews were either the owner of the firm or other top managers.
5.0 Operationalization of Models

Of the questions on the survey, a subsegment was designed to operationalize the concepts described in the conceptual part of this paper. Measures for both the tangible and intangible aspects of the various forms of the internationalization were devised. In addition, a host of firm-specific variables believed to impact each of the forms of internationalization were included. Lastly, a firm performance measure was crafted.

The conceptual component of this paper identified five forms of internationalization (market, operations, management, procurement, and competition), each with a tangible as well as intangible component, resulting in a total of ten internationalization concepts. The specific measures used to operationalize each of these concepts can be found in Table 2.

Table 2 - Operationalization of Tangible and Intangible Forms of Internationalization

<table>
<thead>
<tr>
<th>OPERATIONALIZATIONS</th>
<th>Tangible Internationalization</th>
<th>Intangible Internationalization</th>
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</thead>
<tbody>
<tr>
<td>Market</td>
<td>• Export Y/N</td>
<td>• Sales to MNEs</td>
</tr>
<tr>
<td></td>
<td>• Foreign Sales %</td>
<td>• Sales to Exporters</td>
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<tr>
<td></td>
<td></td>
<td>• Sales Outside Latin America</td>
</tr>
<tr>
<td>Operations</td>
<td>• Foreign Direct Investment</td>
<td>• Foreign Technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Age of Technology</td>
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<tr>
<td>Management</td>
<td>• Foreign Direct Investment</td>
<td>• Market Definition</td>
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<tr>
<td></td>
<td></td>
<td>• Foreign Education/ Training</td>
</tr>
<tr>
<td>Procurement</td>
<td>• Foreign Suppliers</td>
<td>• Supplier Exports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supplier Sales to MNEs</td>
</tr>
<tr>
<td>Competition</td>
<td>-----</td>
<td>• Benchmarking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Foreign Competitors</td>
</tr>
</tbody>
</table>

Of the market measures, those relating to the physical location of sales include whether or not the firm has sales abroad (XYES), and if it does, what percent of its sales
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

are accounted for by foreign markets (X%). By contrast, those measures relating not specifically to where one's customers are located but rather to how sophisticated they are in their demands include whether or not one sells to MNEs or exporters in the local market (MNEYES, XERYES) and what share of one's sales is accounted for by these customers (MNE%, XER%).

A third measure of intangible market internationalization was taken as the percent of the firm's sales outside Latin America (XNONLA), which in this case consists primarily of Europe and the US. While on the one hand sales to these markets is a tangible measure of internationalization, they are used here as proxies for demand sophistication, as these markets tend to be more advanced than those in Latin America.

Regarding the internationalization of a firm's operations, three measures were designed. These included the traditional tangible measure of whether or not the firm has foreign direct investments. In this case, the variable was expanded to include not only foreign direct investments, but foreign alliances as well which is another form of extending the physical boundaries of the firm. This variable, ALLFDI, took on the value of 1 if the firm had either FDI or foreign alliances, and 0 otherwise. In addition, two intangible internationalization measures are used, FORTEC and TECAGE. The first of these takes on the value of 1 if a majority of the firm's technology is foreign in origin, while the latter is a measure of the age of the firm's most recent major technological investment.

The third set of measures relate to the internationalization of management. As described in the conceptual part of the paper, the tangible aspect of this form of internationalization is best represented by the share of one's management posted abroad. However, due to data limitations, such information was not available. However, as was also previously discussed, this measure is highly correlated with the physical internationalization of one's operations, and as such inferences can be drawn from the results of the ALLFDI model. Three measures of intangible managerial internationalization
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are used, however. The first of these, FORTRA, takes on the value of one if the firm has
sent employees abroad for training or education. The variable MARDEF is used to proxy
for how management defines its market. The variable ranges from 1, being "Provincial," to
4, being "International." In addition, a variable MARΔ was computed as the degree to
which the firm broadened or narrowed its market definition between 1989 and 1995.

The next set of internationalization measures relate to the firm's suppliers. Tangible
internationalization in terms of procurement was represented by the share of one's suppliers
which were located abroad (FORSUP). By contrast the intangible measures focused on
how sophisticated one's suppliers were regardless of where they were located. In general,
suppliers which have other demanding customers will tend to be of higher quality, and in
general foreign firms and export markets tend to demand higher standards. As such,
whether or not a firm's suppliers sell to MNEs operating locally or exports products
themselves can be taken as proxies for the level of sophistication of one's suppliers. In this
case, SUPMNE took on the value of 1 if most of the firm's suppliers also sold to MNEs,
and 0 otherwise. Likewise, SUPX was used to differentiate between those firms which had
a majority of their suppliers export and those which did not.

The last form of internationalization discussed earlier relates to one's competitors.
Two measures were identified, both of which are primarily intangible in nature. The first,
FORCOMP, measured whether or not the firm listed leading foreign firms amongst its
primary competitors. The second, BENCH, was whether or not the firm undertook
benchmarking comparison with foreign firms against which it did not necessarily compete.
Unfortunately, due to data limitations, it was not possible to develop a physical measure for
competitor internationalization.

In addition to the various internationalization measures described above, a number
of factors believed to impact these measures were placed on the questionnaire. Three
general categories of independent variables were identified. The first of these covers
general firm structural or demographic characteristics. Key variables here include the firm's age, size\(^4\), and industry in which it operates. These are variables over which the firm has little if any control, but with which it must deal. In most cases, older firms tend to be less internationalized than newer ones as a result of having more internal inertia. In other words, they are less able to adapt to changes because over time they have established routines and patterns which resist change.

With regards to firm size, on average larger firms are expected to be more internationalized than smaller ones due to the fact that they have more resources at their disposal with which to invest in serving international markets. However, as was pointed out earlier, smaller firms may also internationalize from the point of view of their knowledge base and as such size may only be a critical variable when one is talking about direct exports. With regards to one's industry, standard trade theory would predict that those sectors in which the region has a comparative advantage would be more likely to internationalize first and to a greater extent. In the case of Mendoza this would be the agro-processing sector (AGR). By contrast that sector which is at the greatest disadvantage location wise is the metal-machinery sector (MET).

The second general category of variables which can influence one's internationalization relate to different aspects of the firm's strategy. Several different aspects can be identified in this regard including the firm's stance on quality, price, and technology, as well as customer relations. In order to serve international markets, particularly in non-natural resource based industries, an emphasis on quality is essential. In these competitive as opposed to comparative based industries, the use of modern technology is another critical variable, which also contributes to the quality of one's

\(^4\) Two size measures are used in the models. In most cases, EMPLARGE is used as a dummy variable to distinguish between large firms (over 120 employees) and all others. The belief being that a minimum scale is needed for certain forms of internationalization. In certain cases, though, in which the effect of size is believed to be more of a continuous function, SALESAVG is used, which is the average firm sales of the previous three years.
production process. The metal-machinery industry in Mendoza should be particularly impacted by these variables. On the other hand, one must also be competitive on pricing issues in order to compete in international markets. This should be particularly important in comparative and other less value-added industries. The variables QUALITY and PRICE take on the value of 1 when the firm views them as being important to compete internationally. Related to the issue of quality is whether or not the firm views itself as having a competitive advantage in technology (TECH C.A.). In addition, the basis for one's customer relations can have an impact on one's ability to internationalize. Firms which view their personal relations as a competitive advantage (PERS C.A.) will have a difficult time at internationalizing directly, particularly in industries with low customer concentration. However, this form of customer relations need not be a disadvantage if one is following a cognitive model of internationalization.

Another group of strategic variables which can impact the success or failure of a firm's internationalization include those relating to the firm's human resource and organizational practices. The first of these, human resource management relates to the quality issue addressed above, for a quality mentality is something which encompasses not only the final product but also the inputs used to produce it. In those sectors in which a sizable share of these inputs is human capital, the quality of one's workforce can be critical in determining the quality of the final output. As a proxy for human resource quality, the share of employees with university education or higher is used (UNIV+).

With regards to organizational policies, a trend which has been occurring as of late in Mendoza and throughout Argentina is the increased subcontracting out of various parts of the production process. This is a trend which is viewed as being positive as it represents a greater degree of specialization at the level of the firm, which is generally considered to be

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5 In addition, the variable FORTEC is included in many regressions as an indicator of technological sophistication.
beneficial for increasing competitiveness and thus one's potential to internationalize. If a firm increased its level of outsourcing during the past five years, the variable SPEC took on the value 1. Another organizational factor which can affect one's international success is whether or not one has a formal plan with regards to foreign markets in the case of direct internationalization (XPLAN) and the amount of experience a firm has in foreign markets as represented by the number of years one has been exporting (XAGE).

The last category of independent variables which are believed to be correlated with internationalization relates to the way in which the firm interacts with government policy reforms. Those firms which tend to view the recent economic reforms in a positive light and as an opportunity for growth are more likely to be those with an international mentality and thus more likely to be successful at internationalizing both tangibly and intangibly.\(^6\) In addition, it is of interest to know how those firms which previously received export subsidies from the government (XSUB) compare to others in terms of certain internationalization aspects.\(^7\)

Having defined the way in which the firm characteristics and internationalization measures were operationalized, the last variable of interest here is that of firm performance (PERF). For several reasons, it was decided not to use strict financial measures. In the first place, the vast majority of the firms in the sample are privately-owned and as such not required to publish profitability figures. The personalities in these firms are also very leery when people do ask for specific profitability figures because of fears that such figures will work their way back to the Argentine tax collector's office. Furthermore, variations in accounting practices, combined with vastly different debt burdens across firms would make

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\(^6\) The variable REFORM is coded on a Likert scale such that a negative coefficient signifies a positive view of the reform process.

\(^7\) In addition to the previous variables, in those models of procurement internationalization, the variables SUP(PRICE) and SUP(QUALITY) are used which are base on Likert scale scores of the importance the firm attributes to price and quality when choosing a supplier.
comparability extremely difficult. Therefore, it was decided to use a scale which gages relative performance. The options for this variable, PERF, are given are presented below:

1. Unable to pay even variable costs
2. Able to only pay variable costs.
3. Able to pay variable and fixed costs.
4. Able to pay variable and fixed costs, as well as invest in product development.

While this is by no means a perfect measure of performance, it is the best feasible proxy in this situation in for obtaining an idea of the general health of the company.

Table 3 - Dependent Variable Definitions

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tangible Internationalization</strong></td>
<td></td>
</tr>
<tr>
<td>XYES</td>
<td>Firm exports (Y/N)</td>
</tr>
<tr>
<td>X%</td>
<td>% of sales outside Argentina</td>
</tr>
<tr>
<td>ALLFDI</td>
<td>Firm has foreign alliances or FDI (Y/N)</td>
</tr>
<tr>
<td>FORSUP</td>
<td>% of suppliers located abroad</td>
</tr>
<tr>
<td><strong>Intangible Internationalization</strong></td>
<td></td>
</tr>
<tr>
<td>XNONLA</td>
<td>% of sales outside Latin America</td>
</tr>
<tr>
<td>MNEYES</td>
<td>Firm sells to MNEs in Argentina (Y/N)</td>
</tr>
<tr>
<td>MNE%</td>
<td>% of sales to MNEs</td>
</tr>
<tr>
<td>XERYES</td>
<td>Firm sells to local exporters in Argentina (Y/N)</td>
</tr>
<tr>
<td>XER%</td>
<td>% of sales to local exporters</td>
</tr>
<tr>
<td>FORTEC</td>
<td>Majority of firms technology is foreign (Y/N)</td>
</tr>
<tr>
<td>TECAGE</td>
<td>Age of most recent technological investment</td>
</tr>
<tr>
<td>MARDEF</td>
<td>How firm defines market (provincial through global)</td>
</tr>
<tr>
<td>MARA</td>
<td>How market definition changed 1989-1995</td>
</tr>
<tr>
<td>FORTRA</td>
<td>Firm has conducted foreign training of employees (Y/N)</td>
</tr>
<tr>
<td>BENCH</td>
<td>Firm benchmarks: international firms (Y/N)</td>
</tr>
<tr>
<td>SUPX</td>
<td>Majority of firm's suppliers export directly (Y/N)</td>
</tr>
<tr>
<td>SUPMNE</td>
<td>Majority of firm's suppliers also sell to MNEs (Y/N)</td>
</tr>
<tr>
<td>FORCOMP</td>
<td>Firm lists foreign firms amongst its primary competitors</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td></td>
</tr>
<tr>
<td>PERF</td>
<td>Firm financial rating (1-4)</td>
</tr>
<tr>
<td>TOPPERF</td>
<td>Firm is a top performer: PERF=4 (Y/N)</td>
</tr>
</tbody>
</table>
Table 4 - Independent Variables

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>Firm age in years</td>
</tr>
<tr>
<td>AGR</td>
<td>Agro-processing firm</td>
</tr>
<tr>
<td>MET</td>
<td>Metal-mechanics firm</td>
</tr>
<tr>
<td>FORTEC</td>
<td>Majority of firm technology is foreign</td>
</tr>
<tr>
<td>PERS. C.A.</td>
<td>Personal relations as competitive advantage</td>
</tr>
<tr>
<td>TECH. C.A.</td>
<td>Technology as competitive advantage</td>
</tr>
<tr>
<td>PRICE</td>
<td>Views quality as essential for export markets</td>
</tr>
<tr>
<td>QUALITY</td>
<td>Views price as essential for export markets</td>
</tr>
<tr>
<td>SPEC</td>
<td>Increased specialization via subcontracting in last 5 years</td>
</tr>
<tr>
<td>UNIV+</td>
<td>% of workforce with university degrees or higher</td>
</tr>
<tr>
<td>REFORM</td>
<td>View reforms as detrimental</td>
</tr>
<tr>
<td>EMPLARGE</td>
<td>Employment over 120</td>
</tr>
<tr>
<td>SALES AVG</td>
<td>Sales average 1993-1995 in US$ million</td>
</tr>
<tr>
<td>XAGE</td>
<td>Years since firm first exported</td>
</tr>
<tr>
<td>XPLAN</td>
<td>Firm has a formal export plan</td>
</tr>
<tr>
<td>XSUB</td>
<td>Previously received export subsidies</td>
</tr>
<tr>
<td>SUP(PRICE)</td>
<td>Likert score of priority of price in choosing supplier</td>
</tr>
<tr>
<td>SUP(QUAL)</td>
<td>Likert score of priority of quality in choosing supplier</td>
</tr>
</tbody>
</table>

### 6.0 Empirical Results

The models discussed above were tested using data from the survey described above of Argentine firms. Two general types of regressions were run. For those models with continuous dependent variables, OLS regressions were used, while for those with dichotomous dependent variables logistic models were used to better fit the data distributions. For each of the operationalizations from Table 2 a model was developed using independent variables from the list described above, depending on the appropriateness for each model. A subsample of internationalization measures, which included at least one from each cell of Table 2, was then used in a series of regressions on firm performance.

While the regressions testing the various forms of internationalization had varying degrees of overall significance as measured by their F and Chi-square values, the overall

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8 A separate model for FORCOMP is not developed as it is largely affected by industry as opposed to firm factors, though it is included in the performance models.
trend was one of support for the models presented, both the tangible and intangible ones. Of the five forms of internationalization, those relating to market internationalization tended to have the best model fits. The first model, looking at the tangible internationalization of the firm's markets, used a logistic regression to evaluate the probability of whether or not a firm exported. The data revealed two important demographic determinants, namely the size of the firm and being active in the agro-processing sector, both of which increased the likelihood that one would be an exporter. These results fall in line with standard theory that larger firms with more access to resources and firms active in comparative advantage industries will have a higher probability of exporting. In addition, there are several strategic variables which also favorably increase the likelihood of exporting. These include the use of foreign technology, realizing that both quality and cost are important in the selling abroad, and increasing one's level of specialization via increased subcontracting.

Given that the firm is an exporter, the factors which impacted the percent of sales in foreign markets include firm size, firm age, export age, and emphasis on quality. Therefore, not only are larger firms more likely to export, they also export more. It is interesting to note that though important in 1995, the size variable was not a significant predictor of export percentages in a regression using 1989 sales figures. This potentially implies that size matters more today than it did in the past. In addition, older firms tend to export less, in line with the standard inertia argument. Even though firm age has a negative effect, export age has a positive one. The earlier a firm first exported, the more it will export today, implying that there is a potentially significant learning curve and that internationalization is something which will not occur over night. Again, a high quality emphasis tends to be positively correlated with one's export share of sales.

In addition to the two tangible measures above, several intangible market models were tested. The first of these, which borders tangible and intangible internationalization, modeled the share of one's sales to more sophisticated markets outside Latin America,
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primarily Europe and the US. The results once again showed a strong role being played by firm age and size, as well as export age and formal export planning. The one previously unimportant unmentioned variable which had a negative impact was in fact prior government export subsidies. Those firms which previously received them tended to export less outside of Latin America today than those which did not, implying that such subsidies may have hurt the intangible internationalization of these firms by biasing the direction of their trade flows.

The remaining intangible market models were based on firm sales in Argentina. The first two relate to sales to foreign multinationals in Argentina. As might have been expected, the metal-mechanics sector is more likely to sell locally to foreigners than the other sectors, which tend, as a result of the industry structure, to internationalize directly. In addition, foreign technology and price consciousness are also correlated with this form of indirect internationalization, implying that high standards, both technologically and price-wise, are demanded by local MNEs. The importance of high standards when selling to MNEs locally is reinforced by the fact that the percent of sales to MNEs is positively correlated with the level of education of the firm's workforce. As might also be expected, this strategy is negatively correlated with firm size, reinforcing the idea that intangible forms of internationalization can be accessible to small and medium sized firms even when tangible internationalization is not.

The final models of intangible market internationalization via sales to exporters had somewhat less explanatory power than that to MNEs, though some recurring themes were present, among them the importance of superior technology in serving these clients. In addition, as might be expected, the agro-processing sector tended not to participate in this form of internationalization.
Table 5 - Market Internationalization Models

<table>
<thead>
<tr>
<th></th>
<th>TANGIBLE</th>
<th>INTANGIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XYES X%</td>
<td>X%</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.007 -1.122**</td>
<td>-0.541*</td>
</tr>
<tr>
<td></td>
<td>(0.010) (0.442)</td>
<td>(0.290) (0.012)</td>
</tr>
<tr>
<td>AGR</td>
<td>1.144*</td>
<td>2.824</td>
</tr>
<tr>
<td></td>
<td>(0.641) (12.425)</td>
<td>(7.679) (0.761)</td>
</tr>
<tr>
<td>MET</td>
<td>0.575</td>
<td>2.365</td>
</tr>
<tr>
<td></td>
<td>(0.567) (15.138)</td>
<td>(9.526) (0.565)</td>
</tr>
<tr>
<td>FORTEC</td>
<td>0.500*</td>
<td>-4.656</td>
</tr>
<tr>
<td></td>
<td>(0.267) (6.839)</td>
<td>(4.273) (0.297)</td>
</tr>
<tr>
<td>PERS C.A.</td>
<td>-0.392</td>
<td>20.389</td>
</tr>
<tr>
<td></td>
<td>(0.931) (30.398)</td>
<td>(18.853) (1.152)</td>
</tr>
<tr>
<td>TECH C.A.</td>
<td>0.088</td>
<td>13.445</td>
</tr>
<tr>
<td></td>
<td>(0.618) (13.255)</td>
<td>(8.292) (0.642)</td>
</tr>
<tr>
<td>PRICE</td>
<td>0.847*</td>
<td>8.220</td>
</tr>
<tr>
<td></td>
<td>(0.475) (12.612)</td>
<td>(7.987) (0.504)</td>
</tr>
<tr>
<td>QUALITY</td>
<td>1.550***</td>
<td>26.462**</td>
</tr>
<tr>
<td></td>
<td>(0.507) (11.084)</td>
<td>(8.688) (0.527)</td>
</tr>
<tr>
<td>SPEC</td>
<td>1.156**</td>
<td>-7.352</td>
</tr>
<tr>
<td></td>
<td>(0.499) (12.425)</td>
<td>(8.366) (0.545)</td>
</tr>
<tr>
<td>UNIV+</td>
<td>0.010</td>
<td>-0.046</td>
</tr>
<tr>
<td></td>
<td>(0.024) (0.316)</td>
<td>(0.206) (0.024)</td>
</tr>
<tr>
<td>REFORM</td>
<td>-0.104</td>
<td>3.094</td>
</tr>
<tr>
<td></td>
<td>(0.252) (4.981)</td>
<td>(3.168) (0.262)</td>
</tr>
<tr>
<td>EMPLARGE</td>
<td>1.276*</td>
<td>0.726</td>
</tr>
<tr>
<td></td>
<td>(0.150)</td>
<td>(0.094)</td>
</tr>
<tr>
<td>SALES AVG</td>
<td>1.849***</td>
<td>0.812**</td>
</tr>
<tr>
<td></td>
<td>(0.447)</td>
<td>(0.303)</td>
</tr>
<tr>
<td>XPLAN</td>
<td>15.152</td>
<td>29.797***</td>
</tr>
</tbody>
</table>

*p<.10, **p<.05, ***p<.01

An interesting observation which from the results in Table 5 is that size plays a key variable in all those forms of internationalization which require an actual physical presence abroad. In general the internationalization literature puts forward the idea that larger firms will be more likely to export but that given that a firm is an exporter, smaller firms will tend to export a greater percentage of their output. In this case, size is found to be positively correlated with both export propensity and intensity, a result which can be explained in part through imperfections in the capital markets which limit smaller firms' abilities to invest in
costly infrastructures abroad. However, while size is positively correlated with direct forms of internationalization, this is not the case for other forms of intangible internationalization such as selling to MNEs and exporters. In fact, in certain cases, size is negatively correlated with these factors. What this points to is the fact that intangible internationalization is something which is accessible to firms of all size but is particularly important for smaller firms which are constrained in participating directly abroad.

Turning to tangible operations-based measures of internationalization, it appears difficult to develop an accurate model explaining foreign direct investment or alliance participation. The only factor which is a consistent predictor again relates to the importance the firm places on technology.

Table 6 - Operations, Managerial, and Competitive Internationalization Models

<table>
<thead>
<tr>
<th></th>
<th>TANGIBLE</th>
<th>INTANGIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ALLFDI</td>
<td>FORTEC</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.010</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>AGR</td>
<td>-0.959</td>
<td>-0.602***</td>
</tr>
<tr>
<td></td>
<td>(1.039)</td>
<td>(0.212)</td>
</tr>
<tr>
<td>MET</td>
<td>0.694</td>
<td>-0.518***</td>
</tr>
<tr>
<td></td>
<td>(0.678)</td>
<td>(0.158)</td>
</tr>
<tr>
<td>FORTEC</td>
<td>0.153</td>
<td>0.097</td>
</tr>
<tr>
<td></td>
<td>(0.353)</td>
<td>(0.079)</td>
</tr>
<tr>
<td>PERS C.A.</td>
<td>-0.146</td>
<td>-0.534</td>
</tr>
<tr>
<td></td>
<td>(1.358)</td>
<td>(0.245)</td>
</tr>
<tr>
<td>TECH C.A.</td>
<td>1.340*</td>
<td>0.862***</td>
</tr>
<tr>
<td></td>
<td>(0.695)</td>
<td>(0.202)</td>
</tr>
<tr>
<td>PRICE</td>
<td>0.698</td>
<td>0.088</td>
</tr>
<tr>
<td></td>
<td>(0.633)</td>
<td>(0.149)</td>
</tr>
<tr>
<td>QUALITY</td>
<td>0.491</td>
<td>-0.064</td>
</tr>
<tr>
<td></td>
<td>(0.657)</td>
<td>(0.155)</td>
</tr>
<tr>
<td>UNIV+</td>
<td>0.005</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>REFORM</td>
<td>0.050</td>
<td>0.036</td>
</tr>
<tr>
<td></td>
<td>(0.321)</td>
<td>(0.076)</td>
</tr>
<tr>
<td>EMPLARGE</td>
<td>1.294</td>
<td>0.652***</td>
</tr>
<tr>
<td></td>
<td>(0.860)</td>
<td>(0.226)</td>
</tr>
<tr>
<td>SPEC</td>
<td>0.318</td>
<td>0.355**</td>
</tr>
<tr>
<td></td>
<td>(0.640)</td>
<td>(0.150)</td>
</tr>
<tr>
<td>F (Sig)</td>
<td>5.73 (.00)</td>
<td>1.53 (.14)</td>
</tr>
<tr>
<td>Adj R Square</td>
<td>0.24</td>
<td>0.04</td>
</tr>
<tr>
<td>Chi-Square(Sig)</td>
<td>17.9 (.12)</td>
<td>37.6 (.00)</td>
</tr>
</tbody>
</table>
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

By contrast, the intangible operations models relating to the use of foreign technology and the age of one’s technology tend to be quite strong. As expected, those firms which viewed themselves as possessing a competitive advantage in technology tended to have a higher mix of foreign technology. Larger firms were also more likely to have foreign technology given their greater access to resources. Oddly enough, both the agro-processing and metal-mechanics sectors tended to use less foreign technology than average, an issue which is deserving of further probing. As for the age of one’s most recent major technological investment, larger firms again tend to have the newest technology, as do firms which view their main competence as lying in technology.

Turning to general management practices, the main predictor of foreign training is the size of the firm. Larger firms tend to be in the best position to send workers abroad for training. Regarding the mindset of the management, as measured by how they define their market, provincial through international, broad market definitions appear to be positively correlated with a number of factors, among them the agro-processing sector. Given the historical internationalization of this sector, such a result is no surprise. Larger and more specialized firms also tend to have this mentality, as do those with both price and quality awareness. Specialization along with price consciousness and higher education were positively correlated with broadening of firm market definitions between 1989 and 1995.

