BOLIVIA AND INDUSTRIALIZATION:
AN INTEGRATED VIEW OF
THE RELEVANT FACTORS

by
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ABSTRACT

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CARLOS FERNANDO ROMERO MORENO

Submitted to the Alfred P. Sloan School of Management on May 20, 1966, in partial fulfillment of the requirements for the degree of Master of Science.

This study is a case study of industrialization. It attempts to classify and organize some factual data about a particular setting -- Bolivia -- and to interpret it in terms of modern economic development theory.

Three specific objectives were sought: (1) to establish an arbitrary level of industrialization for Bolivia; (2) to analyze the relevant factors of that level of industrialization in order to determine how and why Bolivia has reached it; and, (3) to integrate those factors in order to reach some general conclusion about the future of industrialization of Bolivia. Each one of these objectives is considered to be an integral part of the thesis as well as a means to relate data with theory.

To fulfill objective one, an arbitrary definition of industrialization was adopted: industrialization is defined as the growth of the manufacturing industry maintaining a parallel development of the primary productive activities (agriculture and mining). Based on such a definition and through the analysis of statistical data on Bolivia, the country is found to stand low in the scale of industrialization when its data is compared with other countries'. The countries chosen to compare the relevant information to are the U.S., Mexico, and Columbia.

To fulfill objective two, relevant factors of industrialization were analyzed in terms of their development through time and their present condition, under three distinct viewpoints: social, political, and economic. The social factors -- social structure and institutional values -- together with the analysis of some demographic aspects, show that Bolivia has a traditional society of stratified structure, authoritative institution, and static technology. The political factors, especially the government and the political attitudes, present an unfavorable condition to future
industrialization. This is because there seems to be a lack of political maturity and unity making the government an unstable, inconsistent, and inefficient institution. The analysis of economic factors -- capital, land, labor, and technology in particular -- shows that Bolivia might have some potential to make their economic resources available but the social and political conditions do not permit, at the moment, the adequate supply of those resources which are extremely important to industrialization.

To fulfill objective three, the factors, previously seen from three different viewpoints, were integrated as far as possible. To integrate the factors it is necessary to look at them from some common viewpoints. This is done by re-classifying the factors according to their mutual relationship, their degree of importance or influence in the future improvement of the level of industrialization, and their degree of manipulatability or flexibility to change when pressure is applied. All factors were found to be mutually dependent to some degree; this was a clear illustration of the complexity of the problem. The importance of the factor varied according to their functional purpose in getting an industrialization process in motion. (Objective one found that industrialization in Bolivia was stagnant.) Factors capable of "generating" change or the "change agents," together with the productive resources necessary to implement the change are found to be factors of primary importance. Other factors, including those concerning the assimilation of a change process and other semi-independent factors, are found to be factors of secondary and tertiary importance. A conflict between the potential "generating" factors (entrepreneurs and government) could be the main target of the manipulation of factors. The manipulatability of factors presents several degrees or arbitrary levels graded according to the Bolivian possibilities and resources. It is very likely that manipulation or provoked change should start at the level of factors of high manipulatability. The manipulation can be directed toward the generation of change; and to make that possible, it is found necessary to precondition the change agents by partially solving their existing conflict.

The thesis is not an attempt to solve the problem of industrialization in Bolivia but to define what the problem is. Such a task is found to be extremely complex unless there is sufficient data concerning know how and how much each factor affects the present conditions of the nation.

Thesis Supervisor: Charles H. Savage
Title: Visiting Associate Professor of Management
Professor William C. Greene  
Secretary of the Faculty  
Massachusetts Institute of Technology  
Cambridge, Massachusetts 02139

Dear Professor Green:

In accordance with the requirements for graduation, I herewith submit a thesis entitled "Bolivia and Industrialization: An Integrated View of the Relevant Factors."

I would like to take this opportunity to acknowledge those persons whose guidance and assistance were valuable to me. I wish to express special gratitude to Professor Charles H. Savage whose wise advise made this study possible, and also thank Professor Charles P. Kindleberger for his helpful consideration and constructive comments. Finally, my thanks are due to my father, Jose Romero L., whose assistance in the procurement of data and information and whose experienced advise were invaluable.

Sincerely,

Carlos Fernando Romero Moreno
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CHAPTER I

INTRODUCTION

Economic development is a multi-dimensional problem. It has ceased to be an exclusive problem of economic theory as it has also become an issue in which the sociologist's, the anthropologist's, and the psychologist's opinions or "viewpoints" are very relevant. Nevertheless, the different sciences looking at economic development are not wholly integrated; and it can be said that it is still necessary to look at economic development from a number of different viewpoints before a clear idea of it can be obtained. This might be the reason why any discussion on this subject is liable to be limited by a lack of clearly defined terms which may be equally applied to all aspects of development. Okun and Richardson,1 in facing the question of defining economic development, say that "economic development may be defined as a sustained, secular improvement in material well-being...," adding later, "while the definition of economic development is cast in material terms, the study of this subject is concerned with those changes -- social, cultural, political, as well as economic -- which contribute to or impede material progress." This, of course, is just one view of the problem.

Other authorities define economic development in other terms, not always material ones. The importance of the statement is the recognition of the elements involved in the study of development.

The various aspects of economic development have given rise to a number of theories about where and how it starts and how to go about achieving it. Industrialization is often defended as a practical method of obtaining a secular growth; therefore, in some instances the question of development is reduced to the question of how to industrialize. Although it gives the problem a starting point, industrialization as a solution to economic development is only a theory and does not make the problem any simpler. The aspects of economic development are simply translated in terms of a secular growth of industry or transformation of raw materials into manufactured products. Again, if the validity of theory of industrialization is accepted, problems of definition are likely to appear, and the many viewpoints of economic development become equally relevant to industrialization.

The issue of economic development and/or industrialization is gaining significance as the gap between developed and underdeveloped nations increases. It is true that underdeveloped nations today have one notable advantage over those which are already industrialized and had to do it alone: the processes of development in the "industrialized" nations have provided a vast fund of knowledge and experience for underdeveloped nations to draw on and thereby avoid repetition of
some mistakes. Those experiences do not set, in every case, a general example to follow, but the lessons in some specific instances can be of great help and guidance. Every country is different from the next, and the application of economic development or industrialization theory to a particular setting is limited by the peculiarities of the setting.

**Generalization against Accidentals**

All of the sciences