The models of supplier internationalization tend to be less robust than those for the previous categories. Once again, however, they point to the importance of technology in internationalizing, as those firms which place a greater emphasis on it tend to have more foreign suppliers than those which do not, implying that world-class firms will source not only from local firm, but from whomever has the best quality or technology.


6. Internationalization Reconsidered: Tangible vs. Intangible Forms

Table 7 - Procurement Internationalization Models

<table>
<thead>
<tr>
<th></th>
<th>TANGIBLE</th>
<th>INTANGIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FORSUP</td>
<td>SUPX</td>
</tr>
<tr>
<td>AGE</td>
<td>0.119**</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>MET</td>
<td>-0.962</td>
<td>0.126</td>
</tr>
<tr>
<td></td>
<td>(2.455)</td>
<td>(0.434)</td>
</tr>
<tr>
<td>EMP_LARGE</td>
<td>4.323</td>
<td>2.038*</td>
</tr>
<tr>
<td></td>
<td>(3.489)</td>
<td>(1.083)</td>
</tr>
<tr>
<td>TECH C.A.</td>
<td>10.182***</td>
<td>0.151</td>
</tr>
<tr>
<td></td>
<td>(3.257)</td>
<td>(0.581)</td>
</tr>
<tr>
<td>SPEC</td>
<td>1.119</td>
<td>-0.399</td>
</tr>
<tr>
<td></td>
<td>(2.499)</td>
<td>(0.446)</td>
</tr>
<tr>
<td>SUP(PRICE)</td>
<td>-0.055</td>
<td>-0.042</td>
</tr>
<tr>
<td></td>
<td>(0.871)</td>
<td>(0.164)</td>
</tr>
<tr>
<td>SUP(QUAL)</td>
<td>0.767</td>
<td>0.119</td>
</tr>
<tr>
<td></td>
<td>(1.237)</td>
<td>(0.201)</td>
</tr>
<tr>
<td>F (Sig)</td>
<td>3.12 (.00)</td>
<td>6.12 (.53)</td>
</tr>
<tr>
<td>Adj R Square</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Chi-Square(Sig)</td>
<td>6.12 (.53)</td>
<td>7.56 (.37)</td>
</tr>
</tbody>
</table>

*p<.10, **p<.05, ***p<.01

As to whether or not the firm conducts benchmarking comparisons with foreign competitors, firms which utilize foreign technology and emphasize quality tended to be more likely to adopt such practices, as did those which have become more specialized in recent years. The only peculiar result relates to the negative impact of university education. While it could be argued that in some ways benchmarking is another way of bringing information and skills into the firm and could thus be a substitute for higher education, it is more than likely a spurious result.

Given the above discussion of internationalization and the factors which impact it, the final objective was to see what impact the various tangible and intangible measures have on firm performance. For this purpose, three regressions were run, each using at least one internationalization measure from each of the cells in Table 2. As one can see from the results in Table 8, all three models had high explanatory power, all significant at the 1% level.

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9 As mentioned, the only exception is the cell referring to the tangible internationalization of competition.
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

The first model used the as the dependent variable the scaled performance measure PERF described earlier. As the results show, the two most important factors contributing to firm performance were both intangible measures: the age of one's technology and how much the firm increased the geographic definition of their market between 1989 and 1995. Those firms with the newest technologies as well as those which broadened their market definition the most tended to do the best, thus reinforcing the importance of intangible internationalization of operations and management. In addition, firm size appears to be positively associated with performance.

Table 8 - Performance Models

<table>
<thead>
<tr>
<th></th>
<th>PERF</th>
<th>TOPPERF</th>
<th>PERF(MET)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TANGIBLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XYES</td>
<td>-0.373</td>
<td>(1.569)</td>
<td>-0.084</td>
</tr>
<tr>
<td>(0.251)</td>
<td>(0.985)</td>
<td>(0.478)</td>
<td></td>
</tr>
<tr>
<td>ALLFDI</td>
<td>0.355</td>
<td>1.558</td>
<td>0.067</td>
</tr>
<tr>
<td>(0.272)</td>
<td>(1.045)</td>
<td>(0.495)</td>
<td></td>
</tr>
<tr>
<td>FORSUP</td>
<td>0.010</td>
<td>0.051**</td>
<td>0.016</td>
</tr>
<tr>
<td>(0.006)</td>
<td>(0.023)</td>
<td>(0.040)</td>
<td></td>
</tr>
<tr>
<td><strong>INTANGIBLE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XURYES</td>
<td>0.030</td>
<td>0.069</td>
<td>0.658*</td>
</tr>
<tr>
<td>(0.196)</td>
<td>(0.799)</td>
<td>(0.314)</td>
<td></td>
</tr>
<tr>
<td>MNEYES</td>
<td>0.135</td>
<td>-0.533</td>
<td>0.909*</td>
</tr>
<tr>
<td>(0.234)</td>
<td>(0.834)</td>
<td>(0.455)</td>
<td></td>
</tr>
<tr>
<td>FORTEC</td>
<td>0.015</td>
<td>-0.189</td>
<td>0.208</td>
</tr>
<tr>
<td>(0.101)</td>
<td>(0.340)</td>
<td>(0.193)</td>
<td></td>
</tr>
<tr>
<td>TECAGE</td>
<td>-0.033**</td>
<td>-0.964***</td>
<td>-0.100***</td>
</tr>
<tr>
<td>(0.015)</td>
<td>(0.298)</td>
<td>(0.023)</td>
<td></td>
</tr>
<tr>
<td><strong>FORTRA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARA</td>
<td>0.349**</td>
<td>1.217**</td>
<td>0.277</td>
</tr>
<tr>
<td>(0.137)</td>
<td>(0.560)</td>
<td>(0.221)</td>
<td></td>
</tr>
<tr>
<td>SUPX</td>
<td>0.070</td>
<td>0.069</td>
<td>0.878*</td>
</tr>
<tr>
<td>(0.219)</td>
<td>(0.799)</td>
<td>(0.419)</td>
<td></td>
</tr>
<tr>
<td>SUPMNE</td>
<td>0.076</td>
<td>0.864</td>
<td>0.535</td>
</tr>
<tr>
<td>(0.238)</td>
<td>(0.867)</td>
<td>(0.490)</td>
<td></td>
</tr>
<tr>
<td>FORCOMP</td>
<td>0.017</td>
<td>0.173</td>
<td>0.279</td>
</tr>
<tr>
<td>(0.247)</td>
<td>(0.850)</td>
<td>(0.449)</td>
<td></td>
</tr>
<tr>
<td>BENCH</td>
<td>-0.131</td>
<td>-0.1339</td>
<td>-0.190</td>
</tr>
<tr>
<td>(0.220)</td>
<td>(0.753)</td>
<td>(0.396)</td>
<td></td>
</tr>
<tr>
<td><strong>CONTROLS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMPLARGE</td>
<td>0.562*</td>
<td>3.484***</td>
<td>-0.266</td>
</tr>
<tr>
<td>(0.313)</td>
<td>(1.305)</td>
<td>(0.809)</td>
<td></td>
</tr>
<tr>
<td>AGR</td>
<td>-0.261</td>
<td>-0.864</td>
<td></td>
</tr>
<tr>
<td>(0.277)</td>
<td>(1.088)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MET</td>
<td>-0.015</td>
<td>1.201</td>
<td></td>
</tr>
<tr>
<td>(0.209)</td>
<td>(0.813)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F (Sig)</strong></td>
<td>2.40 (.01)</td>
<td>3.63 (.00)</td>
<td></td>
</tr>
<tr>
<td><strong>Adj R Square</strong></td>
<td>0.17</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td><strong>Chi-Square(Sig)</strong></td>
<td>57.81 (.00)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.10, **p<.05, ***p<.01
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

In addition to the above regression using the entire spectrum of the PERF variable, a separate logistic regression was run to identify those factors affecting the top performers. A dichotomous variable TOPPERF was used which took on the value of 1 if the firm's performance was classified as a 4 on the PERF scale. The reason for running such a model is that many of the relationships between the internationalization variables and performance are not necessarily linear. Some may help one move from level one to level two but not to level three and so forth. Therefore, an analysis was conducted to see what factors were correlated with the top performance. Once again the age of one's technology and how much one broadened one's market definition were key factors. Among the most interesting results, however, is that simply being an exporter did not necessarily have a positive impact. In fact, it was only marginally insignificant as to producing a negative effect on top performance.

These results lend support to the idea that simply internationalizing the tangible aspects of one's firm does not necessarily guarantee improved performance. This theme was supported by results from a regression just on the metal-mechanics sector. A separate regression for the metal-mechanics sector was conducted due to the peculiarity of the supplier-OEM relationship and the increased potential for intangible without necessarily tangible internationalization. In this case, higher performance was associated both with sales to MNEs operating in Argentina as well as with sales to exporters, both intangible forms of market internationalization. In addition, having suppliers which export and the age of one's technology were also significant factors, thus also supporting the idea of that one's objective should be to meet international standards not simply be present in international markets.

In order to test the overall significance of adding intangible measures of internationalization to the traditional tangible ones in predicting firm performance, the
following tests were conducted. In the first linear model using the entire sample of firms, the following F-statistic was calculated:

\[ F = \frac{[(R^2_2 - R^2_1)/df]}{[(1 - R^2_2)df]} \]

with \( R^2_1 \) coming from the model of running only the tangible measures and controls on performance and \( R^2_2 \) coming from the complete model including the intangible measures of internationalization. The resulting F-statistic in this case is 2.23, which is significant at the 3 percent level. As such, the addition of intangible measures of internationalization significantly improves the fit of the model.

In the case in which the dependent variable is whether or not the firm is a top performer, the following chi-square statistic is used to accommodate the logistic specification of the model:

\[ c = -2\log(L2/L1) \]

in which \( L1 \) is the fitted likelihood of the complete model and \( L2 \) is that of the model less the intangible measures\(^{10}\). In this case the \( c = 23.1 \) which is significant at the 1 percent level (with 8 degrees of freedom).

Lastly, the case in which the sample is restricted to just the metal-mechanics sector produces an F-statistic of 4.35, again significant at the 1 percent level. As such, in all cases, adding the intangible measures of internationalization to the models of performance significantly improves their fit.

7.0 Conclusions

This paper has presented an alternative conceptualization of internationalization. Most of the literature in international business has tended to focus solely on tangible or

\(^{10}\) In this case, \( L2 \) is based on the model with only AGE, SALESAVG, AGR, MET and the constant on the right hand side.
physical attributes of the internationalization process such as exports or foreign direct investments. In doing so, they have left the relationship between internationalization and competitiveness implicit. By contrast this paper has attempted to make this correlation explicit by introducing intangible or knowledge-based measures into the definition of internationalization, which was claimed are the real links to competitiveness. It was reasoned why, particularly in today's environment, there need not be a one-to-one correlation between tangible and intangible internationalization, which can explain why past empirical works which have used only tangible measures have found contradictory results on the relationship between internationalization and firm performance.

Through the empirical results presented in the paper it was shown that both sets of measures are influenced by a number of strategic and demographic variables. Those strategies which emphasize quality and specialization were particularly important in predicting intangible internationalization. Firm size was also very important for both forms of internationalization, but particularly for tangible forms of internationalization. If fact various forms of intangible market internationalization were negatively or at least not positively correlated with size, alluding to the fact that this is something which is accessible to all firms, particularly when their size prohibits them from participating directly in foreign markets. The implication of this finding is that there are possibly different models or paths of internationalization for small versus large firms, not all of which require a direct foreign presence.

More importantly, however, the empirical results tying the various forms of internationalization to firm performance provide strong support for the importance of focusing on intangible, knowledge-based measures of internationalization. While a positive relationship was found between four of the five intangible forms and performance, only one of the physical measures of internationalization significantly impacted firm performance.
6. Internationalization Reconsidered: Tangible vs. Intangible Forms

While these results may not be conclusive on the overall relationship between tangible and intangible internationalization and competitiveness, they do point to importance of distinguishing between these two forms of internationalization. In doing so, however, one must accept a redefinition of the field of international business, which on the one hand may broaden it by including firms which were previously outside the physically defined scope of the field, and which on the other hand may force a reevaluation of firms which currently fall within that definition. Without such an acceptance, however, the relationship between internationalization and firm performance will remain elusive. In addition to continuing to refine the sometimes coarse proxies for intangible internationalization used in this paper, there are many ways in which this stream of research can be extended, including the replication of previous works which focused solely on tangible measures, to see whether the incorporation of intangible measures adds to the explanatory power of the models.
REFERENCES


6. Internationalization Reconsidered: Tangible vs. Intangible Forms


1.0 Main Findings

As was described in the Introduction, there are several research questions which are addressed in this dissertation. The overarching issue being looked at is "How do firms react to radical environmental shocks, in this case the liberalization of the domestic economy?" The reaction variable which has been the focus of the analysis is the firm's level of internationalization. In the process of addressing this general question, several other sub-questions were addressed, three in particular. The first relates to the importance of industry versus firm level variables in explaining adaptation procedures. This issue was addressed by testing both trade based industry models and organization based firm adaptation theories. The latter analysis leads into a second sub-question which is whether firm level reactions are best explained by ecological theories of adaptation which focus on structural variables or constructivist theories which emphasize firm strategy variables as being key in the adaptation process. The final sub-question is perhaps the most central of the three in that it attempts to define what exactly is meant by the word internationalization.
Whereas the analyses up until then adopt traditional definitions of internationalization, this final section of the dissertation attempts to address the question "Do traditional measures of internationalization accurately capture the meaning of the term, and if not what might be some better sets of measures?"

These three questions are addressed sequentially in the dissertation. Following a description of the reform process in Argentina in Chapter 2, Chapters 3 and 4 went on to address the issue of changes in internationalization at the industry level, in one case providing descriptive statistics and in the other developing and empirically testing a trade-based model of exports. Chapter 5 then turned to the issue of internationalization at the level of the firm, and addressed the issue of whether structural or strategic variables were better predictors of firm adaptation. The last two chapters continued the analysis at the firm level but introduced the issue of distinguishing between "tangible" and "intangible" forms of internationalization, where some of the most interesting conclusions of the dissertation are made.

The reasons for choosing Argentina as the country for addressing these questions was described earlier in the dissertation, though they can be summarized in one sentence. The reform process in Argentina was not only comprehensive, covering fiscal, monetary and trade/regulatory policies, but it was also exceedingly fast, occurring for the most part in a 3-4 year window in the beginning of the 1990s, thus producing what could genuinely be considered to be an environmental shock to which firms were forced to react. Various approaches were taken throughout the dissertation to measure these reactions depending on the unit of analysis. On the more macro end of the spectrum, the early chapters of the dissertation use national and industrial statistics to conduct the analyses. The middle chapters then move to the use of an original survey of more than 160 firms in the province of Mendoza which allowed for the analysis of firm specific variables. Finally, the
7. Conclusions

dissertation concludes with a pair of case studies which provide rich contextual and
historical information which cannot be obtained through the use of a broad-based survey.

Since each section of the dissertation has as its focus a distinct issue, there are a
number of various conclusions which flow out to the work as a whole. In the body of the
dissertation they are presented in the order consistent with the related logics of the various
questions being addressed. As it turns out, this order also presents them in ascending order
of importance. So as to preserve this internal logic, the summary of these conclusions will
also follow this same order.

The main premise upon which the research is based is that the reform process in
Argentina in 1989 produced what could be considered an environmental shock. Through a
detailed analysis of the reforms initiated in this period, Chapter 2 showed how firms were
forced to deal with changes in all three major aspects of the economy over which the
government had control: fiscal, monetary, and trade/regulatory policies. In addition,
however, it was shown that it is important to not only look at the impact of these reforms
on the absolute levels of traditional economic variables but also at their effect on what was
labeled here as the industrial architecture. The architecture of an industry focuses on the
links between the various actors and how they are organized rather than the simple absolute
levels of these variables. The value of making such a distinction between traditional and
architectural variables lies in the fact that one can have two systems with the same
traditional structural aspects (e.g., in terms labor and capital supply, number of
competitors) but characterized by different architectures which produce differing results for
the two systems.

The importance of this distinction was epitomized in the impact of the market
reforms on the financial markets. Whereas the absolute amount of money available for
private sector lending in the country increase more than 200 percent from 1991 to 1994, the
organization of this new capital was considerably different than that of the old. State-owned
banks began to gradually reduce their presence in the market due to privatizations, closures, and the growth of private and foreign banks. It was these government banks, however, which provided the loans to the country's small and medium-sized firms, whom the private and foreign banks viewed as too risky. As such, while the overall availability of financial resources in the economy increased substantially, this was really only true for a small population of large enterprises. The rest actually saw retraction in their access to capital. This change in the architecture of the financial markets has also contributed to other structural changes in the economy, particularly the increase in industry concentration. This is but one example of the importance of making this distinction between traditional and architectural aspects when analyzing changes in industry structure.

The impact of these market reforms on the internationalization of the country as a whole has been impressive. Exports have grown by more than 100 percent during this period. In many ways more impressive, though, are changes in value-added, country of destination, and concentration of those exports. While exports overall have increased, their growth has been biased towards lower value-added products such as primary agricultural products. In addition, a majority of the growth in exports is attributable to increased exports to neighboring Mercosur nations, with little if not negative growth to other more developed parts of the world. Perhaps the most dramatic change, however, at a macro level has been the increase in exporter concentration. From 1990 to 1994 the top 30 exporters increased their share of exports from less than one-third to well over half of all exports, a growth rate much faster than the overall increased concentration of industry in the country, implying that the export sector is becoming even more controlled by a few key players.

While the above trends were identified using descriptive statistics at the national level, the analysis which followed them attempted to link specific changes in policy tools at the industry level to changes in exports. This was done through the development of an economic model of exports sales which incorporates not only export taxes and import
tariffs but also export subsidies and transportation costs. Using data of national exports by industry, it was shown that one could establish a direct negative relationship between percentage point reductions in export taxes and import tariffs, and export growth. While in the first case this is due to a direct reduction in export costs, the relationship between reduced import tariffs and increased exports is communicated through reduced domestic prices which all else being equal decrease the appeal of the domestic market, thus increasing the appeal of the export market. This finding supports the claim that reducing import barriers can in fact encourage outward expansion.

In contrast to the support found for the importance of export taxes and import tariffs in affecting export behavior, no such relationship was found for export subsidies or transportation costs. While this is possibly due to data limitations, it is more likely the result of counter-explanations. On the one hand, there has been mixed success with the use of export subsidies. While in some cases the infant industry argument may in fact hold with industries becoming strong enough to flourish in a more open environment, in other cases the subsidies did nothing to improve domestic competitiveness, thus producing a null result in the regressions. Regarding transportation costs, the hypothesis was that those markets for which the transportation costs were reduced the most would experience higher growth in exports. The null result can be explained in part by the reduced importance of transportation costs in overall costs and thus in market expansion decisions. On the other hand, what effect may exist is overwhelmed by other factors such as the Mercosur agreement.

The results from this trade-based model help to begin addressing the first sub-question identified earlier regarding the importance of firm and industry effects. The analysis, conducted all at the industry level, was statistically significant in explaining the observed variance across industries. However, one should avoid extrapolating these results
7. Conclusions

to the individual firm, for the relationships established hold on average for the industry but not necessarily for any firm in particular.

The other half of this question, that being the importance of firm effects, was explored using information stemming from a detailed survey of more than 160 firms. The objective of this chapter was to explore both theoretically and empirically the impact of environmental shocks on firm behavior. It was shown that in contrast to classical industrial organization and trade theories, firm effects do in fact have a strong effect on how firms adapt. By contrast, no support was found for industry as being a critical variable.

Within the domain of firm effects, the second sub-question identified above was addressed, whether firm adaptive behavior is best characterized by an ecological or constructivist approach. Overall, the data tended to support a more constructivist approach to firm behavior. One's strategic choices do have a strong impact upon one's reaction to changes in the environment. In the case of one's internationalization responses to market liberalization, support was found for the hypotheses predicting a positive relationship between internationalization and operations quality, price conscientiousness, specialization, and formal planning among others.

On the other hand, partial support was also found for the idea of competitive inertia. As predicted by ecological theories, older firms were less likely to increase their levels of internationalization. By contrast, though, negative support was found for the claim that larger firms are also more susceptible to inertia. They in fact were the ones more likely to increase their penetration of foreign markets. Again, however, as was previously mentioned, it is important to keep in mind the context in which any population of firms operate. In the Argentine case, size is extremely important in being able to access resources needed to internationalize. In other locations in which resource markets are more fluid, however, this may not be the case.
7. Conclusions

What these results point to is a general support for the impact of strategic decisions on firm reaction to environmental events, while at the same time acknowledging the fact that inertial pressures are present. Such a conclusion tends to support Hrebiniaik and Joyce's (1985) idea of adaptation within constraints.

While the focus here was on firm reaction to major shocks, whether or not the relative weights of these two opposing forces are the same when the environmental changes are more minor in nature is another question. Is an environmental jolt in fact necessary for firm strategy to outweigh structural inertia? With the slowing of the reform process in Argentina, such a comparative analysis may be possible in the future.

The last of the three sub-questions identified above relates to the issue of whether or not the current measures of internationalization accurately capture the meaning of the term. The last part of the dissertation claims that current measures only capture half of the story, and as such an alternative conceptualization of internationalization was presented. Most of the literature in international business has tended to focus solely on tangible or physical attributes of the internationalization process such as exports or foreign direct investments. In doing so, it has left the relationship between internationalization and competitiveness implicit. By contrast this paper has attempted to make this correlation explicit by introducing intangible or knowledge-based measures into the definition of internationalization, which are claimed to be the real links to competitiveness. It was reasoned why, particularly in today's environment, there need not be a one-to-one correlation between tangible and intangible internationalization, which can explain why past empirical works which have used only tangible measures have found contradictory results on the relationship between internationalization and firm performance.

Through the empirical results presented in Chapter 6 it was shown that both sets of measures are influenced by a number of strategic and structural variables. Those strategies which emphasize quality and specialization were particularly important in predicting
7. Conclusions

intangible internationalization. Firm size was also very important for both forms of internationalization. More importantly, however, the empirical results tying the various forms of internationalization to firm performance provide strong support for the importance of focusing on intangible, knowledge-based measures of internationalization. While a positive relationship was found between four of the five intangible forms and performance, only one of the tangible measures of internationalization significantly impacted firm performance.

This distinction between tangible and intangible internationalization was also highlighted using the cases of Siderar and Siderca. A detailed analysis of the progression of the internationalization process was presented for each firm. While the two firms have moved monotonically towards higher levels of intangible internationalization, the same is not true of their tangible internationalization. In some cases movement was towards increased tangible internationalization, while in other cases there was no change, and in still others the trend was towards lower levels of tangible internationalization.

The case of Siderar in particular showed how narrow physically-based definitions of internationalization can produce misleading interpretations, highlighting how simply selling in foreign markets, does not necessarily mean that one is operating at international standards. Conversely, one can have a world-class operation which sells all of its production in the domestic market.

The contrast with Siderca showed how key industry characteristics can determine whether these two forms of internationalization need go hand in hand. In the case of Siderca, the global nature of the seamless tube sector fostered a correlation between the two forms of internationalization, while the multi-domestic nature of the flat steel sector made it possible separate the two.

It was also shown how in certain cases, one form of internationalization will encourage the other. With Siderar, for instance, the intangible internationalization of the
7. Conclusions

procurement process resulted in a higher level of tangible internationalization, while with Siderca the tangible internationalization of sales encouraged the intangible internationalization of the firm. Therefore, there is no restriction as to which of the two forms is the leader and which is the follower.

Lastly, the cases have shown the importance of analyzing multiple firm aspects in assessing the internationalization of the firm, for simply looking at downstream activities can be misleading. Upstream and support activities also have the potential to be internationalized and are the factors which are often at the root of the firm's competitiveness. In the current analysis five aspects were highlighted (market, operations, management, procurement, and competition).

Though the distinction between tangible and intangible internationalization was used here in the context of analyzing firm response to environmental changes, such an approach is more broadly applicable to static analyses of internationalization as well. The implication which follows from adopting such an approach is that certain firms which are currently labeled "local" may in fact be international. Likewise, some firms which are considered "international" according to standard definitions, may in fact be much more local in nature.

While these results may not be conclusive on the overall relationship between tangible and intangible internationalization and competitiveness, they do point to importance of distinguishing between these two forms of internationalization. In doing so, however, one must accept a redefinition of the field of international business, which on the one hand may broaden it by including firms which were previously outside the physically defined scope of the field, and which on the other hand may force a reevaluation of firms which currently fall within that definition. Without such an acceptance, however, the relationship between internationalization and firm performance will remain elusive.
2.0 Implications for Managers

While there are a number of implications of this research for academia, the same holds true for practicing managers. Among the lessons learned from the analysis of firm adaptation behavior is that one's choice of strategy can have a significant impact on how well one is able to adapt. An emphasis on quality throughout the organization, be it in terms of product, human resources, or operations is essential for being successful in international markets. In addition, there appears to be a relatively steep learning curve in the internationalization process, and as such the earlier one can begin the process, the better one's long-run potential.

Related to this issue is perhaps the most important lesson for managers to flow from the research, which is that internationalizing one's physical components should not be the sole objective of an internationalization strategy. As was shown in the latter part of the dissertation, those forms of internationalization which tended to be more highly correlated with performance were those which were intangible in nature, relating to the internationalization of one's abilities and standards and not necessarily one's physical attributes. Becoming international should not solely be thought of as entering foreign markets or establishing foreign subsidiaries. While in some cases the latter may be necessary in order to achieve the former, it was shown that this is not always the case. The examples of Siderar and Siderca showed that even within the same firm the relationship between tangible and intangible internationalization may be different for different business. As such while the entire firm may be internationalized on an intangible basis, the various business units and the various components of those business units may have drastically different levels of tangible internationalization.

It was also shown how intangible internationalization is potentially more accessible to smaller firms which cannot afford to invest in developing an international infrastructure, but which can still aim to operate at internationalized standards. This lesson will hopefully
force managers to reconsider what exactly it means to become international and what are the
direct benefits associated with it.

3.0 Implications for Policy Makers

As in the case of managers, the strongest lessons to emanate from this research for
policy makers relate to the rethinking of basic objectives. As was stated in the Introduction,
one of the principal reasons for initiating the reform process was to increase the level of
internationalization of Argentine firms and the economy as a whole, with the goal of
increasing their competitiveness. The use of traditional measures of internationalization to
evaluate the success of these reforms, however, may not be the most appropriate. It was
argued and shown that those measures which better correlate with performance are those
which relate to the intangible and not necessary tangible forms of internationalization. As
such, not only should the criteria used to evaluate these reforms be reconsidered, but the
reforms themselves, so as to encourage not only the internationalization of physical sales
but also of technology and management practices.

On the other hand, the dissertation did conclude that certain key reforms had been
successful in their objectives, in that reductions in export taxes and import tariffs have in
fact impacted trade flows. The dramatic increase in imports of capital goods is another
effect of the reform process which perhaps has not received as much attention as it
deserves, as it is these imports which will help local firms upgrade their operations to
international standards and which may be the key for the long-run success of the country's
internationalization effort.

A number of implications also arise from the research as to how the government can
help firms advance in the internationalization process. Programs aimed at broadening the
cognitive market definition in which managers view themselves as competing as well as
educating them in how to improve quality standards would greatly help this process. In
addition, increased levels of formal planning such as the program initiated by Siderar and the national government for the company's suppliers is another step in the right direction. Lastly, the area in which the government has the potential to make the strongest impact is in the area of finance. As was data showed, size makes a major difference in that smaller firms find it very difficult to obtain the capital needed for investing in the internationalization process. While some smaller firms have been able to work this obstacle, it still inhibits a large majority of firms from achieving their internationalization potential.

4.0 Implications for Academia and Future Research

The conclusions arrived at in this dissertation have a number of implications for academia in general and the research I plan on pursuing in the future. The results of Chapters 4 and 5 have hopefully contributed to the discussion on how firms react to environmental shocks. By adopting multiple levels of analysis and applying theories applicable for each of them, it was shown how such an approach can paint a more complete picture than if one restricts oneself to simply one level. In this case, it was shown how industry-wide factors such as tariff reductions can have a significant impact on behavior as well firm specific variables be they structural or strategic. In addition, the use of in-depth case studies to complement the results from a broad-based survey proved very effective. While the survey was able to identify general trends, particularly with regards to intangible internationalization, the case studies of Siderar and Siderca provided rich contextual detail and more specific operationalizations of the various concepts than was feasible in the survey. It also helped to identify the processes themselves by which intangible internationalization resulted in higher performance, rather than simply the artifacts.

While much is stated about the need for the field to have broader-based research approaches, it is relatively rare that they are actually conducted. This is an approach which I
7. Conclusions

believe has proven fruitful in this instance and one which I plan on continuing to use in the future.

Aside from highlighting the benefits of adopting multiple levels of analysis, the results of this research also contribute to the debate on the behavioral assumptions we hold about firm independence to act. Overall, the empirical analyses tended to support a more constructivist perspective, though there were hints of inertia being prevalent in certain instances. An important lesson which also arrived from conducting this analysis was that of knowing the details of the context in which one is operating. In this case, the inertial pressures one might assume to be correlated with size were more than counterbalanced by the dramatic differential access to capital also associated with size. As such, the importance of contextual knowledge cannot be overstressed.

The last part of the dissertation presents possibly the most controversial and yet most interesting conclusion for academia, which is whether or not our current operationalizations of internationalization are not in fact flawed or at least incomplete. In an era in which the most valuable goods are not necessarily physical objects but rather information, knowledge, and skills, should not the field of international business adapt its basic measures to take account of this shift. Traditional or tangible measures of internationalization still serve a purpose but do not convey the entire picture unless complemented by what this dissertation has described as the intangible ones.

In the future, I plan on extending the work presented in this dissertation in several ways. The first will be to continue exploring the issue of firm reaction to environmental shocks, both in and out of the context of market liberalization. In addition, I plan to continue refining the framework of tangible and intangible internationalization presented here. This may include replicating previous works which focused solely on tangible measures to see whether the incorporation of intangible measures adds to the explanatory power of the models. I also wish to explore other forms of tangible and intangible
internationalization not discussed here such as R&D capabilities and firm ownership structure. And finally, the issue of when these two types of internationalization are correlated and when they need not be is a central question which deserves further investigation.
PROYECTO: COMPETITIVIDAD DE LA INDUSTRIA MENDOCINA

ENCUESTA

Centro de Innovación Tecnológica - Massachusetts Institute of Technology

NOMBRE DE LA EMPRESA: ___________________________________________

DIRECCIÓN: __________________________________________

_____________________________________________________

TEL./FAX: __________________________________________

_____________________________________________________

NOMBRE DE LA PERSONA ENTREVISTADA: ___________________________

PUESTO EN LA EMPRESA: __________________________

DESDE CUANDO: __________________________

NOMBRE DEL ENTREVISTADOR: __________________________

FECHA DE ENTREVISTA: __________________________

HORA: inicio: _________ fin: _____________
1.0 Descripción General

1.1 Año de fundación de la sociedad: _____

1.2 Señale las cinco líneas principales de producto o negocio de la empresa y el porcentaje que cada línea representa en la actividad total de la empresa:

Línea de producto o negocio
1. ___________________________ __________ %
2. ___________________________ __________ %
3. ___________________________ __________ %
4. ___________________________ __________ %
5. ___________________________ __________ %

1.3 ¿Cuáles fueron sus ventas (en $US)?


1.4 ¿Cuántos empleados tiene (tuvo) la empresa?

Producción 1989 1995
Administración y servicios
Alta dirección

1.5 ¿Cuántos establecimientos tiene la empresa? _____

¿De qué tipo son, dónde están y cuándo fueron establecidos?

<table>
<thead>
<tr>
<th>Tipo</th>
<th>Donde</th>
<th>Cuándo establecido</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.6 ¿Qué porcentaje del capital de la empresa está en manos de:

Familiar
Bancos
El grupo empresarial
Otras empresas privadas
Entidades públicas
Inversores extranjeros (país: ________ )

1.7 ¿Cómo está financiada la empresa? Último Balance

Préstamos bancarios __________ %
Contribuciones familiares __________ %
Ganancias retenidas __________ %
Otros __________ %

Cómo se ha financiado su empresa en los últimos dos años?

Préstamos bancarios __________ %
Contribuciones familiares __________ %
Ganancias retenidas __________ %
Otros __________ %
Appendix A. Questionnaire

1.8 ¿Son sus ingresos suficientes para:

- Pagar los costos variables
- Pagar los costos variables y fijos
- Pagar los costos variables y fijos, y para inversiones en líneas nuevas de productos
- Las ganancias no son suficientes para pagar los costos variables

1.9 ¿Cuál es el nivel de educación de sus técnicos y trabajadores?

<table>
<thead>
<tr>
<th>Nivel de Educación</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escuela primaria</td>
<td></td>
</tr>
<tr>
<td>Escuela secundaria</td>
<td></td>
</tr>
<tr>
<td>Universidad</td>
<td></td>
</tr>
<tr>
<td>Post-graduado</td>
<td></td>
</tr>
<tr>
<td>Educación en el extranjero</td>
<td></td>
</tr>
<tr>
<td>Ningún tipo de educación</td>
<td></td>
</tr>
</tbody>
</table>

1.10 ¿Realiza la empresa algún tipo de capacitación formal de sus empleados?

- No
- Sí

Si Sí; ¿Qué tipo de capacitación realiza o ha realizado su empresa?

- Para los nuevos empleados
- Para adaptarse a cambios en los productos
- Cuando se adquiere nuevas máquinas
- Técnicas de marketing/ ventas
- Otro: __________________________

¿Cuántas horas de formación destina por cada empleado promedio cada año? _____

¿Envía o ha enviado la empresa a alguno de sus empleados a programas de formación extranjero?

- No
- Sí

Si Sí;

- Escuelas técnicas
- Universidades
- Programas para directivos
- Formación con el ayuda de otras empresas
- Otro: __________________________

1.11 ¿Cuántos de sus empleados han estudiado en el extranjero? __________

Cuándo sucedió?
- Entre 1990 y 1995 _____
- Entre 1980 y 1989 _____
- Antes de 1980 _____

1.12 ¿Recibe algún tipo de formación de sus clientes o sus proveedores?

<table>
<thead>
<tr>
<th>Cliente/Proveedor</th>
<th>Sí</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clientes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proveedores</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A. Questionnaire

2.0 Entorno Competitivo

2.1 ¿Quiénes eran sus competidores principales en 1989-90 y de dónde eran?

<table>
<thead>
<tr>
<th>Competidor</th>
<th>País (o provincia) de origen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2 ¿Quiénes son sus competidores principales hoy y de dónde son?

<table>
<thead>
<tr>
<th>Competidor</th>
<th>País (o provincia) de origen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.3 ¿Hace frente hoy a más o menos competencia extranjera que en 1989-90 en lo que se refiere a importaciones o a empresas multinacionales extranjeras radicadas en Argentina?

___ Más competencia ___ La misma ___ Menos competencia

2.4 ¿De cuáles asociaciones y/o cámaras empresariales es su empresa miembro? ¿Qué servicios proveen?

<table>
<thead>
<tr>
<th>Asociación</th>
<th>Servicios Proveídos</th>
<th>Miembro desde el Año</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.5 ¿Cuáles son las dos ventajas principales (V) de su empresa y las dos desventajas principales (D)? TARJETA I

___ Precio del producto final
___ Precio de los insumos
___ Calidad del producto final
___ Nivel de tecnología
___ Servicio al cliente
___ Confiabilidad de la empresa/producto
___ Relaciones personales
___ Proximidad geográfica al cliente
___ Conocimientos en marketing/ventas
___ Capacitación de los recursos humanos
___ Gerenciamiento del negocio
___ Financiamiento de las compras/las inversiones
___ Las políticas publicas
Appendix A. Questionnaire

3.0 Comparaciones con la Competencia (Benchmarking)

3.1 ¿Hace comparaciones (benchmarking) con la competencia nacional?

   ___ No
   ___ Sí
       ¿Qué aspectos de su negocio compara?
       ___ Procesos de producción
       ___ Procesos directivos
       ___ Costos de producción
       ___ Tecnología
       ___ Marketing/Ventas
       ___ Organización
       ___ Otro ____________________________

3.2 ¿Hace comparaciones (benchmarking) con empresas internacionales con las que no compita directamente?

   ___ No
   ___ Sí
       ¿Con cuáles empresas? ________________________________

       ¿Qué aspectos de su negocio compara?
       ___ Procesos de producción
       ___ Procesos directivos
       ___ Costos de producción
       ___ Tecnología
       ___ Marketing/Ventas
       ___ Organización
       ___ Otro ____________________________

4.0 Relaciones con los Clientes

4.1 ¿Qué porcentaje de sus ventas totales hoy suponen sus:

   Tres mayores clientes? ______% 

4.2 ¿Son la mayoría de sus clientes más grandes o más pequeños que usted?

   ___ Más grande  ______ Más pequeños

4.3 ¿Cómo caracterizaría su mercado geográfico de ventas en 1989 y en 1995?

       1989  1995
Provincial ______  ______
Nacional       ______  ______
Mercosur/Sud América ______  ______
Mundial ______  ______
Appendix A. Questionnaire

4.4 ¿A dónde se destinan sus ventas hoy en comparación a 1989?

<table>
<thead>
<tr>
<th>Procedencia</th>
<th>1989</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>La provincia local</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El resto de Argentina (dónde?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MERCOSUR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brasil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uruguay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otros países latinoamericanos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE.UU.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europa (Cuáles?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otros</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.5 ¿Qué porcentaje de sus ventas hoy en Argentina corresponden a ventas realizadas a empresas extranjeras? _____ %

4.6 ¿Qué porcentaje de sus ventas hoy en Argentina corresponden a empresas que luego exportan sus propios productos? _____ %

5.0 Proveedores

5.1 ¿Había un aumento o una disminución en el nivel de tercerización en los últimos 5 años?

   Aumento  Disminución

5.2 ¿Cuán importantes son los siguientes factores a la hora de elegir un proveedor? TARJETA 2

<table>
<thead>
<tr>
<th>Factor</th>
<th>Nada Importante</th>
<th>Muy Importante</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precio</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Entrega Puntual</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Precisión en la cantidad</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Calidad del producto</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Tener certificado de calidad</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Ayuda técnica</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Relación histórica</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

5.3 ¿De dónde son sus proveedores?

<table>
<thead>
<tr>
<th>Procedencia</th>
<th>1989</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>La provincia local</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El resto de Argentina (dónde?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MERCOSUR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brasil</td>
<td></td>
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<tr>
<td>Uruguay</td>
<td></td>
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<tr>
<td>Paraguay</td>
<td></td>
<td></td>
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<tr>
<td>Chile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otros países latinoamericanos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE.UU.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Otros</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.4 ¿Son la mayoría de sus proveedores más grandes o más pequeños que usted?
   ___ Más grandes   ___ Iguales   ___ Más pequeños

5.5 ¿Sus proveedores exportan directamente al exterior?
   ___ La mayoría exporta
   ___ Algunos exportan
   ___ Ninguno exporta

5.6 ¿Sus proveedores venden a empresas extranjeras en Argentina?
   ___ La mayoría vende a empresas extranjeras
   ___ Algunos venden a empresas extranjeras
   ___ Ninguno vende a empresas extranjeras

6.0 Tecnología

6.1 ¿Señale cuál o cuáles de estos motivos le invita a innovar tecnológicamente? TARJETA  3
   ___ Mantenerse a la par con la competencia
   ___ Consejos de los proveedores de maquinaria
   ___ Consejos de un cliente
   ___ Consejos de un consultor
   ___ Poner en práctica lo aprendido en ferias o conferencias
   ___ La asociación con una empresas extranjera
   ___ Iniciativa propia
   ___ Otro ____________________________

6.2 ¿Qué tipo de tecnología utiliza para la línea principal de productos?
   ___ Totalmente argentina
   ___ Mayoría argentina y algo extranjera
   ___ Mayoría extranjera
   ___ Totalmente extranjera

6.3 ¿Bajo qué modalidad se da la transmisión de tecnología?
   ___ Filial de empresa extranjera
   ___ Licencias/ royalties
   ___ Patentes
   ___ Marcas
   ___ Asistencia técnica
   ___ Otras:____________________________

6.4 ¿Cuándo fue la última vez que hizo una inversión significativa en tecnología? Año ____
¿De dónde vino la máquina o tecnología? País ________________

- 200 -
Appendix A. Questionnaire

7.0 Estrategia Empresarial

7.1 ¿Cuál es la estrategia de producción que piensa seguir su empresa en el futuro? TARJETA 4

___ Aumentar los volúmenes de producción de los productos actuales
___ Aumentar la gama de productos
___ Reducir la gama de productos
___ Especializarse en algunas variedades para un segmento de mercado
___ Objetivo sin definir claramente
___ Aumentar la calidad de los productos
___ Mantener la misma estrategia que hasta ahora
___ Otras: ____________________________________________

7.2 ¿En los años recientes ha aumentado o ha disminuido sus inversiones en la empresa?

<table>
<thead>
<tr>
<th></th>
<th>Aumentado</th>
<th>Ningún Cambio</th>
<th>Disminuido</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instalaciones</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Tecnología</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Marketing/distribución</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Capacitación</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

7.3 ¿Hoy, para su línea principal de productos, ofrece la empresa servicios de post-venta?

___ Sí  ______ No

7.4 ¿Qué porcentaje de sus ventas totales representan:

Los gastos en tecnología/Investigación y Desarrollo  ____ %
Los gastos en publicidad/promoción  ____ %
Los gastos en formación del personal  ____ %

8.0 Estrategia Internacional

8.1 ¿Cuándo fue la primera vez que:

Exportó?  ______
Formó una alianza comercial con una empresa extranjera? ______
Estableció canales de distribución propios en el extranjero? ______
Estableció producción en el extranjero? ______
Estableció una patente propio en el extranjero? ______

8.2 ¿Con cuál de las siguientes cuatro afirmaciones está usted más de acuerdo hoy?

___ Vender en los mercados extranjeros es esencial para competir.
___ Vender en los mercados extranjeros es importante, pero no debe ser una preocupación primordial de la empresa.
___ Es atractivo para la empresa vender en el extranjero, pero hay suficiente mercado en Argentina.
___ Los mercados extranjeros son muy difíciles y arriesgados, y no merecen la pena.

- 201 -
8.3 ¿Cuáles son las posibilidades de vender que tiene su empresa en las siguientes zonas del mundo?

<table>
<thead>
<tr>
<th>País</th>
<th>Nada</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Mucho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>MERCOSUR</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Brasil</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Paraguay</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Uruguay</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Chile</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Resto de L. América</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>EE.UU.</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Europa</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Asia</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
<tr>
<td>Otra (*)</td>
<td>Nada</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Mucho</td>
</tr>
</tbody>
</table>

8.4 Pensando en su empresa, ¿Diría usted que la pertenencia argentina a MERCOSUR ha sido muy beneficiosa, algo beneficiosa, ni beneficiosa ni perjudicial, algo perjudicial o muy perjudicial?

<table>
<thead>
<tr>
<th></th>
<th>Muy beneficiosa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Algo beneficiosa</td>
</tr>
<tr>
<td></td>
<td>Ni beneficiosa ni perjudicial</td>
</tr>
<tr>
<td></td>
<td>Algo perjudicial</td>
</tr>
<tr>
<td></td>
<td>Muy perjudicial</td>
</tr>
</tbody>
</table>

¿Por qué? __________________________________________

8.5 Pensando en el éxito de su empresa en los mercados exteriores, ¿Cuáles de los siguientes motivos son o podrían ser el más importante y el segundo más importante?

<table>
<thead>
<tr>
<th></th>
<th>El tener un producto único en el mundo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>El tener un producto tecnológicamente superior</td>
</tr>
<tr>
<td></td>
<td>El tener un producto competitivo en precio</td>
</tr>
<tr>
<td></td>
<td>El tener un producto de alta calidad</td>
</tr>
<tr>
<td></td>
<td>El tener un producto diferenciado o distintivo</td>
</tr>
</tbody>
</table>

8.6 ¿Tiene alguna organización propia para la distribución en el extranjero?

<table>
<thead>
<tr>
<th></th>
<th>Sí</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>¿Qué incluye?</td>
</tr>
<tr>
<td></td>
<td>Almacén</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Publicidad</td>
</tr>
<tr>
<td></td>
<td>Distribución</td>
</tr>
<tr>
<td></td>
<td>Venta</td>
</tr>
<tr>
<td></td>
<td>Crédito al cliente</td>
</tr>
<tr>
<td></td>
<td>Servicio post-venta</td>
</tr>
</tbody>
</table>

¿Qué % de las exportaciones se vende a través de canales de distribución propios? _____

<table>
<thead>
<tr>
<th></th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>¿A través de quién realiza la distribución en los países principales?</td>
</tr>
<tr>
<td></td>
<td>Agente</td>
</tr>
<tr>
<td></td>
<td>Distribuidor o mayorista</td>
</tr>
<tr>
<td></td>
<td>Directo al comerciante o usuario final</td>
</tr>
<tr>
<td></td>
<td>Alianza comercial con una empresa extranjera</td>
</tr>
<tr>
<td></td>
<td>Otros: __________________________</td>
</tr>
</tbody>
</table>
Appendix A. Questionnaire

8.7 ¿Cuáles fuentes de información disponen sobre sus mercados principales?

____  Ninguna
____  Consultores especializados
____  Estudios de mercado específicos
____  Directamente de los distribuidores
____  Proveedores, visitantes del país
____  Asociaciones del sector
____  Fuentes bibliográficas en general
____  Cámaras de comercio
____  Organismos oficiales

8.8 Por favor, describa los eventos significativos en la expansión internacional de su empresa.

9.0 Exportación

9.1 ¿Cuáles fueron las exportaciones de la empresa (en $US)?


9.2 ¿Qué tipo de planificación hace usted para las exportaciones?

____  Plan formalizado de exportación
____  Exportación por fluctuaciones de la demanda interna argentina
____  Respuesta a pedidos concretos
____  Otras: ____________________________________________

9.3 ¿Cuál es el porcentaje del costo del transporte de la facturación total de sus exportaciones?

A Chile  ____%  
A Brasil  ____%  
A EE.UU.  ____%  
A Europa  ____%  
A Japón  ____%  

9.4 ¿Por qué eligió los países donde está exportando actualmente? TARJETA S

____  Ventaja en precio
____  Cercanía geográfica y facilidades de transporte
____  Conocimiento de estos mercados
____  Exportación que responde a pedidos concretos
____  Acceso más fácil a canales de distribución
____  Fuerte demanda
____  Seguridad de cobro
____  Estructura propia o acceso a la distribución
____  Idioma
____  Otras razones: ______________________________________

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Appendix A. Questionnaire

9.5 ¿Existenten diferencias entre los productos que se exportan frente a los que se venden en Argentina?

   ____ Sí  ¿Qué tipo de diferencia?
   ____ No

9.6 ¿Cuáles cree que son sus principales ventajas o barreras frente a sus competidores para exportar?

   TARJETA 6

<table>
<thead>
<tr>
<th></th>
<th>Ventaja</th>
<th>Neutro</th>
<th>Barrera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precio</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Producto/calidad</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Tecnología</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Penetración de la distribución</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Imagen de la empresa</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Distancia y costo de transporte</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Imagen argentina</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Conocimiento del mercado</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

9.7 ¿Qué modalidad de financiación utiliza con más frecuencia en sus operaciones de exportación?

   ____ Contado o a plazo
   ____ Carta de crédito
   ____ Crédito al vendedor
   ____ Pagos en especie o productos
   ____ Otras:______________________________

9.8 ¿Realiza su empresa actividades de promoción y publicidad en el exterior?

   ____ Sí  Cuales______________________________
   ____ No

9.9 ¿Qué porcentaje de sus exportaciones se realizan sin marca? ____%

10.0 Alianzas/ Inversión Directa en el Extranjero

10.1 ¿Tiene usted algún tipo de acuerdo o alianza (nacional o internacional) con otras empresas?

   ____ No
   ____ Sí

   Con cuál empresa          País de origen          Objeto (#)          TARJETA 7          Cuándo
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

# Objetos: 1 Acuerdos comerciales
           2 Acuerdos tecnológicos
           3 Participación en empresas mixtas
           4 Compra o participación en una empresa extranjera
           5 Venta o desinversion de una parte del capital propio
           6 Publicidad y promoción
           7 Otras:_________________________________________
Appendix A. Questionnaire

10.2 ¿En qué países tiene inversiones?

<table>
<thead>
<tr>
<th>País</th>
<th>Desde Cuándo</th>
<th>Objetivo Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Producción</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11.0 Impacto del las Reformas Económicas

11.1 ¿Cuáles de las reformas de los cinco últimos años han tenido un impacto sobre su empresa?

TARJETA 8

<table>
<thead>
<tr>
<th>Impacto muy positivo</th>
<th>Ningún impacto</th>
<th>Impacto muy negativo</th>
</tr>
</thead>
<tbody>
<tr>
<td>La reducción de la inflación</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>La estabilidad del peso</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>La eliminación de controles sobre los precios</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>La reducción de las tarifas para exportar</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>La reducción de las tarifas para importar</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Cambios en el sistema financiero</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

11.2 ¿Cuáles de los siguientes ítems proveía el gobierno antes de las reformas económicas (es decir antes de 1989), y qué nivel de gobierno lo proveía (nacional, provincial, local)?

<table>
<thead>
<tr>
<th>Nivel de gobierno</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los subsidios</td>
</tr>
<tr>
<td>La formación</td>
</tr>
<tr>
<td>La promoción de las exportaciones</td>
</tr>
<tr>
<td>La financiación</td>
</tr>
<tr>
<td>Otro</td>
</tr>
</tbody>
</table>

11.3 ¿Cómo ha impactado en su empresa la reducción de los aranceles de importación y otras restricciones para importar?

- Bajando el costo de materias primas
- Bajando el costo de bienes de capital
- Aumentando la competencia
- Ningún impacto

11.4 ¿En los cinco últimos años, cómo han afectado las reformas económicas el costo de su financiación?

<table>
<thead>
<tr>
<th>Aumentan el costo</th>
<th>Ningún impacto</th>
<th>Disminuyen el costo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

11.5 ¿Cómo han afectado (las reformas económicas) su acceso a financiación?

<table>
<thead>
<tr>
<th>Aumentan el acceso</th>
<th>Ningún impacto</th>
<th>Disminuyen el acceso</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

11.6 ¿Cómo han afectado (las reformas económicas) su costo de mano de obra?

<table>
<thead>
<tr>
<th>Aumentan el costo</th>
<th>Ningún impacto</th>
<th>Disminuyen el costo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix A. Questionnaire

11.7 ¿Las reformas de los cinco últimos años, cómo han afectado la flexibilidad de sus políticas laborales?

Aumentan la flexibilidad    Ningún impacto    Disminuyen la flexibilidad
1                2                3                4                5                6                7

11.8 ¿Cómo han afectado (las reformas económicas) el costo de los insumos?

Aumentan el costo    Ningún impacto    Disminuyen el costo
1                2                3                4                5                6                7

11.9 ¿Cómo han afectado (las reformas económicas) el acceso a tecnología?

Aumentan el acceso    Ningún impacto    Disminuyen el acceso
1                2                3                4                5                6                7

11.10 ¿Qué efectos han tenido las privatizaciones?

___ Permitieron adquirir una empresa estatal
___ Disminuyeron los costos de las materias y servicios básicos
___ Aumentaron los costos de las materias primas
___ Ningún impacto

11.11 ¿Cómo ha afectado la eliminación de los controles de los precios?

___ Reduciendo los costos
___ Aumentando los costos de insumos
___ Reduciendo los precios de los bienes finales
___ Aumentando los precios de los bienes finales
___ Ningún impacto

11.12 ¿Cuál ha sido el impacto total?    ___ Positivo    ___ Negativo    ___ Neutro

11.13 ¿Cómo ha sido afectada su estructura de costos por los cambios en la infraestructura del país?

Impacto muy positivo    Ningún impacto    Impacto muy negativo
1                2                3                4                5                6                7

11.14 ¿Ha percibido una variación en los costos de transporte en las últimos 5 años? ___Sí ___ No
¿Si sí, cómo ha sido afectada su empresa por esta variación?

___ Aumentando el tamaño del mercado que puede servir
___ Reduciendo los costos de materias primas
___ Ningún impacto

11.15 ¿En qué sentido ha cambiado su estrategia de precios como resultado de las reformas?

___ Redujo los precios para el mercado local
___ Aumentó los precios para el mercado local
___ Redujo los precios para el mercado extranjero
___ Aumentó los precios para el mercado extranjero

11.16 ¿Cómo ha cambiado su acceso a canales de distribución extranjeros durante los últimos cinco años?

Aumentó Mucho    Ningún Cambio    Se redujo mucho
1                2                3                4                5                6                7
11.17 ¿Cómo ha cambiado la organización de su empresa durante los últimos cinco años?

___ Aumentó la centralización
___ Se redujo la centralización
___ Aumentó la tercerización
___ Se redujo la tercerización

11.18 ¿En cuáles de las siguientes aspectos ha cambiado la estrategia de su empresa en las últimos cinco años? TARJETA 9

___ 1. Ningún cambio
___ 2. Ampliación de los posibles clientes
___ 3. Reducción de los posibles clientes
___ 4. Aumento de la oferta de productos
___ 5. Reducción de la oferta de productos
___ 6. Aumento de exportaciones
___ 7. Reducción de exportaciones
___ 8. Aumento de importaciones de insumos y materias primas
___ 9. Reducción de importaciones de insumos y materias primas
___ 10. Cambio de proveedores
___ 11. Aumento las capacidades de recursos humanos
___ 12. Profesionalizó la gerencia
___ 13. Mayor inversión en tecnología
___ 14. Menor inversión en tecnología
___ 15. Mayor inversión en marketing y distribución
___ 16. Menor inversión en marketing y distribución
___ 17. Mayor inversión en instalaciones y maquinaria
___ 18. Menor inversión en instalaciones y maquinaria
___ 19. Mayor número de empleados
___ 20. Menor número de empleados
___ 21. Otros: ________________________________

11.19 ¿En general ve usted las reformas como una oportunidad o una amenaza?

___ Una oportunidad   ___ Una amenaza

¿Por qué?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix B. Descriptive Statistics

DESCRIPTIVE STATISTICS

Demographics

Table 1 - Sectors in Sample

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>NUMBER OF FIRMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRO-PROCESSING</td>
<td>23</td>
</tr>
<tr>
<td>BEVERAGES (WINE, JUICE, WATER)</td>
<td>47</td>
</tr>
<tr>
<td>METAL-MECHANICS</td>
<td>47</td>
</tr>
<tr>
<td>WOOD/FURNITURE</td>
<td>27</td>
</tr>
<tr>
<td>PETRO-CHEMICALS</td>
<td>7</td>
</tr>
<tr>
<td>&quot;MINERIA&quot;</td>
<td>12</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>163</strong></td>
</tr>
</tbody>
</table>

Table 2 - Sales Distribution, 1995

<table>
<thead>
<tr>
<th>Sales ($ million)</th>
<th>0-.5</th>
<th>.5-1</th>
<th>1-3</th>
<th>3-5</th>
<th>5-10</th>
<th>10-20</th>
<th>20-50</th>
<th>50-100</th>
<th>100+</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Firms</td>
<td>31</td>
<td>35</td>
<td>39</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 3 - Employee Distribution, 1995

<table>
<thead>
<tr>
<th># of Employees</th>
<th>&lt;50</th>
<th>50-100</th>
<th>100-150</th>
<th>150-200</th>
<th>200-250</th>
<th>250-300</th>
<th>300+</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Firms</td>
<td>113</td>
<td>21</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Table 4 - Size Summary Table

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE SALES, 1995</td>
<td>$6.0 million</td>
</tr>
<tr>
<td>AVERAGE EMPLOYMENT, 1995</td>
<td>68.0</td>
</tr>
<tr>
<td>AVERAGE EMPLOYMENT, 1989</td>
<td>65.5</td>
</tr>
<tr>
<td>% OF FIRMS INCREASING EMPLOY.</td>
<td>44%</td>
</tr>
<tr>
<td>% OF FIRMS DECREASING EMPLOY.</td>
<td>34%</td>
</tr>
</tbody>
</table>

Table 5 - Highest Level of Education of Employees

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>None</th>
<th>Primary</th>
<th>Secondary</th>
<th>University*</th>
<th>Post-Graduate</th>
<th>Studies Abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. %</td>
<td>1.6%</td>
<td>61.0%</td>
<td>31.0%</td>
<td>5.5%</td>
<td>.3%</td>
<td>.2%</td>
</tr>
</tbody>
</table>

* 91 of the 163 firms surveyed reported having at least 1 person with university education. Of those 91 firms, the average university share of employment was 10.4%

Table 6 - Firm Age

<table>
<thead>
<tr>
<th>AVERAGE FIRM AGE</th>
<th>30.8 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN</td>
<td>1-156 years</td>
</tr>
</tbody>
</table>

Table 7 - Performance Distribution

<table>
<thead>
<tr>
<th>REVENUES ARE SUFFICIENT TO PAY:</th>
<th>Not Even Variable Costs</th>
<th>Variable Costs Only</th>
<th>Variable &amp; Fixed Costs</th>
<th>Variable/ Fixed Costs and Invest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35</td>
<td>12</td>
<td>70</td>
<td>42</td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Internationalization

Table 8 - Exporters

<table>
<thead>
<tr>
<th>Number of Exporters</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>in 1995</td>
<td>48</td>
</tr>
<tr>
<td>in 1989</td>
<td>37</td>
</tr>
<tr>
<td>New Exporters in 1995</td>
<td>19</td>
</tr>
<tr>
<td>1989 Yes Export/1995 No Export</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 9 - Average Destination of Sales

<table>
<thead>
<tr>
<th></th>
<th>Sample Average</th>
<th>Only Exporters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>87.7%</td>
<td>83.8%</td>
</tr>
<tr>
<td>Latin America</td>
<td>9.6%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Outside Latin America</td>
<td>2.7%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Table 10 - Indirect Internationalization

<table>
<thead>
<tr>
<th>Number of Firms Which Sell to MNEs</th>
<th>43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Firms Which Sell to Exporters</td>
<td>43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sample Average</th>
<th>Subsample Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Sales to Foreign Firms</td>
<td>8.0%</td>
<td>39.3%</td>
</tr>
<tr>
<td>% of Sales to Exporters</td>
<td>10.4%</td>
<td>30.5%</td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Table 11 - Country of Origin of Suppliers

<table>
<thead>
<tr>
<th></th>
<th>Sample Average</th>
<th>Only Exporters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>96.4%</td>
<td>95.7%</td>
</tr>
<tr>
<td>Latin America</td>
<td>1.3%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Outside Latin America</td>
<td>2.3%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Table 12 - Internationalization of Suppliers

<table>
<thead>
<tr>
<th></th>
<th>Suppliers Export</th>
<th>Suppliers Sell to MNEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>16.3%</td>
<td>21.1%</td>
</tr>
<tr>
<td>Some</td>
<td>55.6%</td>
<td>58.3%</td>
</tr>
<tr>
<td>Most</td>
<td>28.1%</td>
<td>20.5%</td>
</tr>
</tbody>
</table>

Table 13 - Internationalization Measures

<table>
<thead>
<tr>
<th></th>
<th>Number of Firms</th>
<th>Avg Year of Initiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>63</td>
<td>1980</td>
</tr>
<tr>
<td>Foreign Direct Investments</td>
<td>2</td>
<td>1985</td>
</tr>
<tr>
<td>Foreign Alliances</td>
<td>19</td>
<td>1986</td>
</tr>
<tr>
<td>Proprietary Foreign Distribution</td>
<td>14</td>
<td>1984</td>
</tr>
<tr>
<td>Foreign Patents</td>
<td>3</td>
<td>1986</td>
</tr>
<tr>
<td>Promotion Abroad</td>
<td>21</td>
<td>-----</td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Table 14 - Foreign Competitor Identification

| NUMBER OF FIRMS IDENTIFYING A FOREIGN COMPANY AS A LEADING COMPETITOR, 1989 | 12 |
| NUMBER OF FIRMS IDENTIFYING A FOREIGN COMPANY AS A LEADING COMPETITOR, 1995 | 31 |
| COUNTRY OF ORIGIN OF FOREIGN COMPETITORS ORDERED BY FREQUENCY OF RESPONSE | EUROPE, BRAZIL, US, CHILE, ASIA |

Table 15 - Distribution of Market Definitions by Firms

<table>
<thead>
<tr>
<th></th>
<th>1989</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial</td>
<td>32%</td>
<td>27%</td>
</tr>
<tr>
<td>National</td>
<td>49%</td>
<td>44%</td>
</tr>
<tr>
<td>Latin American</td>
<td>11%</td>
<td>17%</td>
</tr>
<tr>
<td>Global</td>
<td>8%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Firm Strategy

Table 16 - Self-Identified Firm Advantages and Disadvantages

<table>
<thead>
<tr>
<th></th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of Final Product</td>
<td>45</td>
<td>32</td>
</tr>
<tr>
<td>Price of Inputs</td>
<td>2</td>
<td>56</td>
</tr>
<tr>
<td>Quality of Final Product</td>
<td>110</td>
<td>1</td>
</tr>
<tr>
<td>Level of Technology</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td>Service to the Client</td>
<td>55</td>
<td>2</td>
</tr>
<tr>
<td>Trust in the Firm/ Product</td>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>Personal Relationships</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Geographic Proximity</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Marketing Knowledge</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Human Resources</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Management</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Financing of Purchases/ Investments</td>
<td>3</td>
<td>62</td>
</tr>
<tr>
<td>Public Policies</td>
<td>1</td>
<td>49</td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Table 17 - Expected Future Strategies

<table>
<thead>
<tr>
<th>Future Strategy</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase Output of Existing Products</td>
<td>97</td>
</tr>
<tr>
<td>Increase Range of Products</td>
<td>54</td>
</tr>
<tr>
<td>Reduce Range of Products</td>
<td>8</td>
</tr>
<tr>
<td>Specialize in a Segment of the Market</td>
<td>56</td>
</tr>
<tr>
<td>Increase Quality of Products</td>
<td>83</td>
</tr>
<tr>
<td>Maintain the Same Strategy</td>
<td>19</td>
</tr>
<tr>
<td>Unclear Objective</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 18 - Advantages and Barriers for Exporting

<table>
<thead>
<tr>
<th></th>
<th>Advantage</th>
<th>Neutral</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>29</td>
<td>21</td>
<td>32</td>
</tr>
<tr>
<td>Quality</td>
<td>63</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Technology</td>
<td>26</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Distribution</td>
<td>11</td>
<td>37</td>
<td>31</td>
</tr>
<tr>
<td>Firm Image</td>
<td>40</td>
<td>31</td>
<td>7</td>
</tr>
<tr>
<td>Transport Cost</td>
<td>15</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>Argentine Image</td>
<td>11</td>
<td>27</td>
<td>37</td>
</tr>
<tr>
<td>Market Knowledge</td>
<td>26</td>
<td>20</td>
<td>35</td>
</tr>
</tbody>
</table>
Table 19 - Reasons for Selecting Export Markets Chosen

<table>
<thead>
<tr>
<th>Rationale</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price Advantage</td>
<td>11</td>
</tr>
<tr>
<td>Geographic Proximity</td>
<td>26</td>
</tr>
<tr>
<td>Market Knowledge</td>
<td>27</td>
</tr>
<tr>
<td>Concrete Requests</td>
<td>41</td>
</tr>
<tr>
<td>Ease of Distribution</td>
<td>8</td>
</tr>
<tr>
<td>Strong Demand</td>
<td>23</td>
</tr>
<tr>
<td>Security of Payment</td>
<td>18</td>
</tr>
<tr>
<td>Proprietary Infrastructure</td>
<td>4</td>
</tr>
<tr>
<td>Language</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 20 - Factors in Choosing a Supplier (# of Respondents)

<table>
<thead>
<tr>
<th></th>
<th>Not Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4</td>
<td>5  6  7</td>
</tr>
<tr>
<td>Price</td>
<td>1  3  1  20</td>
<td>22  21  91</td>
</tr>
<tr>
<td>On-time Delivery</td>
<td>1  0  0  19</td>
<td>24  37  76</td>
</tr>
<tr>
<td>Precision in Quantity</td>
<td>9  9  6  37</td>
<td>24  18  49</td>
</tr>
<tr>
<td>Quality</td>
<td>1  0  1  4</td>
<td>13  19  119</td>
</tr>
<tr>
<td>Certification of Quality</td>
<td>34  9  14</td>
<td>27  18  10</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>23  18  14</td>
<td>20  29  17</td>
</tr>
<tr>
<td>Historical Relationship</td>
<td>17  18  10</td>
<td>35  24  16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B. Descriptive Statistics

Technology

Table 21 - Age of Most Recent Major Technological Investment

<table>
<thead>
<tr>
<th>Number of Respondents</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 year</td>
<td>22</td>
</tr>
<tr>
<td>1 year</td>
<td>38</td>
</tr>
<tr>
<td>2 years</td>
<td>24</td>
</tr>
<tr>
<td>3 years</td>
<td>16</td>
</tr>
<tr>
<td>4 years</td>
<td>3</td>
</tr>
<tr>
<td>5 years</td>
<td>3</td>
</tr>
<tr>
<td>6 years</td>
<td>7</td>
</tr>
<tr>
<td>7 years</td>
<td>9</td>
</tr>
<tr>
<td>&gt;7 years</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 22 - Country of Origin of Technology

<table>
<thead>
<tr>
<th>All Argentine</th>
<th>Mostly Argentine</th>
<th>Mostly Foreign</th>
<th>All Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>53</td>
<td>33</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 23 - Country of Origin of Most Recent Technological Investment (# of Respondents)

<table>
<thead>
<tr>
<th>Argentina</th>
<th>Italy</th>
<th>Spain</th>
<th>Germany</th>
<th>France</th>
<th>Other Europe</th>
<th>USA</th>
<th>Brazil</th>
<th>Chile</th>
<th>Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>35</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Impressions Of Market Reforms

Table 24 - Impressions of MERCOSUR (# of Respondents)

<table>
<thead>
<tr>
<th>Very Beneficial</th>
<th>Somewhat Beneficial</th>
<th>Neutral</th>
<th>Somewhat Harmful</th>
<th>Very Harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>54</td>
<td>48</td>
<td>10</td>
<td>2</td>
</tr>
</tbody>
</table>
### Appendix B. Descriptive Statistics

#### Table 25 - Overall Views of Economic Reforms

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Neutral</th>
<th>Menace</th>
</tr>
</thead>
<tbody>
<tr>
<td>96</td>
<td>15</td>
<td>41</td>
</tr>
</tbody>
</table>

#### Table 26 - Impact of Recent Economic Reforms

<table>
<thead>
<tr>
<th></th>
<th>Increased</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Cost of Financing</strong></td>
<td>38</td>
<td>35</td>
<td>9</td>
<td>34</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td><strong>Access to Financing</strong></td>
<td>10</td>
<td>22</td>
<td>9</td>
<td>46</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td><strong>Cost of Labor</strong></td>
<td>18</td>
<td>25</td>
<td>17</td>
<td>41</td>
<td>16</td>
<td>38</td>
</tr>
<tr>
<td><strong>Labor Flexibility</strong></td>
<td>21</td>
<td>51</td>
<td>19</td>
<td>47</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td><strong>Input Costs</strong></td>
<td>8</td>
<td>27</td>
<td>15</td>
<td>45</td>
<td>22</td>
<td>36</td>
</tr>
<tr>
<td><strong>Access to Technology</strong></td>
<td>19</td>
<td>57</td>
<td>18</td>
<td>38</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td><strong>Access to Foreign Distribution</strong></td>
<td>10</td>
<td>13</td>
<td>13</td>
<td>72</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
PART II
1.0 Introduction

Much attention has been devoted to the importance of internationalizing for the long-run competitiveness of a firm. In the course of the discussion, many terms have been put forth to describe firms which are so called "international," among them, multinational, transnational, and global. In most cases, however, the criteria used to determine whether or not a firm meets one of these definitions have been rooted in the physical characteristics of the firm. In most cases this translates into whether or not the firm sells or produces abroad.

The objective of the case discussion which follows is to apply a more encompassing definition of internationalization in analyzing Siderar, the dominant flat steel producer in Argentina. In doing so, it will be shown that simply relying on physical or tangible characteristics to define the firm's level of internationalization can result in erroneous classifications. In its place a definition which encompasses both "tangible" and "intangible" aspects of internationalization is applied, with the latter being used to describe the extent to which the firm operates at international standards on a variety of aspects, regardless of where its tangible components are located.
Part II. The Internationalization of Siderar and Siderca

Using the above definition, the internationalization of Siderar, formerly the state-owned steel company SOMISA, is compared pre and post-economic reform. In doing so, there are two objectives. The first is to highlight the importance of adopting multiple measures when assessing a firm's level of internationalization. Those proposed here include market, operations, management, procurement and competitive measures. The second objective is to highlight the criticality of analyzing these measures both in terms of their tangible and intangible components. It is shown how changes in these aspects of the firm can produce contradictory internationalization classifications depending on whether one uses simply tangible measures or a more elaborate definition which includes intangible ones as well. Using the former definition, Siderar would appear to be less international today than pre-privatization as its level of foreign sales has dropped considerably. However, when one includes the idea of internationalized capabilities into the definition, the classification which follows is exactly the opposite. In particular, the importance of possessing a management which is internationalized not necessarily from a physical standpoint but rather from a capabilities and outlook perspective is highlighted. While the privatization of SOMISA and the economic liberalization surrounding it provided the potential for success, it by no means guaranteed it. It required an "internationalized" management to exploit that potential.

The case analysis itself is divided into six sections. The first of these describes the methodology adopted and addresses the issue of the case selection process. This is followed by a brief history of the steel industry in Argentina leading up to and following the economic reforms of the early 1990s. Emphasis in this section is placed on changes in market structure and their impact on the internationalization of the sector. The third section then turns to the privatization of SOMISA, addressing both the events prior to it and the privatization process itself. The fourth section, which comprises the core of the analysis, focuses on the internationalization of Siderar, contrasting the tangible and intangible aspects
Part II. The Internationalization of Siderar and Siderca

pre and post economic reform on all five of the levels mentioned earlier. The next section contrasts the case of Siderar with that of Siderca, another firm in the same industrial group and the largest seamless steel tube producer and exporter in the world. Emphasis is placed on showing how the two firms may differ on tangible measures of internationalization but are much more similar with respect to the intangible aspects. The case then concludes with a discussion of the implications which follow from the adoption of such an approach to internationalization.

2.0 Methodology

Following the decision to undertake a case study analysis of the impact of radical economic reform on the internationalization of a firm, a case study protocol was developed which is summarized in Appendix A. The unit of analysis in the case is broadly defined as the firm, but in narrower, more precise terms can be classified as organizational change, for throughout the analysis emphasis is placed on the relative change in variable levels as opposed to simply their absolute levels. And, while the focus of the study is on the degree of internationalization, as mentioned earlier the definition of internationalization being proposed is a multidimensional concept and as such an embedded (multiple level) structure is adopted as opposed to a single variable analysis.

As has also been mentioned, the primary focus is on a single case, that of Siderar. However, in order to highlight the importance of industry characteristics in affecting the various internationalization aspects, the case of Siderca is used to selectively contrast with that of Siderar. In selecting a firm for study, it was decided that a critical case approach would be used, in which the firm chosen would be selected not necessarily for its representativeness of the population as a whole, but rather for its ability to highlight the conceptual points being made. Three criteria were used in selecting the firm:
Part II. The Internationalization of Siderar and Siderca

Industry Affected by Market Reforms: The firm chosen should be active in an industry which has been strongly impacted by the market reforms, and which as a result is exposed to international competition to a degree greater than before the reforms.

International Potential: The firm must possess the critical scale and resources needed to compete internationally. Prior, be it limited, international experience should also be required, as the potential for change is greatest amongst those firms which have had at least some exposure to foreign markets. On the other hand, the firm should not be one which prior to liberalization would be considered world-class.

Intangible vs. Tangible Internationalization: In addition, the case chosen should be one which allows for the distinction between the tangible and intangible aspects of internationalization to be made.

Siderar meets the above criteria and also possesses a number of other attributes which make it appealing. The company, now part of the Techint industrial group, was up until recently part of the state-owned steel complex, SOMISA. Following its privatization in the early 1990s the firm was forced to adapt to an environment in which it was no longer protected by neither extremely high trade barriers nor the pockets of the state. As such, it meets the first criterion.

Regarding the second criterion, international potential, Siderar is qualified in two aspects. Prior to privatization, the company had years in which exports accounted for over 70 percent of sales (though not at a profit and as such not to be confused with a world-class firm). Following privatization it gained access to the resources and management capabilities of one of the country's leading industrial groups to aid it in improving its international position, which also relates to the firm's ability to meet the third criteria. Siderar presents itself as an excellent case to distinguish between tangible and intangible forms of
internationalization. As part of the State complex, the firm was by most standards highly internationalized from the point of view of sales, though not in terms of capabilities, as reflected in the repeated losses posted by the firm. By contrast, following its sale to the Techint Group, the firm has reduced export shares dramatically but at the same time reduced costs and improved its ability to "compete" internationally. As such, from a traditional definitional standpoint, the company appears less international today than five years ago, but from a capability and competitiveness standpoint the case is just the opposite.

Another advantage associated with the selection of Siderar is that within the same industrial group is the firm Siderca, the largest producer and exporter of seamless steel tubes in the world. In contrast to Siderar, Siderca, as a result of industry dynamics and issues relating to minimum efficient scale, has internationalized both its sales and capabilities. By comparing the two firms, it is possible to highlight how in one case these two forms of internationalization go hand in hand, and how in another case they need not. Contrasting Siderca and Siderar is also interesting in that it shows what impact differences in political and economic environments can have on the pace at which firms internationalize. In the case of the former, political and economic instability contributed to the process stretching over more than 15 years, while in the case of the latter a stable environment allowed these changes to take place in a third of that period.

2.1 Data Sources

As with most multiple level case studies a variety of data sources were relied upon. They can, however, be classified into four general categories, two primary sources and two secondary sources. On the one hand, primary information came from a series of interviews conducted during the course of two extended stays in Argentina. A complete list of the people interviewed is presented in Appendix B. In total 22 interviews were conducted,
mostly in Argentina though in some cases in the United States, as in the case of the first interview with the Director General Daniel Novergil, which cleared the way for all the subsequent interviews. Overall, the people interviewed included 19 managers at Siderar, Siderca, and the holding group Techint, as well as 3 outside researchers. The interviewees covered a wide range of functional areas, primarily at the senior management level. These areas included, finance, planning, production, procurement, human resources, information systems, and sales. In addition to the information obtained from these interviews, primary literature was obtained from Siderar and Siderca (as well as Techint). These ranged from annual reports and internal magazines to special presentations.

With regards to secondary material, there were also two main sources, outside research reports and academic articles on the steel industry in Argentina, and press clippings on the firms in question. The former included material from the Argentine Steel Institute and Paine Weber as well as FIEL (Fundación de Investigaciones Económicas Latinoamericanas), while the leading business daily paper, El Cronista, and the leading monthly business magazine, Mercado, were the main press sources.

2.2 Validity and Reliability

When adopting a case study approach, the issues of validity and reliability need to be addressed (Yin, 1994). For the type of case study being undertaken here, the two forms of validity of most concern are construct and external validity. The former refers to "establishing correct operational measures for the concepts being studied," while the latter relates to "establishing the domain to which a study's findings can be generalized" (Yin, 1994, p. 33). In order to guarantee the validity of the constructs used, multiple data sources were used for each general concept, as was described in the section above. Efforts were made to confirm information provided by people from inside the firms with external data.
sources. In addition, when possible, similar issues were discussed with multiple people even within the firm.

As for the external validity of the study, the same conceptual framework adopted here was used in a broad-based survey of Argentine firms (Toulan, 1996), which provided similar support for the approach being adopted. Furthermore, while the experiences of Siderar and Siderca may be on the extreme end of the response spectrum for Argentine firms, the population for which the ideas presented here is appropriate is not restricted simply to companies in Argentina. Rather, the ideas being explored in this study can be applied to the internationalization process of any firm, and not just those undergoing extreme environmental changes. Lastly, on the issue of reliability of results, most of the evidence presented is based on actual events in the history of the firm or concrete numerical figures, both of which are reproducible, given access to company personnel and records.

3.0 History Of The Steel Sector In Argentina

Of all the industrial sectors affected by the economic reform policies of the Argentine government since 1989, the one which has been perhaps most impacted by the combination of privatization, deregulation, and trade liberalization is the steel sector. Over this period, the industry has gone through what conservatively would be called a restructuring but which in reality resembles more of a revolution. This has entailed the transference of control of the industry from the public to the private sector and a subsequent dramatic increase in productivity. As will be discussed, these changes have resulted in radical market structure changes in the sector.

The history of the steel industry in Argentina is in fact relatively short. While steel production developed in the country by the end of the 1800s, it was focused exclusively on the final stages of lamination and was dependent on hot-rolled steel imports. It was not until the 1940s and the advent of import substitution policies that the sector began to
integrate backwards into hot-rolled steel production. A national steel plan was developed -- Plan Siderúgico Nacional -- in 1947 under the auspices of the D.G.F.M. (Dirección General de Fabricaciones Militares) with the goal of eliminating the country's dependence on hot-rolled imports. In addition to marking a change in the degree of vertical integration present in the country, the plan of 1947 radically changed the actors controlling the domestic steel industry. Whereas the existing downstream production was completely dominated by the private sector, the proposed hot-rolled facility, SOMISA, was to be a joint project of public and private capital with the former having a controlling interest. In fact SOMISA stood for Sociedad Mixta Siderurgia Argentina. In the end, however, the private sector was excluded not only from the SOMISA project but also from competing in the hot-rolled sector in any way (San Martin, 1988).

Chart 1- Argentine Steel Industry (1950-87)

The SOMISA facility located in San Nicolás, 250 kilometers outside of Buenos Aires, came on-line in 1960 with an installed capacity of 315,000 tons per year. This however, was still far short of the apparent domestic consumption of roughly 2,000,000 tons. In order to further reduce imports, expansion projects were undertaken which boosted capacity to 1,000,000 tons by 1965 and 2,500,000 tons by the early 1970s. During this period, there were also plans put forth by private concerns, the main ones being Techint and AcínDar to build integrated facilities. In all cases, however, they were rejected by the D.G.F.M. The result was a complementary market structure in which the public sector controlled the primary production stages and the private sector dominated the finishing processes, both benefiting from extremely high levels of protection through tariff and non-tariff measures, tax incentives, tariff exemptions (on inputs for producers), and institutional entry barriers (Azpiazu and Nochteff, 1994).

In addition to specialization by stage of production, there was a rough specialization by type of product, with SOMISA being the only flat products producer until 1968 and the entry of Propulsora Siderurgia (Techint). And, even then Propulsora was dependent on buying the hot-rolled coils from SOMISA or importing them. By contrast, most of the private investment in finishing was devoted to non-flat products, primarily tubes and long products, in which the leading players were Siderca (Techint) and AcínDar. In total there were 59 firms involved in steel production in Argentina by 1975 (see Table 1).

The limitations of the existing market structure, however, began to show by the mid-1970s. Domestic apparent consumption reached a peak of 183 kg/capita in 1975. The rigidities of the domestic production, though, meant that roughly half of that consumption had to be imported. In fact roughly 20 percent of the country's total imports in the early 1970s were associated directly or indirectly with the steel sector (Bisang and Chidiak, 1995).
Table 1- Argentine Steel Industry Evolution (1975-1992)

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</thead>
<tbody>
<tr>
<td>INTEGRATED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>Alt Horn Zapla SOMISA</td>
<td>Alt Horn Zapla SOMISA</td>
<td>Alt Horn Zapla SOMISA</td>
<td>Alt Horn Zapla SOMISA</td>
<td>Aceros Zapla Aceros Paraná Acíñdar Siderca 4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SEMI-INTEGRATED</td>
<td>Aceros Bragado Aceros Ohler Acíñdar Cura Brothers Gurmendi La Cantábrica Santa Rosa Siderca Tamet</td>
<td>Aceros Bragado Gurmendi La Cantábrica Santa Rosa Tamet</td>
<td>Aceros Bragado Tamet</td>
<td>Aceros Bragado Tamet</td>
<td>Aceros Bragado</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>47</td>
<td>38</td>
<td>36</td>
<td>33</td>
<td>21</td>
</tr>
<tr>
<td>INDUSTRY TOTAL</td>
<td>59</td>
<td>47</td>
<td>42</td>
<td>39</td>
<td>26</td>
</tr>
</tbody>
</table>

Source: Azpiazu and Basualdo, 1995.

It was at this point that the national steel policy began to undergo a restructuring. The monopolization of the upstream reduction process by the government was eliminated. Two private firms, Siderca and Acíñdar, vertically integrated backwards. Unfortunately, these investments were followed by a substantial drop in domestic demand. Whereas local demand had grown by over 75 percent from 1965-1975, the following ten years saw a reduction of demand by roughly the same amount. This was due to the virtual elimination
of the construction industry, reductions in infrastructure spending, and a reduction in automobile production by two-thirds (Mercado, August 1991). The impact of these two processes, increased investment and reduced demand, was two-fold. On the one hand, local demand for SOMISA production dropped off significantly, in part due to the overall market contraction and in part due to the fact that two of its previously largest clients, Siderca and Acín达尔, were now self-sufficient. This most likely contributed to the continued denial of Propulsora requests to vertically integrate.

Table 2 - Acín达尔 Holding Evolution

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>FINANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22. Inverrad (1987)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32. Coinsa (1990)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33. Electal (1990)</td>
</tr>
</tbody>
</table>
Part II. The Internationalization of Siderar and Siderca

Source: Azpiazu and Basualdo, 1995.

The second major impact of these investments by Siderca and Acínidar was an increase in concentration of the private firms. As a result of producing their raw steel at prices cheaper than available in the local market and also as a result of their investment in other technological advances, these two firms were able to eliminate most of the domestic competition in their respective product areas. This occurred in part through acquisition and in part through plant closure. As is revealed in Tables 2 and 3, the two firms, but particularly Acínidar, dramatically increased their acquisition activity in the 1980s. The result was a reduction by over 50 percent in the number of firms in the Argentine steel sector, from a high of 59 in 1975 to just 26 by 1992. Furthermore, the market share of the four leading players went from just over 50 percent in 1973 to virtual control of the entire market by the end of the 1980s.

Table 3- Companies Controlled by Siderca

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEL PRODUCTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tubos &amp;</td>
<td>8. Siderca</td>
<td>11. SIAT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfiles (1949)</td>
<td>International</td>
<td>(1896)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1987)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINANCE</td>
<td>5. Bernal</td>
<td>12. Metalcentro</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Azpiazu and Basualdo, 1995.
Part II. The Internationalization of Siderar and Siderca

The dramatic reduction in domestic consumption starting in the mid-1970s also contributed to the growth in exports of all the large players, including those owned by the state. In reality, the construction of SOMISA in 1960 marked the beginning of Argentine intra-industry trade in the steel sector. For, even though the country was still heavily dependent on imports, it did begin to export raw steel in 1960, mostly to neighboring countries and in relatively small amounts as a percentage of domestic consumption. However, when domestic demand began to fall, the importance of external markets increased substantially. The three large players, SOMISA, Siderca, and Acindar, found themselves with excess capacity and turned to foreign markets to compensate for the domestic downturn. As a result, exports increased from an average of 250,000 tons per year from 1960-1977 to an average of 950,000 tons from 1978-1987, or roughly one-third of domestic production, with positive net exports being recorded in 1978, 1982, and the years following and including 1985. The domestic industry was able to sell so extensively on the international market by subsidizing exports with higher domestic prices. The largest share of these exports went to other Latin American countries, but significant shares were also held by the Asian, European and US markets.

As such, the Argentine steel industry in the first half of the 1980s could be characterized as being increasingly concentrated, highly protected, and more and more dependent on foreign markets to sell-off excess capacity. The second half of the 1980s, saw another reorientation occur within the sector. This was due to a number of factors, not least among which was the continued depression of domestic demand. In addition, however, the second half of the 1980s also witnessed depressed conditions in the international markets with prices falling and antidumping practices increasing. These effects were compounded with the beginning of the deregulation of the sector. Sectoral promotion regimes were repealed, non-tariff barriers reduced, and tariff levels cut substantially. These
Part II. The Internationalization of Siderar and Siderca

trends were consistent with the general liberalization of the Argentine economy and the gradual withdrawal of the State from the sector.

In reaction to these changes in the environment, the leading firms initiated new investment plans (Table 4). By far the most ambitious of these was undertaken by Siderca which accounted for over two-thirds of all the investments in the industry in the second half of the 1980s, orders of magnitude greater than that of SOMISA, particularly if one considers the difference in size between the two firms. It is in large part as a result of these early investments that Siderca is today the world leader in its product area.

Table 4 - Argentine Steel Investments, 1985-1989 (US$ million)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SOMISA</td>
<td>26</td>
<td>29</td>
<td>16</td>
<td>28</td>
<td>89</td>
<td>188</td>
</tr>
<tr>
<td>Siderca</td>
<td>79</td>
<td>148</td>
<td>225</td>
<td>152</td>
<td>43</td>
<td>646</td>
</tr>
<tr>
<td>Acindar</td>
<td>11</td>
<td>22</td>
<td>14</td>
<td>13</td>
<td>8</td>
<td>69</td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>TOTAL</td>
<td>122</td>
<td>201</td>
<td>261</td>
<td>195</td>
<td>143</td>
<td>922</td>
</tr>
</tbody>
</table>

Source: Mercado, Aug. 91

3.1 The Liberalization of the Steel Sector

This reorientation of the steel sector which began in the mid-1980s picked up speed in the end of the decade and the early 1990s as a result of the sweeping economic reforms of the Menem government. These reforms impacted the existing trade regimes, regulatory structures, and ownership mix of the sector, all of which increased the openness of the industry to foreign competitive pressures. While the reduction of tariff rates had begun earlier in the 1980s, by 1989 tariffs on steel imports still ranged from 5-40 percent. In

1 During the 1970s tariff rates on steel products ranged from 50-100 percent.
1990, however, this schedule was reduced and compressed to 0-24 percent. It was followed in 1991 with a regime of 5 percent tariffs on raw materials and inputs not produced locally, 13 percent on other inputs and semi-elaborated products, and 24 percent on finished goods. This regime was also subsequently replaced by a dual system, one for Mercosur members (0 percent on inputs and semi-elaborated products; 18/23 percent on final products) and one for all others nations (0 percent on inputs; 6/8 percent on semi-elaborated products; 14/18/25 percent on final products). While one could claim that such a system is fairly protective, it is orders of magnitude less so than in past. It has also sharply limited the ability to subsidize exports through elevated domestic prices.

More important, however, than the reduction in tariff barriers has been the reduction of non-tariff and other regulatory barriers. The first major change was the removal of the D.G.F.M. as the regulatory body of the steel industry, which had previously dictated domestic price levels. In addition, a pair of decrees (2284/91 and 1998/92) had major effects on the steel industry. The first of these repealed the industrial iron and steel promotion regime which had previously been in place. It also eliminated quantitative restrictions on the importation of iron and steel products. The need to obtain government authorization to import and/or export steel products was also done away with. Furthermore, the Decreto de Compre Nacional (Buy Argentine Decree) which gave special treatment to local firms in government purchases was also eliminated. Deregulation of the port and maritime transportation have also served to increase foreign competitive pressures as they have reduced the cost of importing products into the country. Other deregulatory measures, however, have had potential benefits for the domestic industry, among them the opening of the energy and transportation markets as well as the reduction in tariffs on raw iron ore and coal imports from Brazil as part of the Mercosur Agreement. The result of these combined changes was a drop in iron ore and coal prices in the domestic market by 20-22 percent in the first part of the 1990s.
Part II. The Internationalization of Siderar and Siderca

This trend towards increased liberalization, however, has not always linear, as in the year following the above changes, 1992, the statistics tax on imports was raised from 3 to 10 percent, increasing the protection provided to domestic industry. The latter, however, has been eliminated for trade with Brazil, the domestic industry's largest competitor in terms of imports. In general, the sector is much more open today than at any period in its recent history. One indicator of this is the fact that domestic steel prices fell between 15 and 20 percent from June 1990 to December 1993.

The adoption of the Convertibility Plan by the government in 1991 also had significant implications for the sector, some positive and some negative. The economic growth which the Plan encouraged had a positive impact on domestic steel consumption. With an average GDP growth rate of 7.7 percent from 1991 to 1994 and consumer durables leading that wave of growth, the steel sector saw a rebounding of per capita steel consumption, though still well below its all time high (see Chart 2).

Chart 2 - Argentine Per Capita Steel Consumption (1970-1996)

Source: Azpiazu and Nochteff, 1994, CIS.
The Convertibility Plan, however, also resulted in an instantaneous increase in production costs vis-a-vis imports as a result of the level at which it fixed the exchange rate. Labor suddenly became very expensive. Nominal wages in the steel sector increased 25 percent from April 1991 when the Plan was adopted until December 1993. By contrast, the steel prices fell by 14 percent during the same period, resulting in an effective labor cost increase of 45 percent (Azpiazu and Nochteff, 1994). While this change would have a negative impact in the short-run, it would encourage a reduction of the labor force and dramatic increases in productivity in the medium and long-run.

3.2 The Major Players

As was described earlier, the Argentine market has become increasingly concentrated over the past 20 years, to the point that today it is dominated by two players, the Techint Group through Siderca and now Siderar, and Acín达尔. These two groups are involved in a variety of areas, though their focus lies in the steel sector, particularly in the case of Acín达尔. In reality, Acín达尔 is a holding comprised of over 35 individual firms, most related to steel but also with minor interests in services through the privatization of state enterprises (electricity generation, gas distribution, and rail transport). Ever since its beginnings in the 1940s, Acín达尔 has been focused on growth, constantly acquiring firms along the way. Its product strategy has also been to diversify its gambit of products, all however in the area of long-steel products. Today, Acín达尔, as a result of the closing of SOMISA non-flat production, has a virtual monopoly in the long-products market in Argentina, which constitutes 37 percent of steel production in the country. And, with a production capacity of 1.25 million tons/year (Azpiazu and Basualdo, 1995 p. 89), it is the second largest volume producer in the country, behind Siderar. Even though Acín达尔 went through a streamlining of its production system via employee cutbacks and capital
Part II. The Internationalization of Siderar and Siderca

investments, it has not done so to the same extent as Siderca or more recently Siderar. From 1991 through 1995, the firm had an accumulated net loss of $252 million.

The group which has come to dominate the remaining two steel sectors, flats and tubes (55 percent and 8 percent respectively of the local market), is Techint. As with Acfíndar, Techint is a diversified group with interests in construction, energy, and services. In total, the group is comprised of more than 60 firms, employing over 29,000 people. Several of these acquisitions came out of the recent privatization program of the government, in partnership with other local as well as foreign firms (see Table 5). Its main focus, and origins, however, are in steel. It is widely considered to be "the" leading industrial group in the country and to possess one of the best managements in all of Latin America. The Group's combined revenues are estimated to have been on the order of $2.8 billion in 1995 (more than half of which come from steel operations). The Group was founded in the late 1940s by Agostino Rocca, who immigrated to Argentina from Italy where he served as head of the Italian state steel sector. Its first major incursion into the steel sector was through the establishment of what came to be known as Siderca in September 1954 in Campana, 80 kilometers outside of Buenos Aires. The facility was the first to produce seamless tubing in all of South America. Though only a semi-integrated facility until the mid-1970s, the Group continuously invested in expanding the productive capacity of Siderca from its first days. The firm's rise to international preeminence, however, did not occur until the end of the 1970s and the 1980s when heavy capital investments were undertaken, including the backwards integration of the firm into primary steel production. While Siderca is the leading tube company in the Techint Group, it is not the only one. The group also has a number of smaller firms participating in the tube sector including SIAT S.A. and Tubos y Perfiles SAIC. As will be discussed later, the firm has also more recently made substantial investments internationally in this area, acquiring Tamsa of Mexico in 1993 and Dalmine of Italy in 1995.
Table 5 - Techint Involvement in Argentine Privatizations

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>FIRM</th>
<th>% OWNERSHIP</th>
<th>PARTNERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEL</td>
<td>SOMISA</td>
<td>51 percent</td>
<td>Usiminas (Brazil) CVRD (Brazil) CAP (Chile)</td>
</tr>
<tr>
<td>ELECTRICITY DISTRIBUTION</td>
<td>EDELP</td>
<td>24 percent</td>
<td>Houston Power (US)</td>
</tr>
<tr>
<td>NATURAL GAS TRANSPORTATION</td>
<td>Transport. Gas del Norte</td>
<td>20 percent</td>
<td>Novacorp (Canada) JP Morgan (US) Petronas (Malaysia) Transcogas (Arg.)</td>
</tr>
<tr>
<td>OIL EXPLORATION*</td>
<td>&quot;El Tordillo&quot;</td>
<td>43 percent</td>
<td>Perez Companc (Arg.) Santa Fe Energy (US) Energy Develop. (US) Grupo Soldati (Arg.) Amplex (US)</td>
</tr>
<tr>
<td></td>
<td>&quot;Aguarague&quot;</td>
<td>52 percent</td>
<td></td>
</tr>
<tr>
<td>TELECOM.</td>
<td>ENTEL/Telefónica Arg. S.A.</td>
<td>8.3 percent</td>
<td>Citicorp (US) Perez Companc (Arg.) Grupo Soldati (Arg.) Telefónica (Spain) Various banks</td>
</tr>
<tr>
<td>RAILROADS</td>
<td>Rosario-Bahía Blanca</td>
<td>58 percent</td>
<td>Perez Companc (Arg.) Grupo Soldati (Arg.) Iowa Intl. RR (US) Chase Manhattan (US)</td>
</tr>
</tbody>
</table>

* Only primary fields listed. Participation also in various smaller secondary sites.

Source: Azpiazu and Basualdo, 1995.

The other major component of Techint's steel business is in flat products, initially focused around Propulsora before the privatization of SOMISA, and Siderar after it. Propulsora itself was founded in 1968 in Ensenada as a downstream processor, buying the hot-rolled coils either from SOMISA or via imports. As with Siderca, the Group also had a number of smaller specialized facilities, among them Arsa, Sidercolor, Serviacero and Sidercrom, which undertook laminating, galvanizing, and pre-painting. Following the
Part II. The Internationalization of Siderar and Siderca

privatization of SOMISA, all of the individual finishing firms were incorporated into the new Siderar. Most of the mangement of Siderar, however, came from Propulsora, and in fact the firm served as a breeding ground for top managers for the entire Group. The new heads of Tamsa and Dalmine, for instance, both began in Propulsora.

4.0 The Privatization Of SOMISA

In addition to reform of the tariff and regulatory structure of the industry, the third main component of the restructuring of the sector was the privatization of the State's two integrated steel mills, Altos Hornos Zapla\(^2\) and the much larger SOMISA. The intent to privatize the state steel complex was voiced under the Radical government of Raúl Alfonsin in the mid 1980s. However, it was not until the election of Carlos Menem in 1989 and the passage of the Ley de Reforma del Estado in August of that year that the privatization process became a reality, in part as a result of the desperate need of the government to reduce the fiscal deficit. The failure of these firms to invest seriously in new technology during the previous two decades had put them in a very uncompetitive position. SOMISA was still operating using the basic technology it had acquired in the 1960s. Its market position was further weakened by its inability to provide competitive financing to its customers, resulting in its having to sell much of its output to international traders at prices below variable cost. In addition, the firm was burdened by a labor force much in excess of its actual needs, a vestige of state employment objectives and exceedingly powerful labor unions. By the early 1990s, SOMISA had accumulated a debt of $1.8 billion, or more than the equivalent of roughly three years of sales. In 1991 alone the firm posted a loss of $573 million, and in 1992 a loss of $417 million (FIEL, No. 22).

\(^2\) Altos Hornos Zapla was eventually sold for $32.2 million to a consortia which included Citicorp Equity Investments, Aubert and Duval, and PENSA.
Part II. The Internationalization of Siderar and Siderca

The privatization solicitation itself had only one restriction, that no two local steel firms could participate in the same consortia. This condition, a requirement of the World Bank, was aimed at preventing a solidifying of the Techint - Acíndar duopoly in the local steel sector. In the end, the winning (and only) offer was made by Techint through its firm Propulsora Siderúrgica, without the participation of Acíndar.

Before the privatization actually went through, the government needed to address the issue of the firm's exceedingly large work force, without which no private concern would purchase SOMISA. In 1991, at the advice of Braxton consultants, the government initiated an early retirement program to reduce the size of SOMISA's work force. It succeeded in doing so to a large degree, reducing employment from 12,700 to 6,800 by the time of the privatization in 1992. The government did so at a cost of $148 million, or roughly $25,000 per person (Bisang and Chidiak, 1995). Despite these reductions in employment, the firm was still unprofitable and in dire need of capital investment. Therefore, in order to successfully privatize the assets of the firm, SOMISA was divided into two entities. Aceros Parana, the part which would eventually be privatized, was given the majority of the personnel and installations, while what was called the SOMISA Residual, and which the government retained ownership of, was given most of the firm's debt ($1,800 million versus $100 million for Aceros Parana). In preparation for the privatization, Techint also reorganized Propulsora. The Old Propulsora was merged with the capital resources of Techint's consortia partners to form what was known as the New Propulsora, of which Techint retained 66 percent ownership. The New Propulsora then acquired 80 percent of Aceros Parana in November 1992. The remaining 20 percent of Aceros Parana was given to an employee stock ownership program (ESOP). Finally, in July 1993 the two firms were merged into the new entity Siderar, of which Techint retained a controlling interest. Since then, several of the original investors have withdrawn and in the beginning of 1996 12 percent of the firm was given in a public offering. That
Part II. The Internationalization of Siderar and Siderca

percentage has since increased to 25 percent through listings both in Buenos Aires and New York. A breakdown of the ownership structure in 1993 and 1997 can be found in Table 6.

Table 6 - Siderar Ownership Structure

<table>
<thead>
<tr>
<th>INVESTOR</th>
<th>1993</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Techint</td>
<td>57%</td>
<td>51%</td>
</tr>
<tr>
<td>ESOP</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>CAP (Chile)</td>
<td>10%</td>
<td>---</td>
</tr>
<tr>
<td>Acindar</td>
<td>6%</td>
<td>---</td>
</tr>
<tr>
<td>CVRD (Brazil)</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>USIMINAS (Brazil)</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Public Offering</td>
<td>---</td>
<td>25%</td>
</tr>
<tr>
<td>Others</td>
<td>3%</td>
<td>---</td>
</tr>
</tbody>
</table>


For the four months prior to the actual privatization of SOMISA in November 1992, the Techint management team in charge of the project developed a comprehensive parachuting plan. Roughly 100 managers from Techint, Propulsora, and Siderca were organized and each given a certain area for which they were in charge of developing a rapid change program. Once the privatization was complete, these 100 managers (or centurions to use the words of Percy Barnavik) were parachuted into their positions, and within two months they were successful in balancing the cash flow of the firm, which had been consistently negative up until that point.
Part II. The Internationalization of Siderar and Siderca

5.0 The Internationalization Of Siderar

As was mentioned in the beginning of the chapter, the main objective of this case study is to apply an elaborated definition of "internationalization" to the case of Siderar both pre- and post-privatization so as to highlight how standard definitions could mis-classify the degree of internationalization of the firm. While traditional definitions of internationalization take as their measures tangible aspects of the firm, such as location of sales or facilities, they may miss what I believe to be at the core of the interest in whether or not a firm is international, which is "does the firm compete at international standards?"

Tangible measures such as those suggested above are used in part because of the ease of data collection and comparability across firms, but also because it is believed that there is a positive correlation between them and international competitiveness. It is reasoned that by being present in foreign markets, one will be exposed to more competitive pressures than if one operates solely in one's local market. While this may be true in terms of exposing one to a higher number of competitors it does not necessarily imply that they exert more competitive pressures, as it depends on whether the market in which one enters is more advanced or not.

A second major limitation of standard definitions is that they tend to focus primarily on market and production measures of internationalization. Other aspects of the firm are normally assumed to correlate with these two, such that if one is internationalized in terms of sales one will also be so in terms of management or procurement practices. While in general this may be true, the contrapositive need not be, that is to say that one could be internationalized in the upstream and support activities without being so in the downstream ones.
Table 7 - Internationalization Framework

<table>
<thead>
<tr>
<th>FORM OF INTERNATIONALIZATION</th>
<th>Tangible</th>
<th>Intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>Location of Sales</td>
<td>Sophistication of Demand</td>
</tr>
<tr>
<td>Operations</td>
<td>Location of Facilities</td>
<td>Sophistication of Technology</td>
</tr>
<tr>
<td>Management</td>
<td>Location of Mgmt.</td>
<td>Adoption of Mgmt. Practices</td>
</tr>
<tr>
<td>Procurement</td>
<td>Location of Suppliers</td>
<td>Sophistication of Suppliers</td>
</tr>
<tr>
<td>Competition</td>
<td>Location of Competition</td>
<td>Level of Competition</td>
</tr>
</tbody>
</table>

With these ideas in mind, the goal of what follows is to apply the proposed internationalization definition to the case of Siderar to not only obtain a better understanding of how the internationalization of the firm has changed since the privatization, but also to highlight how the use of more restrictive definitions can produce misleading conclusions.

5.1 General Strategies

Before taking over SOMISA the management of Techint identified a number of general strategies to adopt immediately. Four general themes were highlighted: recovering the domestic market; investing heavily in capital and human infrastructure; increasing the level of value-added of the firm; and seeking only the best inputs. Each of these had the goal of raising the international competitiveness of the firm, and are reflected in the various internationalization aspects of the firm.

5.2 The Internationalization of Markets

Of the four general objectives, recovering the domestic market was the most immediate concern for management. SOMISA in its final years was exporting on the order
of 70 percent of its production. For this reason, the firm might have appeared to be quite international. However, if one looks beneath the surface to analyze the reasons for this growth in export activity, one realizes that it was not an explicit goal. It was not the objective of the SOMISA management to internationalize as part of a growth strategy. The real reason for this change in market venue was that the firm found it more and more difficult to sell its production in the domestic market. This was compounded with a production mentality in which the idea of operating below full capacity or putting one of the blast furnaces into hot idle was not conceivable. The result was excess supply which domestic consumers did not want to purchase. The reason for the drop in domestic demand for SOMISA products is not simply the result of a drop in overall domestic demand. Rather, there are a number of firm-specific features which caused clients to seek other suppliers. Three important factors can be identified. The first relates to the quality of the final product. Given the lack of investment in SOMISA's facilities and the often misaligned incentives associated with state-enterprises, the quality of the steel being produced by SOMISA did not meet domestic standards which were being raised with the increase in access to higher more reliable quality imported steel. Even smaller-size steel users were turning to importers.

A second factor which contributed to SOMISA's losing of the domestic market is related to the first factor, namely attention to customer service. In talking to steel users, one of their biggest complaints with SOMISA was the unreliability of the firm in terms of delivery. Even if the quality of the steel were not a problem, the lack of dependability of on time deliveries in the correct quantities forced many clients to search for alternative sources. This was particularly true in continuous fabrication industries such as the automotive industry in which a break in the supply of steel could cause the entire facility to cease production.
The third major factor contributing to SOMISA’s demise in the domestic market also related to customer service, but in the area of financing. As was mentioned, by the end of the 1980s, the financial position of SOMISA was incredibly weak. With consistently negative cash flows, it is no surprise that the firm was unable to offer financing to its customers. With importers (primarily Brazilians) offering six month to one year financing, SOMISA found itself quickly losing customers. This weakness of the firm was particularly hurtful in competing in the Argentine environment in which access to capital in the open market was (and still is) exceedingly tight, making the financing of a purchase often the deciding factor in which supplier to choose.

SOMISA’s response to losing to its domestic market was to increase its sales on the international market. Exports rapidly increased to nearly 70 percent of sales by the beginning of the 1990s. The weaknesses which SOMISA exhibited in the domestic market could more easily be overcome in the international market by selling through traders which would pay cash up front for the firm's production, thus avoiding the financing problem. Traders would also buy low quality steel and on short term notice, making quality and delivery problems less of a barrier. Selling to international traders, however, would only serve as a temporary fix for what was in reality a chronic problem. It did not serve to induce improvements in the firm's performance which is normally hoped for by serving international markets. In fact it encouraged the strengthening of existing practices and mentalities which emphasized production over sales. This could only serve as a temporary solution, though, a way in which the firm could sell its current production, for the prices at which the traders would buy SOMISA’s steel did not even cover variable costs. Therefore, although on the surface it may have appeared as though SOMISA was in fact an internationalized firm, it was so only from the point of view of the physical location of its sales and not in terms of the intangible nature of those sales. For, the sophistication of
Part II. The Internationalization of Siderar and Siderca

demand which it was serving via foreign traders was in fact below that present in the local market.

Following the privatization, the trend towards the tangible internationalization of sales changed direction very rapidly. The stated goal of the new management was to regain the domestic market which had been lost during the previous five years, at the expense of exports to traders. In its last year, SOMISA exported 65 percent of its production. By contrast in its first year, Siderar exported a mere 15 percent of its output. This figure has since grown but management does not expect it to surpass one-third of production. The objective of the Siderar's management is to in fact de-internationalize the tangible aspect of its market but re-internationalize the intangible aspect. That is to say decrease foreign sales but at the same time increase the level of sophistication of the local and foreign demand which it serves.

Siderar has addressed this issue by improving the gambit of products and services it offers its customers and more uniquely by helping their customers to improve their competitive positions in their respective markets, resulting in increased customer sophistication. In reality this process has occurred in two stages, with the improvement of Siderar services coming first. The result has been an exceedingly rapid recapturing of the domestic market. Siderar's domestic market share in its various product categories has rebounded substantially, from 56 percent in 1992 to 74 percent in 1995\(^3\) (see Table 8 for more detail), reflecting an increase in monthly domestic sales from 67,000 tons to 95,000. This increase in market share is even more impressive if one excludes cold-rolled coils, whose figures include the prior production of Propulsora as well. Within a matter of couple of years the firm has reached the point at which it is now very difficult to increase its market share as the remaining imports tend to be products which Siderar does not produce

\(^3\) In 1996 the overall domestic market share of Siderar increased to 79% cent.
such as stainless steel above 1500 mm widths or products which demand qualities which the existing plant cannot achieve.

Table 8 - Siderar's Argentine Market Share (percent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Rolled Coils</td>
<td>28</td>
<td>61</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Cold Rolled Coils</td>
<td>71</td>
<td>79</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>Tin Plate</td>
<td>39</td>
<td>63</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td><strong>Weighted Average</strong></td>
<td><strong>56</strong></td>
<td><strong>67</strong></td>
<td><strong>72</strong></td>
<td><strong>74</strong></td>
</tr>
</tbody>
</table>

* SOMISA + Propulsora

Siderar's management has achieved this rapid growth in domestic market share by addressing the weaknesses of SOMISA mentioned earlier and going beyond them by offering new value-added services. The first of these weaknesses related to the poor and inconsistent quality of the steel which SOMISA produced. This issue was attacked in a number of ways. The first, which will be elaborated in greater depth in the next section, entailed massive investments in technology upgrading in the past three years, on the order of $400 million, including rebuilding of the blast furnaces. Furthermore, management has implemented strict quality control measures where there were none before, the result being ISO9002 certification for all the various facilities during the past two years. By doing so, it is in compliance with internationally recognized standards of excellence. Siderar is in fact the first privatized firm in Argentina to receive ISO9002 approval. The next challenge the firm has posed for itself is to obtain ISO9001 and ISO14000 certification would also encompass the product design and environmental control aspects of the business.

With regards to the issue of reliability, the new management has attempted to instill the idea of serving the customer into the way in which clients are dealt with. Siderar
benefited in this area from the incorporation of the Propulsora sales force which already had this approach. Correcting this problem was key to the firm's strategy of trying to not only recapture their customer base but also stabilize it, for the idea is to try to move more and more clients towards longer term agreements, be they formal or informal.

The third major weakness of SOMISA related to its inability to provide financing to its customers. Given the massive productivity improvements in the past few years and improved management, the firm is now turning a profit and able to finance sales to its smaller and medium sized customers. In addition, being affiliated to Techint allows the firm to access capital on the international markets at rates much below those which its clients would have to pay in the domestic market. In general, Siderar currently offers 60 days financing, though in certain situations this financing is extended to 180 days. Without this financing it is unlikely that even with the other improvements the firm would have been able to recapture domestic market share from imports, for the Brazilian firms are and have been offering very attractive financing options, subsidized by the government.

In addition to trying to correct for the weaknesses of SOMISA, the management of Siderar has attempted to increase the value-added it provides its customers, both in terms of the product and service. By merging the upstream operations of SOMISA with the downstream operations of Propulsora, Siderar is able to offer customers a wide array of product features beyond basic hot-rolled coils, including electrogalvanizing and prepainting. It is also developing an agreement with General Motors to provide finished car parts to their facilities on a just-in-time basis.

Together, the above mentioned changes have helped Siderar to regain dominance of the Argentine market. With the first phase of recapturing the domestic market complete, management is in the midst of implementing the second phase of its strategy which is to in fact grow the size of the domestic market. Its goal is to do so by improving the international competitiveness of its domestic customer base, which in turn should increase their demand
for steel as well as the sophistication of that demand. Rather than simply seeking new markets abroad, the firm is trying to expand existing ones at home. Siderar has attempted to grow domestic demand through a variety of innovative measures, including management training for existing customers, institutional consulting, and attracting new foreign investment of steel consuming industries.

Figure 1 - Siderar Sales Plan

Perhaps the most novel contributions of Siderar's management in the area of customer development have been its effort to increase the competitiveness of its small and medium customers. It has attempted to do so through a variety of programs, including the establishment of a six month management training program for the top managers of its small and medium sized customers, the objective being to improve the skill base of those clients which are most threatened by the opening up of the economy. Such a measure is both offensive and defensive, for while the objective is to help these firms grow, there is also the acknowledgment that in some cases this assistance may be necessary simply to maintain a firm's existing position in the face of growing imports.
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The program, entitled Programa Para el Desarrollo de Ejecutivos Industriales, was conceived by Siderar in conjunction with SEVEL (until recently the local Fiat and Peugeot manufacturer) to provide training to firms which were for the most part customers of Siderar and suppliers of SEVEL. They enlisted the support of the Argentine government and developed the program jointly with the faculty of IAE (Instituto de Altos Estudios Empresariales), widely considered to be the leading business school in Argentina. Funding for the program came 25 percent from Siderar, 25 percent from SEVEL, 25 percent from the government, and 25 percent from the participants, the latter to ensure that only those firms with an real interest would participate. The program lasts six months and meets for 2 days per week during that period. Each session of the course includes participants from approximately 35 firms. (In total Siderar has on the order of 500 domestic clients.) The program is currently in its second year, though SEVEL is no longer a participant due to changes occurring within the firm. More recently, the government also withdrew funding. As such Siderar now covers 75 percent of the program costs.

The objectives of the program are delineated as the following:

"• Mejorar las capacidades directivas de gestion

• Comprender mejor la situacion real de sus empresas en el entorno actual y futuro, y de la relacion de estas con Siderar.

• Incorporar la metodologia de planeamiento y desarrollo de business plans."

Towards this purpose the course is organized into two sections. The first is an academic training component which covers the traditional business school topics concerning finance, human resources, business policy, accounting, commercialization, and operations. The second component of the course is based on incorporating these concepts in the development of a business plan for each firm using a framework provided by the faculty. Each participant is to develop (in a team) a comprehensive business plan for his/her firm, which includes surveying customers on a variety of issues and developing a series of
action items. The best of these business plans are then presented to Siderar management at the end of the course. The eventual goal would be to follow up on the progress of these firms in adhering to their business plans down the road.

In addition to assisting their customers in the area of management training, Siderar has also at times provided them with technical assistance regarding institutional arrangements. Given its scale and the experience of Techint, Siderar is able to assist smaller clients which lack knowledge of how national and international institutions operate. Among the areas in which they have helped customers are dealing with the tariff and anti-dumping regimes. It is hoped that by sharing its institutional knowledge, Siderar can help protect their domestic customers and encourage their expansion abroad.

Most recently, Siderar's management has developed a plan to install an "information pipeline" connecting itself with its customers through the internet. Again, the primary objective of such a project is to hopefully increase the competitiveness of these small and medium sized firms. The "pipeline" has three aspects. The first is to provide customers with information from Siderar regarding orders, credits, and other aspects of the customer's account. In addition to providing customers with Siderar specific information, the link will also allow them to access relevant information regarding economic reforms, sources of funding, and special government programs for small and medium-sized firms. For the latter, Siderar has hired a consultant to collect the relevant information. The last component of the pipeline will consist of a management control system software which firms can use for conducting their operations. The biggest challenge Siderar will face in making this pipeline work is in educating their customers as to the benefits of using such a link. Most small and medium-sized firms in Argentina have yet to be connected to the internet and as such Siderar will also have to provide training in how to use the system. In its first year, 1997, the pipeline will be connected to 150 of Siderar's customers and eventually be expanded to the rest. It is hoped that such efforts will help make these firms
more competitive vis-a-vis imports and preserve Siderar's local customer base. In addition, however, such a program has the additional impact of increasing customer loyalty as it increases potential switching costs.

While the previous strategies for growing the domestic market have focused on improving the competitiveness of existing domestic customers, an additional approach adopted by management has been to try to attract foreign producers of indirect steel imports such as durable goods. One such example is the joint venture it is establishing with General Motors to provide GM's new plant in Santa Fe with not just steel coils but rather cut blanks for car parts. The idea for this venture was developed by Siderar as a way of moving into higher value-added products and will entail Siderar building a facility to cut these blanks.

Figure 2 - Siderar-General Motors Joint Venture

100% Siderar  100% General Motors

Coils from Siderar → Blanks cut → Siluettes pressed → Parts Assembled → Assembled Parts to GM

The objective of such an agreement is several fold. On the one hand it represents Siderar's attempt to integrate further downstream into the value chain and provide customers with higher levels of value added. On the other hand, it is also part of a general
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strategy to move towards deeper and longer term arrangements with customers, something which was non-existent in SOMISA. A similar agreement to that with General Motors was also discussed with Volkswagon, though those talks are currently on hold. Even with such joint ventures targeted at indirect imports, though, roughly 50 percent of the steel weight of most cars produced in Argentina is still imported.

While the primary strategy of Siderar's management was to focus on regaining and growing the domestic market, this did not imply that it would ignore international markets. For while exports have been reduced substantially as a percent of sale, they still play an important role in the firm. Furthermore, the customer-oriented policies adopted in the domestic market have been incorporated into the way in which they approach the export market. The most important of these changes has been an effort to move away the use of traders. This is in line with the Techint culture, evident in the workings of Siderca, of developing close relationships directly with the customer. Whereas SOMISA sold none of its exports directly to end users, in 1995 nearly 40 percent of Siderar's exports were arranged directly with the customer, a percentage which varies by geography. In the rest of Latin America, a market which SOMISA did not serve, the vast majority of sales are made directly to the end user. In the United States the share averages 30 percent, with those sales near their office in Houston being direct and those on the two coasts being conducted through traders. The European market is likewise a mix between direct and indirect sales. Asia, however, is still completely served through traders. The eventual goal of the firm is to have a mix of direct/traders of 50/50. The planned establishment of sales offices in Milan and Singapore will aid Siderar in achieving this goal. Even when Siderar does use traders, however, they always request to know who the final consumer is so that they may provide after-sales service. In essence the role of the trader is changing from one of a sales agent to one of an administrator and financier.
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Their strategy in attracting a direct customer base has been rather traditional, knocking on doors. Given their export size relative to the large world players, however, such a strategy has worked. They have done so by targeting niches and specific customers with which to develop long-term arrangements. Siderar's management has also tried to shift the type of product which it exports to ones with higher value-added contents such as cold-rolled coils and hot-dipped galvanized products as opposed to simple hot-rolled coils.

This past year, 1995, exports rose to 523,000 tons (~35 percent of sales) from 127,000 tons (~10 percent of sales) in 1993. This was due in part to the contraction in local demand as a result of the Tequila Effect. However, the goal for the future is to maintain exports around 500,000 tons. When asked what they would do if in the future the domestic market picked up dramatically, it was replied that capacity expansion options would be looked into. It is the intent of management to be primarily a supplier of firms in Argentina, but at the same time to maintain a reasonable presence in foreign markets.

What the above analysis has shown is that even though Siderar's markets may appear on paper less internationalized today than under SOMISA management, the sophistication of demand which it is serving is well above that demanded by the traders to which SOMISA used to sell. Furthermore, this increase in demand sophistication is actually something which Siderar has encouraged as a means of preserving and growing its local market. As will be seen in the following section, the firm's ability to adhere to such policies has been due in part to massive improvements in the operations of the firm.

5.3 The Internationalization of Operations

Given the nature of the flat steel industry and the economies of scale entailed, it is fairly uncommon for a firm to physically internationalize its facilities. This is true both in the case of SOMISA and that of Siderar. Since the privatization, however, Siderar has moved to internationalize its sales offices. Whereas SOMISA had neither production nor
sales offices outside Argentina, Siderar, as part of its effort to increase direct exports, has established an office in Houston and plans on doing the same in Milan and Singapore. As such, it is possible to claim that although the firm is less internationalized in terms of sales today than under SOMISA, it is in fact more internationalized in terms of the physical location of its operations.

Changes in the tangible internationalization of the firm's operations, however, pale in comparison to changes in the intangible nature of those facilities. As will be argued in what follows, Siderar's operations are much closer to world class levels today than five years ago. In the steel industry a widely accepted measure of performance is the number of man-hours per ton of steel. As is evident in Chart 3, this metric has undergone an order of magnitude improvement in Siderar since the privatization.

Chart 3 - Labor Productivity
Part II. The Internationalization of Siderar and Siderca

This increase in labor productivity is due to improvements in two areas. On the one hand, substantial labor reductions had to be made. As mentioned earlier, at its peak SOMISA had nearly 13,000 employees, which by the time of privatization had been cut nearly in half. Further labor cuts were made, however, following the takeover as well, contributing to the dramatic increase in productivity. With the combined work forces of SOMISA, Propulsora, and the other smaller Techint flat steel entities, Siderar started out with a headcount of 7523. By September 1996 this number had been reduced by another 1600, resulting in a work force of just over 5900 employees.

The other area which has contributed to the improvement in performance relates to the capital infrastructure of the firm. At the time of takeover, the Techint management devised a comprehensive investment plan totaling $438 million over five years. As Table 9 shows, the majority of this sum was targeted for the SOMISA General Savio facility, in large part to rebuild the blast furnaces, with a much smaller amount targeted for previously-owned Techint plants. This investment plan extends from the privatization to fiscal year 1997/98. However, by the end of 1995/96, 90 percent of the investment plan had already been completed.

Table 9 - Siderar Investment Plan (US$ million)

<table>
<thead>
<tr>
<th>PLANT</th>
<th>INVESTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Savio</td>
<td>369</td>
</tr>
<tr>
<td>- Raw material/ Sinter</td>
<td>2</td>
</tr>
<tr>
<td>- Coke plant</td>
<td>41</td>
</tr>
<tr>
<td>- Blast furnaces</td>
<td>141</td>
</tr>
<tr>
<td>- LD converter</td>
<td>41</td>
</tr>
<tr>
<td>- Hot-rolling mill</td>
<td>46</td>
</tr>
<tr>
<td>- Cold-rolling mill</td>
<td>30</td>
</tr>
<tr>
<td>- Environmental control</td>
<td>18</td>
</tr>
<tr>
<td>- Other</td>
<td>50</td>
</tr>
<tr>
<td>Ensenada</td>
<td>18</td>
</tr>
<tr>
<td>Florencio Varela</td>
<td>34</td>
</tr>
<tr>
<td>Haedo</td>
<td>17</td>
</tr>
<tr>
<td>TOTAL</td>
<td>438</td>
</tr>
</tbody>
</table>
Much of the investment has been devoted to rebuilding the blast furnaces, for at the time of the takeover SOMISA was operating two antiquated blast furnaces, one from the original facility and a second which was built in the 1970s. It was decided to rebuild completely the older blast furnace. To do so, however, they first undertook basic repairs and ran the two furnaces full time to build up stock. Then in December 1994, the older oven was shut down and rebuilt completely, eventually reopening in August 1995, with not only modern equipment but also an increased capacity, which allowed them to then put the other oven in hot idle.

Chart 4 - Investment Plan Breakdown
(100 percent=$438 million)

Aside from the above example, in most cases the machinery did not need to be scrapped. Rather, the policy was to adopt new "technologies," which they define as
"changes in process design using existing equipment." This entailed wide-spread adoption of control and support systems to improve the operating performance of the existing machines. Furthermore, management's effort to apply the latest technology to its existing equipment has benefited from a series of relationships with foreign firms, universities, and experts. Several of these were carried over from Propulsora, though the majority of them are recently established. In some instances these relationships consist of formal technological assistance as in the case of Hoogovens, while in the case of others such as that of USIMINAS in addition to providing technological assistance, the relationship consists of line personnel from Siderar visiting the USIMINAS facilities to learn various work practices. Lastly, still other relationships are of a research nature such as that with Carnegie Mellon in the area of clean steel.

Table 10 - Siderar Technology Partners

<table>
<thead>
<tr>
<th>PARTNER</th>
<th>TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoogovens (Germany)</td>
<td>Blast furnace, Hot strip mill</td>
</tr>
<tr>
<td>Nippon Steel (Japan)</td>
<td>Tinplate</td>
</tr>
<tr>
<td>Carnegie Mellon University (USA)</td>
<td>Clean steel</td>
</tr>
<tr>
<td>USIMINAS (Brazil)</td>
<td>All production lines, safety</td>
</tr>
<tr>
<td>Hatch (USA)</td>
<td>Lamination</td>
</tr>
<tr>
<td>Clecin (France)</td>
<td>Cold-rolling</td>
</tr>
<tr>
<td>Mannesmann (Germany)</td>
<td>Continuous casting</td>
</tr>
<tr>
<td>CSN (Brazil)</td>
<td>Blast furnace</td>
</tr>
<tr>
<td>Dr. Manfred Wolf (Germany)</td>
<td>Blast furnace</td>
</tr>
</tbody>
</table>
Part II. The Internationalization of Siderar and Siderca

In addition to the assistance which Siderar receives from foreign firms, it now also has access to significant in-house research capabilities through its affiliation with Techint. On the one hand it has been able to draw upon the expertise of Siderca both through consulting arrangements and more importantly through the permanent transfer of personnel, particularly during the privatization process. On the other hand, the Techint organization has a centralized research center, Centro de Investigación Industrial (CINI), which will research specific technical and scientific questions for the companies in the Group. CINI itself also possesses relationships with local and foreign universities which it utilizes when it lacks the specific knowledge in-house. Through this various mix of technology sources, Siderar has become much more tapped into the latest technologies and is much more efficient at using its existing equipment than it was pre-privatization.

In addition to the increases in labor productivity, these changes have had substantial impacts on efficiency and quality. Scrap levels have been reduced in half as evident from Table 11. Furthermore, in addition to the ISO9002 approval discussed earlier, the firm has received several illustrious quality awards, including the Technology Innovation Prize awarded by the United Nations Industrial Development Organization (UNIDO).

Table 11 - Kilograms of Input per Ton Produced

<table>
<thead>
<tr>
<th>YEAR</th>
<th>KG OF SCRAP/TON STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar/ Nov 1992</td>
<td>1082</td>
</tr>
<tr>
<td>FY 1993</td>
<td>1069</td>
</tr>
<tr>
<td>FY 1994</td>
<td>1048</td>
</tr>
<tr>
<td>FY 1995</td>
<td>1043</td>
</tr>
<tr>
<td>FY 1997</td>
<td>1041</td>
</tr>
<tr>
<td>FY 1996</td>
<td>1038</td>
</tr>
</tbody>
</table>
Part II. The Internationalization of Siderar and Siderca

With the completion of the current investment plan, however, management believes that it would have reached the highest level of performance feasible with the existing plant structure. Further increases in investment would not earn their return. The next stage will be to undertake another major investment but in this case in constructing a new facility to balance the production capacity of the various parts of the plant. Whereas the majority of the capital investments to date have focused on the upstream production process, the next series of investments will focus much more on the downstream process, in particular the continuous casting process. Currently the firm has excess capacity at the blast furnace and finishing stages. The number one blast furnace as was mentioned is currently in hot idle. Where the bottleneck exists is in the casting of the steel. The current proposal is to build a thin slab facility which would cost on the order of $400 million (above and beyond annual maintenance and other investments of $100 million) but would balance out the capacities of the various parts of the plant. Currently Siderar still has to import a certain quantity of hot slabs to satisfy the steel shop demands. These imports, however, increase the final product cost by roughly $100 per ton, or 25 percent, making it uncompetitive in the export market.

Figure 3 - Operations Strategy
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By restarting the number one blast furnace and building a thin slab facility, Siderar would increase its capacity from roughly 2 million tons to 3.5 million, with a required increase in labor of less than 10 percent, or roughly 500 personnel. The result of such an investment would be a reduction in the average MH/ton from its current level of 4.8 to roughly 3.0-3.5, which would put it on par with the US, Japan, and Europe, and well ahead of the Brazilians. Furthermore, given the fact that labor in Argentina is less than half the cost of labor in the Triad, the absolute labor costs per ton would be substantially less.

This investment is being made with the assumption that the firm will not change its geographical distribution of sales, but rather that domestic demand will continue to grow until it reaches a per capita level consistent with other economies of similar development levels. The new facilities, themselves are not scheduled to go on line until 2000 or later.

As mentioned earlier, a critical component of the improvement in productivity of Siderar relates to the adoption of support systems throughout the production process. In reality, the upgrading of systems has occurred in all parts of the firm, not just the production process. At the time of the takeover, SOMISA had only very basic production information systems which were very old, and there existed extreme deficits in maintenance, accounting, current accounts, billing, and personnel systems. Furthermore, there were virtually no personal computers anywhere to be found in the firm. To address these issues, management devised a three staged plan.

The first phase, which began in December 1992, had the objectives of putting in place those systems which were non-existent and improving those which were. This first entailed rationalizing and standardizing product codes and technical specifications as well as improving the flow of products across the various plants. Most of the new systems put in place came from Propulsora (maintenance, accounting, billing, cost). However, some were
also imported from Siderca. The only new system which was purchased from outside the Group was the personnel and wages system.

The second phase of the plan which began in June 1993 and lasted until December 1994 had the primary goal of integrating and simplifying the systems put in place, and improving the administrative productivity of the firm. Among the systems which needed to be unified across the various Siderar plants were sales, accounts payable, pricing, procurement, and billing. Fusing these systems entailed not only providing the necessary infrastructure, but also modifying existing systems entailed not only providing the necessary infrastructure, but also modifying existing systems when necessary. During this phase, 800 personal computers were also purchased from IBM, Compaq, and Olivetti. Aside from being used to operate the control systems, their primary purpose has been to increase administrative productivity by improving the communication flow within the firm, including the widespread adoption of e-mail. For, even though SOMISA possessed its own host mainframe, it possessed virtually no terminals by which employees could take advantage of it. The installation of this network of computers was accompanied by intensive training programs in how to operate them, for the prior skill base of the firm in this area was as poor as its physical infrastructure.

The accomplishments of the first two phases would most likely not put Siderar at world class levels in terms of information systems. They simply brought the firm up to acceptable standards. It will only be with the further investments planned for the third phase that Siderar will reach a level of information integration closer to that of the leading steel firms in the world. The objective of this phase is to revise and re-engineer the basic processes of the firm. A cornerstone of this phase is the adoption of SAP, a German client server package, to integrate the various systems. It has already been implemented in the area of procurement, integrating all the stages from the solicitation of an order to delivery to dispatchment of payment. From start to finish, it took roughly one year to put this system in
place. Other areas which are targeted for SAP include client interfaces (client questions, orders, dispatching, billing, accounts, etc.). The eventual goal of this reengineering is to reduce costs and personnel\textsuperscript{4}, as well as eventually electronically integrate with clients and related firms.

Most recently, in an effort to gain economies of scale and increase efficiency, the IT functions of both Siderar and Siderca have been merged into a separate Techint company. In this sense, the company is "insourcing," to use Daniel Novegil's words, the company's IT capabilities. The control of the new company will rotate between the head of Siderar and the head of Siderca every three years. While in many cases, as will be discussed, the company opted for increased levels of outsourcing, this is one in which both from an efficiency and a strategic point of view, insourcing appeared to be the most logical choice.

In addition to technological and systems improvements, the management of Siderar undertook a number of strategic operations decisions. Among the most fundamental has been the elimination of all non-flat products. All capacity previously devoted to long-products has been redirected towards flat production or sold off.\textsuperscript{5} This switch is in line with a refocusing on the domestic market as most of the long production was destined for the export market. This narrowing of the product line is part of the firm's effort to focus solely on what it knows how to do well, producing flat steel. As will be discussed later, this policy has been extended to other parts of the production process by contracting out services which do not relate directly to the production of steel. Another major strategic decision was to move management from Buenos Aires to San Nicolás in an effort to reduce costs and improve control. Only the executive and sales offices remained in Buenos Aires.

\textsuperscript{4} The systems department itself has already been reduced from 130 people to 90, and the eventual plan is to move the entire systems functions to a new Techint firm which still operate systems for all the firms in the Group.

\textsuperscript{5} As a result of Siderar's withdrawal from the long products market, the domestic long products market is basically monopolized by Acindar.
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As mentioned at the beginning of this section, the firm remains today relatively national in the physical location of its operations. However, once again it has been argued that the intangible nature of those operations is much more internationalized in the sense of being closer to world-class standards. Productivity figures reveal that the myriad of measures adopted to improve the physical performance of the firm have had an impact. These improvements have also translated into dramatically improved financial performance, with net income reaching $60 million in 1994/95 and a positive operating cash flow of $100 million versus significantly negative figures for both measures pre-privatization. Despite these order of magnitude improvements, however, Siderar's cost structure will always keep it on the fringe of world-class cost standards. It is for this reason that so much emphasis has been placed on the development of services and other value-creating activities for the client. For, in a pure price war, particularly in foreign markets, Siderar will come up at the short end of the stick.

5.4 The Internationalization of Management

As was mentioned in the Introduction, probably the most critical form of internationalization relates to the management of the firm, not necessarily in terms of its physical location but rather in terms of its capabilities and outlook. In many ways, the success of all the other forms of internationalization is dependent upon it, for it is the managers who have actually undertaken the changes being discussed. In this respect, perhaps more impressive than the improvements in the performance of the physical capital of Siderar have been the changes in its human capital. Even though the management of Siderar is overwhelmingly local from a tangible point of view, it has become extremely internationalized from an intangible perspective. This improvement has focused on two areas in particular, human resource management and the organizational design of the firm.
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Among the most important assets which Techint brought to the SOMISA privatization was its management expertise, particular through Propulsora. The Group as a whole is widely considered to possess the best managers in Argentina. It was also one of the few which possessed a supply of highly-trained managers large enough to staff the various positions within the new enterprise. The root of Group's success lies in large part in the importance it places on human resource development and training, areas which were all but ignored under SOMISA management. This emphasis on developing employees is a belief which spans all levels. It is not something restricted only to top managers. Rather, employees at all levels are provided with training. Chart 5 shows the growth in average hours of training per person per year from a low of 5 hours at the time of the privatization to 57 in 1995, or 3 percent of the average worker's total hours.

Chart 5 - Hours of Training per Person (SOMISA/Siderar)

For the purposes of training and development, the firm divides its work force into three groups: operators, supervisors, and upper management. The first of these receive
technical training both in Argentina and abroad. Through an accord with USIMINAS, roughly 100 operators and supervisors travel to Brazil each year to visit and work with USIMINAS employees. In total 366 workers have participated in this program since December 1992. While part of the objective of these visits is to take advantage of USIMINAS's expertise in hot and cold-rolling processes, the head of Human Resources claimed that exposing the workers to the USIMINAS culture, which has been greatly influenced by the Japanese, is just as important. The hope is that through osmosis, the workers will develop the level of commitment exhibited by the USIMINAS work force. As such, it is as much a culture changing program as it is a technology transfer mechanism. Aside from the program with USIMINAS, Siderar also brings professors to San Nicolás from the Industrial Engineering School in Spain to conduct specific courses for employees as well as customers and suppliers. When appropriate, functionaries at this level have also been provided with computer training as mentioned in the last section.

For the supervisors, training has been less technical and more managerial. The first thing done when the privatization occurred was to make sure that everyone with the title of supervisor or above had a clear picture of how their position fit into the overall working of the company, for previously one of the problems was that each functionary did his/her job in isolation, without concern for how the system as a whole functioned. The training of these managers has continued in the form of further management training in house and visits to foreign plants.

The group which has the highest training component, however, is that comprised of professionals. These employees receive training organized both by Siderar itself and by Techint. These managers are continuously evaluated not only for the purposes of compensation but also to determine which ones to invest in training further. They are evaluated both in terms of current performance and future potential, with those with the highest marks in both categories being the ones which will most likely be trained abroad.
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(Figure 4). For professionals there are five organized programs, which as of 1996 included 879 participants. The two largest ones are part of what is called the Young Professionals Program. During the first year of this program these managers receive intense management training, which is followed up by supplemental training during the following four years. Last year there were 465 participants in the Young Professionals Program. Other programs include an internship type program for university students (Practicas Rentadas) and a Senior Management program to improve aspects such as language training. The instructors for each of these training programs include both local and foreign academics as well as internal Techint personnel.

Figure 4 - Personnel Evaluation Approach

![Personnel Evaluation Approach Diagram]

Likely to receive training abroad

Performance

Potential

C

B

Out

A

---

6 Young Professional I covers the first year of the program while Young Professionals II covers the following four years.
Part II. The Internationalization of Siderar and Siderca

Chart 6 - Professional Training Since Privatization (100 percent = 879 participants)

In recognition of its human resource efforts, Siderar was recently awarded the Carlos Pellegrini Prize by the Argentine Union of Industrialists, given to the firm which has excelled the most in developing and investing in its people.

The second area of management which has undergone extensive revisions since the privatization is the actual organization of the firm. The major change in this area has been the establishment of business units as defined by consumer groups. Previously, SOMISA had been organized along functional lines, with all production facilities reporting to the industrial manager. Today, the firm has adopted the organizational design in place in Propulsora which is based on the consumer, reflective of the difference in mentality of the two firms. Currently, Siderar has five business units, each focused on different industry segments. The divisions include Automotive and Home Appliances, Construction and Agriculture, Tinplate, Commercial Products, and Service Centers. The last of these sells to the hundreds of smaller customers from a host of industries, while the Commercial Products unit is in control of the firm's exports. In most cases, each business unit is
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responsible for not only sales but also for one of the firm's various finishing facilities. The main San Nicolás plant, however, remains under the direction of the industrial director. As such, the firm is operated in somewhat of a matrix form. Reorganizing Siderar along these lines has helped the firm to move away from the SOMISA mentality in which production drove sales rather than vice versa, and has allowed the firm to be more focused on serving customer needs.

In addition to the broad-based organizational redesign described above, Siderar has also initiated a reorganization of its white-collar work force so as to improve efficiency. Following a diagnosis by McKinsey and Company, three conclusions were arrive at: 1) a need to reduce the total number of white collar employees; 2) a need to reduce the number of layers; and 3) a need to increase the span of control. Following the diagnosis, Siderar's General Manager selected a team of six key top managers to work full time on implementing the strategy. The result was a reduction in white collar personnel by more than 400; a delayering of the firm from a maximum of seven to four levels; and an increase the span of control ratio from 1:2.9 to 1:4.9. These changes hold the potential to save the firm on the order of $15 million per year.

All of these managerial and organizational changes described above are intended to raise the competitiveness of the firm and bring its management closer to world-class standards, regardless of the fact that it is all located in Argentina.
The manager in charge of Commercial Relations controls not only the sale of final products, but also the downstream production process.

Part II: The Internationalization of Siderar and Siderca

Chart 7 - Siderar Organization Chart (1996)
5.5 The Internationalization of Procurement

The area of procurement is in fact one in which the firm has reached a higher level of internationalization not only intangibly but also tangibly since privatization. Granted, this is not an industry which requires a wide variety of inputs. Most procurement relates to raw materials, services, or spare parts for machinery. In all three of these areas, however, Siderar has become as international on a tangible basis as is possible in the industry.

With regards to raw materials, the primary inputs are iron ore and coal. The bulk of the iron which Siderar purchases comes from Brazil's top supplier, CVRD, which was also a supplier to SOMISA due to Argentina's lack of iron ore deposits. The firm also currently has a host of secondary suppliers of iron which it maintains relationships with in the case of any delivery problems with CVRD. In terms of coal, virtually all of it is purchased from Australian suppliers. Prior to the privatization, much of it was also imported. However, as a result of the "Buy Argentine Decree" which subjugated state firms to purchase from domestic suppliers when available, SOMISA was forced to buy whatever coking coal was for sale in the country, which unfortunately was of very poor quality, which in turn affected the quality of the steel produced. With the repeal of the Buy Argentine Decree, Siderar has been able to import all of its coal.

While the firm's raw materials did become more tangibly internationalized, the real improvements have come on the intangible front. The firm has adopted the policy of purchasing the highest quality inputs possible. The result of this policy has been an increase in tangible internationalization, but it was the intangible process which spurred the tangible process. Aside from the quality of the product itself, efforts have been made to improve the prices paid by the firm for those inputs. SOMISA previously paid relatively high prices to its suppliers, for several reasons, not the least of which was corruption. In addition, however, SOMISA was not considered reliable when it came to payment resulting in higher prices when suppliers did agree to sell. Furthermore, SOMISA existed in an era
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in which the labor unions had a strong influence on the firm's decisions, in this case in determining which suppliers to choose, which were often not the economically rational choices. By addressing all three of these issues, current management has been able to reduce average input prices substantially. The firm has also improved its internal purchasing operations by centralizing the purchasing functions in San Nicolás, which previously were split between Buenos Aires (main raw materials) and San Nicolás (smaller orders and parts). Aside from better pricing, the firm has attempted to improve the quality of its relationships with suppliers by moving towards longer term contracts. The current contract with CVRD, for instance, extends through 2005. Previously, SOMISA was obliged to have public bids for all contracts and would change suppliers for a few pennies.

The area of services, which by definition is highly national in terms of physical location, has also been greatly impacted. In accordance with management's objective of focusing on its core competence in steel production, Siderar has proceeded to "privatize," to use their words, many services which the firm previously supplied in-house. The three primary services which went on the "privatization" block were the oxygen plant, the thermoelectric plant, and the port, each of which were given international tenders. In selecting the firms which would receive the supply contracts, Siderar would simply state the price it would want to pay for the service, knowing what investments would be required to have the facility operate at that level. In the case of the oxygen plant, the decision came down to two French firms Air Liquide and Praxair, with the former eventually winning the contract. It has been publicized that Air Liquide is scheduled to invest $20 million in refurbishing the plant. With regards to the thermoelectric facility, the final two candidates were once again foreign firms, the European firm Tractabelle and Houston Industries of the US, which eventually won the concession. Houston Industries, which has committed to investing $80 million in the existing plant, will provide Siderar with all of its electricity and vapor needs. It will also then sell whatever excess energy it
Part II. The Internationalization of Siderar and Siderca

produces to the local grid, with Siderar receiving a royalty. The last of the major concessions, the port, has been given to a joint venture between Portia and Clark Chapman. Portia operates the Mersey Docks in Liverpool, while Clark Chapman is the part of the Rolls Royce group which manages port facilities. They beat out two other foreign firms (PNO and Sarros). Once again the initial investment is expected to be roughly $30 million. Furthermore, there are plans to utilize the excess capacity of the port (which is connected via rail to areas such as Mendoza) to ship non-related products. Such operations would bring Siderar an extra $10 million in annual revenue.

In all of these cases, one sees that the firms chosen to run the concessions are world class companies and that each concession entails a substantial investment on the part of the service provider. In addition to the major services described above, the firm has also extended its policy of focusing on steel to other areas of the plant by sub-contracting out a variety of more minor services which were previously undertaken by SOMISA. These services include domestic transportation, handling of scrap, packaging, food services, and daily and heavy-duty cleaning of the plant. In most cases the concessions were given to Argentine firms though not always.

The last area which falls under the area of procurement relates to the purchasing of spare parts. Under SOMISA management, when a part broke, local metalworkers from San Nicolás were used to make the repairs or build a replacement part. This practice has since been done away with. As a rule, only OEM parts and/or personnel are used, so as to guarantee the quality and reliability of the repair. As such, much progress has been made towards internationalizing the procurement process at Siderar, partly through foreign purchases but also through affiliations with world-class firms providing services locally.
5.6 The Internationalization of Competition

In the area of competition, it may appear that since SOMISA was selling most of its products in foreign markets that it was facing higher levels of international competition. However, in reality SOMISA was selling in what resembles a commodity market, in which one could be guaranteed a sale as long as the price was low enough. Given that the firm had a relatively loose budget constraint, it was able to meet this requirement, though losing millions of dollars in the process. In this situation the firm does not benefit from the efficiency pressures imposed by higher levels of international competition because one is able to sustain continued losses in the short run. Without a strict budget constraint the incentives for responding to stiffer competition are relatively weak.

The tangible internationalization of competition can be interpreted as having increased in the sense that today tariff and non-tariff barriers in Argentina are substantially lower than they were in the past. Therefore, even though imports have dropped dramatically, this has occurred despite increases in foreign competitive pressures, indicating that the improvements in the domestic supply have been that much greater given the changes in the institutional environment.

Furthermore, given that the primary threat via imports are the Brazilian firms and the scheduled further reductions of tariffs for Mercosur members, the threat of foreign competition in the Argentine market will only increase in the future. Chart 8 shows the timetable for the scheduled elimination of tariffs between Mercosur members. As can be seen, by the year 1999, tariffs on steel will be eliminated all together. Already, Brazil's share of steel imports into Argentina has increased to account for over 90 percent of total steel imports. Among the leading competitors by sector are CSN (construction/automotive), USIMINAS (automotive/appliances), and COSIPA (commercial), all of which benefit from subsidized iron ore prices at home. This subsidy, however, should end with the privatization of CVRD, the main iron ore producer in Brazil, in 1997.
Cumulative Capacity (Millions of Tons)

Source: Fainé Webber

PRE-TRANSPORT COST

WORLD COST CURVE: COLD ROLLED COIL

Siderar

Brazilian Companies

Siderar #22 (i.e. Excluding China and CIS)

Chart 9 - Siderar's Position on the World Cost Curve (1994)
Part II. The Internationalization of Siderar and Siderca

With regards to foreign markets, even though Siderar has a smaller presence than SOMISA did previously, the competition which they do confront is more sophisticated. This is due in part to the increase in the quality of the steel they sell, in which case the firms they compete against will be more world class than those which produce lower quality steel. Furthermore, the firm is now exporting not only better quality products but also ones with higher value added, thus putting them again in competition with more sophisticated firms. Lastly, by selling directly to end users as opposed to through traders they go head to head with the competition on each transaction.

In response to this increase in competitive pressures from abroad, management has undertaken a comprehensive benchmarking program, something which was non-existent in the days of SOMISA. Several methods and metrics of benchmarking are used. On the one hand, the firm has participated in unit cost studies undertaken by the Paine Weber. As can be seen from Chart 9, the firm compares rather favorably post privatization, ranking in the top 11 percent of steel plants in the world.

In addition to these more macro benchmarks, Siderar itself performs detailed product benchmarking. In doing so, management selects specific Siderar products and then benchmark them on a variety of issues against competitor products. In choosing the firms against which to benchmark, the criteria is to take the best in the world. Among the firms against which they conduct their benchmarking are Nucor (US), Nippon Steel (Japan), Hoogovens (Germany), USIMINAS (Brazil), and ILVA (Italy). The issues on which they compare the products include a whole host of quantitative and qualitative aspects, such as chemical composition, weight, mechanical qualities, quality, etc. They obtain the information they need for making these benchmarks through a variety of sources, including
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talking to and visiting competitors such as USIMINAS. When this is not feasible, they will buy the competitor product or else talk to other specialists in the field.\(^7\)

Therefore, even though there are no other local competitors in Argentina, Siderar does face in fact significant competitive pressures from abroad, pressures which are greater today than under SOMISA ownership. The tangible internationalization of competition in the sense of confronting foreign firms and the intangible internationalization or quality of that competition have both increased since privatization. However, as has been shown above, Siderar itself has become much more competitive and is better able to meet this heightened level of competition than SOMISA was able to confront its more limited competitive threats.

5.7 The Impact of Internationalization on Performance

As has been alluded to throughout the above discussion, the increase in intangible internationalization of Siderar through the various programs and efforts undertaken by the firm’s management has resulted in a dramatic improvement in virtually all performance measures. Revenues and production have doubled, while productivity has increased by more than 100 percent. The result of these improvements has been a dramatic turnaround in annual financial performance, and with it a rapid increase in the equity of the firm, from roughly $300 million in 1993 to $1.2 billion in 1996. Even if one were to remove the physical investments into the business since the takeover, the increase in the value of the firm as measured by its stock price is still on the order of $500 million, a testament to the importance which management has played in this turnaround. By most measures, the firm compares rather favorably with world leaders. Its ROA and ROS are similar to those of US Steel and well above those of Nippon Steel, even though its output is below that of both.

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\(^7\) Samples of specific benchmarking comparisons were provided to the author, but for reasons of confidentiality, the author decided it would not be appropriate to include such an example.
Table 12 - Siderar Performance Indicators

<table>
<thead>
<tr>
<th></th>
<th>Take Over</th>
<th>Present</th>
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</thead>
<tbody>
<tr>
<td>Revenues (US$ million)</td>
<td>552.6 (FY '93)</td>
<td>938.7 (FY '96)</td>
</tr>
<tr>
<td>Share of Domestic Market</td>
<td>56% ('92)</td>
<td>79% ('96)</td>
</tr>
<tr>
<td>Labor Productivity (MH/ton)</td>
<td>12 (Nov'92)</td>
<td>4.8 (Sept. '96)</td>
</tr>
<tr>
<td>Production ('000 tons/year)</td>
<td>934 (FY '93)</td>
<td>1718 (FY '96)</td>
</tr>
<tr>
<td>Equity (US$ million)</td>
<td>300 (June '93)</td>
<td>1223 (Feb. '97)</td>
</tr>
<tr>
<td>Net Income (US$ million)</td>
<td>-9.7 (FY '93)</td>
<td>61.0 (FY '96)</td>
</tr>
</tbody>
</table>

6.0 The Internationalization Of Siderca

The internationalization of Siderca both parallels and stands in contrast to that of its sister firm Siderar. As will be discussed, if one were to apply traditional definitions to these two firms, their internationalization paths would appear to run in exactly the opposite directions. While Siderar has moved to reduce its presence in international markets, Siderca has adopted just the opposite strategy. Whereas Siderar went from exports representing 70 percent of sales to roughly 30 percent, Siderca has aggressively grown exports to account for more than 80 percent of production, not to mention its foreign investments.

The internationalization of these two firms, however, is much more similar if one incorporates the intangible aspects of the process into the definition. While the two differ on tangible levels of internationalization, they are both highly internationalized in terms of competing at world-class standards, pointing to the fact that these two aspects need not go hand in hand. This difference between Siderar and Siderca can be best understood by analyzing it from the point of view of firm versus industry effects. Whereas the intangible
internationalization of the two is in large part due to the management philosophy and practices which they both share through their affiliation with Techint; the contrast in tangible internationalization can be best explained by differences in industry characteristics which make one market global and the other much more multi-domestic in nature, to use Porter's terminology. The two key aspects which distinguish these two industries from each other relate to the ratio of minimum efficient scale to total world demand and the level of technology utilized.

The two industries have relatively similar minimum efficient plant scales of roughly 1,000,000 tons. However, the level of overall market demand differs by orders of magnitude. Whereas world flat steel demand is well over 400 million tons, that for seamless tubes is less than 10 million tons, resulting in a relative minimum efficient scale 40 times greater in the seamless tubes sector than in the flat steel sector. The implication of this difference in market size is that it is relatively rare for a firm to be able to sell its full capacity completely in its local market. In order to produce at a minimum efficient scale, it must export. By contrast, most flat steel makers could do without exporting and simply serve their domestic market. A second implication which follows is that the tubes sector will be much more highly concentrated than the flat steel sector, as the industry has room for at most twenty or so facilities operating at minimum efficient scale. Therefore, even though Siderca and its affiliated firms produce the same amount of steel as Siderar, the former has a global market share of roughly 21 percent while the latter's share falls well below 1 percent. In addition to having a small physically dispersed market, the seamless tubes sector is also a much more technologically sophisticated sector. In contrast to the flat sector, it is not one in which anyone could easily set up shop, thus posting a barrier to massive entry. The advanced technology required in the sector also translates into higher levels of value-added per kilogram, reducing the relative importance of transportation costs in the final price of the good.
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As such, these two factors, minimum effective scale and the type of technology employed help to explain the basic difference in the level of tangible internationalization between Siderca and Siderar. What follows, the role of these factors will be elaborated on as they relate to specific aspects of the internationalization process. It will also be shown how this process of tangible internationalization at Siderca was accompanied by intangible internationalization as well.

6.1 Internationalization History

Siderca SAFTA came into existence in 1954 as the first producer of seamless tubes in South America. With an initial capacity of only 40,000 tons, it served the domestic market exclusively. In the 1960s it was merged with Dalmine SAFTA (another tube firm of the Techint Group, but not to be confused with Dalmine of Italy) to form Dalmine Siderca. Eventually the firm was renamed simply Siderca. By the early 1970s, the firm had undergone a number of expansions resulting in a capacity of 250,000 tons. The start of the firm's expansion into foreign markets began in 1976, following the construction of a direct reduction facility, which allowed the firm to eliminate its dependence on SOMISA primary steel inputs. The next year capacity was once again raised to 300,000 tons. Exports in these early years were relatively small and conducted exclusively through the use of traders. By the end of the 1970s Siderca was exporting roughly 20 percent of its production.

It was not until the early 1980s that the firm consciously developed a strategy to increase its position in the industry by more aggressively attacking foreign markets. They did so at a time in the industry's history when plants were closing in the US, Japan, Belgium and the United Kingdom as a result of sharp declines in the price of oil in 1982 (the petroleum industry being the largest user of seamless tubing). Rather than retreating, however, the firm saw these market changes as an opportunity. They expanded their own international commercial network and then in 1988 completed construction of a second hot
rolling mill which increased the firm's capacity to 650,000 tons. All the additional capacity was devoted to producing for the external market. The 1990s saw the firm continue its expansion abroad, but now via acquisition. In 1993, Siderca acquired a controlling interest in TAMSA of Mexico and most recently in December 1995 Dalmine of Italy. With the acquisition of TAMSA, Siderca became the largest exporter of seamless tubes in the world. The incorporation of Dalmine has since made them not only the largest exporter but also the largest producer in the world, with an annual capacity of roughly 2 million tons.

In contrast to Siderar, the change in the internationalization strategy of the firm took place over the course of two decades, in part due to the instability of the environment in which the firm operated. There was no punctual event as in the case of Siderar. By the time the government adopted its market liberalization program in 1989, Siderca was already one of the leading global players. It is true that for its first 25 years the firm took advantage of the benefits of a closed economy. They faced virtually no competition in the Argentine market. However, in contrast to most other firms which benefited during this era of isolation, Siderca reinvested the rents it accrued in the domestic market towards improving its position internationally. It stands as one of the rare examples in Latin America in support of the infant industry projectionist argument. The remainder of this section will attempt to highlight what factors contributed to this successful internationalization both in the tangible and intangible senses.

6.2 The Internationalization of Markets

As was mentioned previously, Siderca has been extremely successful at internationalizing its market scope. In tangible terms it has increased exports from 20 percent of sales in the late 1970s to 80 percent by the early 1990s. In addition, it has

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8 Even though domestic sales account for only 20 percent of production, they account for a much larger share of revenue due to the sizable difference between domestic and international prices.
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inherited the international markets of TAMSA and Dalmine. The internationalization of the industry was lead by the Japanese players. However, Siderca was not far behind and has since surpassed the Japanese which have in fact retracted from the market. The firm currently sells its tubes in over 45 countries around the world. The only major market in which its presence is relatively small is the United States, which is dominated by local players.

Chart 10 - Siderca Sales Mix

The firm's tangible internationalization of sales has been accompanied by an intangible internationalization as well, particularly in the last decade. Prior to the firm's construction of its direct reduction facility and rebuilding of its mandrel mill in 1976, the quality of the tubing being produced was relatively low. However, it satisfied local demand, much of which came from the state oil company YPF. Deciding to expand abroad, however, also required the raising of quality standards, for even the low end of the market had certain quality standards.
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Starting in the early 1980s the firm also began to focus much more on the needs of their foreign customers by building their own commercial network. They first entered markets in which their traders did not sell such as China, and then gradually began to displace their traders with direct sales. By the mid-1980s the use of traders had been eliminated completely. While the goal of the firm is to be close to the customer, because of the firm's geographical disadvantage it has had to make considerable investments to do so. Today, Siderca (not including TAMSA nor Dalmine) has over 50 sales people in international offices spread throughout the world. In addition, it maintains stock facilities in the United States, Venezuela, Mexico, Holland, Singapore, Australia, and Indonesia which carry critical spare parts for the petroleum industry as part of an effort to reduce delivery times. For, if a customer knows it will take several weeks to obtain a replacement pipe when one breaks they will more than likely choose an alternate supplier. With these facilities, they are normally able to deliver a replacement part within a couple of days. In Argentina the goal is to be able to do so within 24 hours. In this sense the firm's geography is a considerable handicap, particularly in markets such as the US in which local suppliers often have stock right next door to the petroleum facilities. The acquisitions of TAMSA and Dalmine have in part helped to overcome this disadvantage in Latin America and Europe, though it is still an issue in the US and Asia. In addition, the firm provides a number of other services to its customers. It will provide in the field service both before and after the sale, as well as assist in pipe string designs. Furthermore, it offers client assistance training when requested.

As part of the firm's attempt to cultivate relationships with its clients, it has tended to move towards longer term agreements and protocols, as in the case with Chinese government (and formerly the Soviet government). In some cases this has taken the form of minority participation in local finishing facilities in which Siderca provides the technical assistance needed to set up the facility. Though it is not the preference of the firm to enter
Part II. The Internationalization of Siderar and Siderca

into these ventures, as they would rather sell their finished product directly, they do participate in them so as to at least guarantee the sale of unfinished tubing to the concern. Currently, Siderca is involved in such ventures with the Malaysian and Venezuelan governments.

This effort to provide more value-added to the client, both in terms of higher quality products and better service, has been heightened in recent years as a result of the impact which the Convertibility Plan has had on the relative cost of labor in Argentina. Previously the firm had benefited from relatively cheap wages compared to the major players in the world. However, the exchange rate at which the peso was pegged suddenly eliminated this advantage. Furthermore, this occurred in 1991 at a time when the tube producers of the former Soviet Union began to enter the international markets with low quality products but at extremely cheap prices. These two factors combined to push Siderca towards serving the higher end of the market. Therefore, in the process of tangibly internationalizing its sales, Siderca has also been forced to raise the level of sophistication of its product/service offerings.

6.3 The Internationalization of Operations

One of the factors which eventually forced Siderca to internationalize its market scope, the effective minimum efficient scale, restrained the initial internationalization of the firm's physical infrastructure. Until the acquisition of TAMSA and Dalmine, all of Siderca's production was based in its plant in Argentina. As mentioned, however, it did begin to internationalize its sales offices in the early 1980s, and currently has a network of offices including Houston, Singapore, Dubai, Beijing, Dusseldorf, Caracas, and Moscow. It also established a number of international stock facilities. However, in 1993 the firm's physical components were not that much more internationalized than those of Siderar today. In contrast to the case of Siderar, though, the market structure of the tube sector and
Part II. The Internationalization of Siderar and Siderca

Siderca's position within it made the idea of foreign expansion through acquisition attractive. The export nature of the tube sector increased the potential for synergistic relationships between the acquired firms and Siderca. As is discussed below, the 1990s has seen Siderca enter into a new stage of tangible internationalization.

6.3.1 The Impact of the TAMSA and Dalmine Acquisitions

The most recent stage of Siderca's internationalization process has entailed the acquisition of controlling interests in two other leading firms in the sector, TAMSA of Mexico in 1993 and Dalmine of Italy in 1995. Both of these firms are ones which at one point or another were headed up by the founder of Siderca, Agostino Rocca, prior to immigrating to Argentina. There were varied reasons for undertaking these acquisitions. In the case of TAMSA, five stand out as being most important. The first of these was to increase the basket of products which the firm produced, for even though the two both produce seamless tubes, TAMSA tends to specialize in casing which are of wider diameters and Siderca in tubing of narrower diameters. There is a range in which the two overlap, but together the two cover a much wider diameter span than either individually. The area of the spectrum in which they do overlap gave rise to another reason for the acquisition, the improvement of delivery logistics. For those products which the two firms produce in common, customer orders could be filled from either facility depending on the geographical distance and the tariff treaties which the customer's country has with Argentina or Mexico. In the case of US sales for instance, tubes which formerly came from Siderca may now come from TAMSA so as to fall under the umbrella of NAFTA.

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9 All three firms were are roughly similar in volume, with Siderca being the largest by a small margin.
10 Agostino Rocca started his industrial career as an engineer in the Italian state steel firm, Dalmine, before eventually becoming head of the entire state steel sector. Following WWII, he moved to Mexico and helped found TAMSA prior to moving to Argentina.
Part II. The Internationalization of Siderar and Siderca

The acquisition of TAMSA would also allow Siderca to leverage its international sales network to a much greater extent. Together the two firms have 11 worldwide sales offices, each of which now sells both Siderca and TAMSA products. In addition to sales costs, it was thought that there were a number of areas in TAMSA in which costs could be reduced, procurement being one of the leading ones. In the end, productivity increased 30 percent in TAMSA following the take over without any further investments, simply as a result of reorganization and the adoption of new practices. The last factor pushing for the acquisition was the fact that the two facilities utilize the same technology in their operations, making a takeover that much easier.

The acquisition of Dalmine was undertaken for similar reasons to those of TAMSA, but two stand out as being the most important. The first is product complementarity. Whereas Siderca and TAMSA both are focused on products for the petroleum industry (OCTG tubing and line pipe), Dalmine's product portfolio is much more targeted towards industrial customers such as the automotive industry. Their specialization lies in mechanical and pressure tubes as well as cold drawn tubing (Chart 11). The acquisition of Dalmine is in line with Siderca's goal of diversifying its product and customer base so as to reduce the impact of the volatility of the petroleum market on the firm's sales. The second key objective to be accomplished through the Dalmine acquisition is to increase the firm's presence in Europe. As Chart 12 reveals, the geographic location of the firms' sales is very complementary. Not only would they be able to increase distribution in Europe, but the Siderca and TAMSA network in the rest of the world could be used to grow sales of Dalmine products in regions where they are currently weak. Together the Siderca holdings have a production capacity of roughly 2 million tons, 1.2 million of which are exported outside of Argentina, Mexico, and Italy.
Pipes production. Siderea and Tamsa are mainly focused on OCTG and Line Product complementary.

Dalmine specialized in pipes for the mechanical industry.
Middle East, Siderca and Tamasa are strong in Latin America and the
Dalmine has a strong presence in Europe.

Geographic complementarily
Part II. The Internationalization of Siderar and Siderca

The tangible internationalization of Siderca has been greatly enhanced by the acquisitions of TAMSA and Dalmine. However, the intangible internationalization of its operations took place prior to these investments, and in some ways could be viewed as having been a prerequisite for them. The tangible internationalization of sales starting in the 1980s was accompanied by a significant upgrading of the Siderca facilities in Campana. During the second half of the 1980s, $650 million were invested to modernize the existing plant and construct a second laminator which would be dedicated solely to the export market. These investments gave Siderca the most modern facility of its type in the world (which it still is 1996). In 1993 the firm received ISO9001 certification for its entire operations process (design, manufacturing, and technical support services). In 1992 the firm also began a continuous improvement program which by 1994 included over 750 employees working in 120 teams. Most of the changes proposed through this program have not required major investments but have been fruitful in their return. Changing the logistics of the rolling process for instance resulted in a 10 percent capacity increase or roughly 70,000 tons.

The level of sophistication in the Siderca operations is attested to by the fact that following the TAMSA and Dalmine acquisitions, technical personnel from Siderca were sent to the other two companies to upgrade their operations. In the case of TAMSA this involved 40 key personnel while for Dalmine roughly 20 have been sent. Among the personnel transferred to the acquired firms were members of Siderca's information systems group, which as mentioned earlier was also very important in the transfer of technology to Siderar. The importance of IT systems in the firm is reflected in the four fold increase in e-mail users within the firm to nearly 1200 from 1990 to 1995. These physical improvements in the firm over the last 10 years have been accompanied by a substantial reduction in employment, from 5600 in 1985 to just under 4000 in 1994. The result of these investments in capital infrastructure along with a rationalization of workers has resulted in
substantial productivity improvements, from nearly 20 man hours per ton in 1993 to less than 16 in 1995.

Were it not for the intangible internationalization described above, it is doubtful whether Siderca would have been able to tangibly internationalize its operations, as much of the competitiveness of the firm lies in the sophistication and efficient use of its technology.

### 6.4 The Internationalization of Management

With the internationalization of operations has come a substantial internationalization of management, both tangibly and intangibly. The management of the firm has become geographically dispersed not only via the acquisition of the TAMSA and Dalmine management teams but also through the sending of Argentine nationals abroad. Siderca currently has over 100 Argentines posted in positions abroad, either in one of the acquired firms or in sales offices throughout the world. The president of Siderca himself, Paolo Rocca, spends one week in Italy and one week in Mexico for every four weeks spent in Argentina.

More important to the firm's success, however, than the physical location of its managers has been the quality of the management practices adopted. As in the case of Siderar, Siderca has been the beneficiary of the management philosophy of the Techint Group, which places a strong emphasis on training and human capital investment. The origins of the firm's current human resource policies can be traced back to 1983, when not only the firm but the entire Group underwent a substantial revamping of its human resource management. The timing of this change coincided with Siderca's increased expansion abroad, for it was discovered that in order to compete abroad they would need to increase the quality of their human resources. Much of the older work force near retirement age was replaced with a better educated (at least 12 years of schooling), younger population. In
addition, comprehensive training programs were integrated into the human resource
department. Training packages for each position were developed. For technicians this
consisted primarily of technical courses which would be followed by qualifying
examinations needed to move to the next level. At the supervisor level, more emphasis has
been placed on management training with the idea of changing the way they approach their
position from one of a supervisory role to one of a facilitator. In total, the work force
received over 105,000 man hours of training in 1994 via 1350 activities and courses,
covering maintenance planning, the development of continuous improvement group, safety
programs, quality and production programs, and courses offered by faculty of the School
of Industrial Organization in Madrid. Though the average hours per worker is less than that
of Siderar, the cumulated training is substantially more, as this these policies have been in
place in Siderca for 10 years more than at Siderar. At the level of senior management, the
training is very similar to that for Siderar, as coordination of these programs is handled for
the most part by the Techint Human Resources Department. In Argentina roughly 30
managers per year are sent to post-graduate programs in industrial management and
business administration. In addition 2-3 managers yearly are sent to full time programs in
the Untied States or Europe. As with Siderar, language training has also received much
greater attention in the last few years, with English and Italian courses being offered in the
plant. The firm's management is currently in the process of establishing joint programs
across in conjunction with Dalmine and TAMSA so as to share the expertise which each
possesses.

In addition to placing an emphasis on training, in 1994/95 Siderca initiated a total
quality management effort. Its approach was based on the European Model of Quality
developed by IESE for the European Foundation for Quality Management (EFQM).
Various firms were visited which had adopted TQM policies and a model was developed to
focus the entire enterprise on the importance of results (economic and non-economic,
quantitative and qualitative), the satisfaction of the client, the satisfaction of personnel, and a positive impact on society. The first stage of the task force has been to undertake a self-diagnosis of the company, identifying points of strength and opportunities for improvement. The following list of priorities was arrived at as areas for improvement in the future:

1. Improved leadership which shares the values of the firm.
2. Improve communication channels within the firm.
3. Extend the Continuous Improvement groups and empower operating personnel.
4. Integrate sectoral and strategic plans.
5. Reorganize processes from a functional setup to one based on serving the client.
6. Improve identification and meeting of client needs.
7. Refocus society aimed programs.

Lastly, Siderca is in the process of redefining the relationship between it and TAMSA and Dalmine. Whereas currently the firms are integrated at the level of sales and somewhat production, each maintains its own management structure. Future plans exist to integrate the workings of the firms to a much greater degree. As in the case of Siderar, the firm would be based around customer defined business units, in this case the petroleum sector, industrial sector, and engineering companies/distribution sector. The first of these would be based out of Argentina, while the last two would be headquartered in Italy, implying a greater integration of the Mexican and Argentine operations.

All of these efforts to improve the quality of the firm's management and organization have been critical to Siderca's ability to expand abroad. In the process, the firm has also tangibly internationalized its management. Without the intangible changes, however, it is again unlikely that the tangible internationalization would have taken place.

6.5 The Internationalization of Procurement

As with flat steel, the tube sector has relatively few inputs. Iron ore and coal comprise the main inputs, and as with Siderar they are imported from Brazil and Australia respectively. The only other foreign import are electrodes which are imported from the US
and Europe. In contrast to Siderar, the thermoelectric plant is still operated in house. However, the concession for the oxygen plant has been given to Air Liquide and a ten year contract has recently been signed with Praxair to build an additional facility on the land adjoining Siderca to directly provide them with the oxygen which they must currently truck in. In general, the level of internationalization, both tangible and intangible, is very similar between Siderar and Siderca. Only if one includes TAMSA and Dalmine could one say that the level of tangible internationalization is greater at Siderca.

6.6 The Internationalization of Competition

When Siderca decided to expand into foreign markets, it also proceeded to internationalize the competition it faced. In the local Argentine market, Siderca enjoyed a virtual monopoly. Tariffs of 50-70 percent along with the relatively small size of the local market and its geographical distance from other suppliers effectively discouraged foreign players from entering the market. When it decided to enter the international market it found itself confronting world-class players. It also entered foreign markets at a time when the world-wide industry was consolidating. Plants were closing in all parts of the world, and industry concentration was increasing. Therefore, while the number of competitors was dropping the strength of those which remained was that much greater. The high-end of the market was lead by the Japanese firms (NKK, Kawasaki, Nippon Steel, and Sumitomo) and Mannesmann of Germany. Other leading competitors included USX and Vallouree of France. As mentioned, more recently the former USSR plants have entered the market, but at the very low end. Prior to its acquisition, TAMSA also competed in the same market. Therefore, by choosing to go abroad and to compete in the high-end of the market, Siderca not only faced foreign competitors but also world-class foreign competitors. Today, Siderca has the most modern production facility in the world, and through its acquisitions the largest overall world-market share of seamless tubing. It is also operating in an industry
which is continuing to consolidate, not only through acquisition but also through the withdrawal of certain firms. Of the four leading Japanese firms, three (NKK, Kawasaki, and Nippon Steel) are retracting from the market and converting their tube capacity to serve other needs. The rigidities of their production systems which benefited them in high demand periods have become a source of weakness in a time of fluctuating market demand. The only Japanese player which is making aggressive moves in the market place is Sumitomo which is in the process of constructing a new facility which will be the most modern in the world. Therefore, Siderca along with a few other firms currently define world-class standards in the industry.

Given the high concentration in the industry, it is on the one hand much more difficult to conduct formal benchmarking with one's competitors, as firms are less willing to exchange information. On the other hand, at the level of the technologist, it is a much smaller community which facilitates the informal transfer of information across firm boundaries. However, the nature of this transfer is more qualitative based, making exact comparisons difficult. Siderca is, however, able to make detailed internal benchmarks with TAMSA and Dalmine.

In summary, it has been shown how the tangible internationalization of competition in this case also resulted in the an increase in the intangible level of the competition which Siderca faced. This is because the market in which it entered is global in nature, one in which once a player decides to go international, it must do so on a world-wide basis, and thus be confronted with the world's best.

7.0 Conclusions
What the above discussion has shown is that in both cases, Siderar and Siderca, one is able to distinguish between the tangible and intangible internationalization of these two firms on a variety of aspects. A detailed analysis of the progression of the
internationalization process has been presented for each firm. Figure 5 summarizes these changes from what would be classified as a generally low level of internationalization (Stage 1) to a much more heightened level (Stage 2).

What this figure reveals is that while in all cases the two firms moved monotonically along the horizontal axis towards higher levels of intangible internationalization, the same is not true of the vertical axis. In some cases movement was towards increased tangible internationalization, while in other cases there was no change, and in still others the trend was towards lower levels of tangible internationalization. This conclusion is reinforced by the summary of Siderar's internationalization process provided in Table 13, in which one observes that the firm has a high intangible while relatively low tangible level of internationalization.

By highlighting this distinction between tangible and intangible aspects, one gets at the heart of the interest associated with internationalization, which is the assumption that it will result in a higher degree of competitiveness and eventually improved returns. As the case of Siderar shows, however, narrow physically-based definitions can produce misleading interpretations. On the one hand, simply selling in foreign markets, does not necessarily mean that one is operating at international standards. Conversely, one can have a world-class operation which sells all of its production in the domestic market.

The contrast with Siderca showed how key industry characteristics can determine whether these two forms of internationalization need to go hand in hand. In the case of Siderca, the global nature of the seamless tube sector fostered a correlation between the two forms of internationalization, while the multi-domestic nature of the flat steel sector made it possible separate the two.

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11 In the case of Siderar, Stage 1 is the period pre-privatization and Stage 2 post-privatization. For Siderca, Stage 1 can be considered pre-1980 and Stage 2 post-1980.
Table 13 - Internationalization Summary of Siderar

<table>
<thead>
<tr>
<th>Form of Internationalization</th>
<th>Tangible</th>
<th>Intangible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>25 percent of sales outside Argentina</td>
<td>Alliances with MNEs in Argentina</td>
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<tr>
<td></td>
<td></td>
<td>Management training for domestic customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduction of sales through traders</td>
</tr>
<tr>
<td>Operations</td>
<td>All facilities in Argentina</td>
<td>Adoption of leading technologies</td>
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<tr>
<td></td>
<td></td>
<td>Technology partnering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heavy capital/quality improvement investments</td>
</tr>
<tr>
<td>Management</td>
<td>All management in Argentina</td>
<td>Extensive training at all levels</td>
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<tr>
<td></td>
<td></td>
<td>Heavy organizational investments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality mentality adopted</td>
</tr>
<tr>
<td>Procurement</td>
<td>Raw materials as well as machinery inputs imported</td>
<td>Outsourcing of local non-core functions to international firms</td>
</tr>
<tr>
<td>Competition</td>
<td>Competition from imports domestically and against leading firms in export market</td>
<td>Competitive benchmarking of global industry leaders</td>
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</table>

It was also shown how in certain cases, one form of internationalization will encourage the other. With Siderar, for instance, the intangible internationalization of the procurement process resulted in a higher level of tangible internationalization, while with Siderca the tangible internationalization of sales encouraged the intangible internationalization of the firm. Therefore, there is no restriction as to which of the two forms is the leader and which is the follower.

Lastly, the case has shown the importance of analyzing multiple firm aspects in assessing the internationalization of the firm, for simply looking at downstream activities can be misleading. Upstream and support activities also have the potential to be internationalized and are the factors which are often at the root of the firm's competitiveness. In the current analysis five aspects were highlighted (market, operations,
management, procurement, and competition). However, there are other firm aspects which deserve further attention, among these R&D abilities and firm ownership structure. How will the recent public offering of Siderar, for instance, foster the further internationalization of the firm?

Though the distinction between tangible and intangible internationalization was used here in the context of analyzing firm response to environmental changes, such an approach is more broadly applicable to static analyses of internationalization as well. The implication which follows from adopting such an approach is that certain firms which are currently labeled "local" may in fact be international. Likewise, some firms which are considered "international" according to standard definitions, may in fact be much more local in nature.
Figure 5 - Aspects of the Internationalization Process: Siderar vs. Siderca

**MARKET**

**OPERATIONS**

**MANAGEMENT**

**PROCUREMENT**

**COMPETITION**

SIDERAR: Stage 1

SIDERAR: Stage 2
Part II. The Internationalization of Siderar and Siderca

REFERENCES


"Quien es Quien en el Ranking Ecologico. (Parte V)" August 1993, pp. 78-82.
"La Imagen del Prestigio," September 1993, pp. 18-36.
"Negocios en el Aire," November 1994, p. 84.
Part II. The Internationalization of Siderar and Siderca


Siderar. (1995) ConSiderar, Año 1, Nos. 1, 2, 3.


Siderca. Seamless Tubular Products.


Techint. Siderar.


Techint News:

"Siderca & Tamso: Con la Fuerza de los 40 Años," December 1994, pp. 1, 4-7.


CASE STUDY PROTOCOL

I. Purpose Of Study:
   - To understand the impact of an environmental shock on the level of internationalization of a firm, incorporating into the definition both tangible and intangible aspects of the process.

II. Research Design:
   - Unit Of Analysis
     - Organizational Change
   - General Characteristics:
     - Embedded (Multiple Units Of Analysis)
     - Single Case Design
   - Selection Method:
     - Critical Case (Analytic Generalization, Not Sampling)
     - Specific Case Criteria (See Text)
   - Mode Of Analysis:
     - Pattern Matching Using Nonequivalent Dependent Variables

III. Propositions
   - Sources Of Data For Each
   - Strategies For Each

IV. Organization Of Report:
   - Mix Of Linear Analytic Structure And Theory Building Structure
     - Issue
     - Methodology
     - History
     - Findings
     - Conclusions

V. Procedures:
   - Scheduling of Company Visits: (weeks of)
     - November 20, 1995
     - April 1, 1996
     - April 8, 1996
     - April 29, 1996
   - Areas To Interview
     - Human Resources Management
     - Commercial Relations
     - Procurement
     - Market and Product Strategy
     - Operations Redesign
       - Production
       - Information Systems
   - Technology
   - Alliances/Acquisitions
   - Benchmarking
## Appendix B. Case Study Interviews

### CASE STUDY INTERVIEWS

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<tr>
<th>Name</th>
<th>Position</th>
<th>Location</th>
<th>Date</th>
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<tr>
<td>Daniel Novegil</td>
<td>Director General (Siderar)</td>
<td>Boston</td>
<td>June 15, 1995</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New York</td>
<td>Feb. 16, 1997</td>
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<td>Jorge Donoso</td>
<td>Financial Planning and Controllership Manager (Siderar)</td>
<td>Buenos Aires</td>
<td>Nov. 20, 1995</td>
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<td>Angel Rossi</td>
<td>Head of Planning and Control of Management (Siderar)</td>
<td>Buenos Aires</td>
<td>Nov. 20, 1995</td>
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<td>Oscar Montero</td>
<td>Executive Assistant to the Director General (Siderar)</td>
<td>Boston</td>
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<td>Pedro Escudero</td>
<td>Procurement Director (Siderar)</td>
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<td>Solano Perez Duhalde</td>
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<td>Hector Aguirre</td>
<td>Human Resource Director (Siderar)</td>
<td>San Nicolás</td>
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<td>Mario Sverdlik</td>
<td>Manufacturing Manager (Siderar)</td>
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<td>Juan Carlos Mina</td>
<td>Materials and Services Manager (Instituto Argentino de Siderurgia)</td>
<td>San Nicolás</td>
<td>April 2, 1996</td>
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<td>Jorge Iglesias</td>
<td>Commercial Director (Siderar)</td>
<td>Buenos Aires</td>
<td>April 8, 1996</td>
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<td>Miguel Punte</td>
<td>Human Resource Director (Techint)</td>
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<td>Lorena Loustau</td>
<td>Training Manager (Techint)</td>
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<td>Marcelo Paladini</td>
<td>Director of Research (IAE)</td>
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<td>Hernán Ortiz Molina</td>
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<td>Jorge Iommi</td>
<td>Engineering Manager (Siderca)</td>
<td>Campana</td>
<td>April 29, 1996</td>
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### Appendix B. Case Study Interviews

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<th>Name</th>
<th>Position</th>
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<td>Alberto Crotti</td>
<td>Human Resource Director (Siderca)</td>
<td>Campana</td>
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<td>Ariel Stainoh</td>
<td>Commercial Planning Manager (Siderca)</td>
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<td>Susana de Danon</td>
<td>Director, Information Center (Techint)</td>
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<td>Marcela Goldschmit</td>
<td>Researcher, FUDETEC (Techint)</td>
<td>Campana</td>
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<td>(phone interview)</td>
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<td>Alejandro Iglesias</td>
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<td>Buenos Aires</td>
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<td>Hernan Pelfini</td>
<td>Export Sales Manager (Siderar)</td>
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<td>Fernando Landa</td>
<td>Head of Corporate Planning</td>
<td>Palo Alto</td>
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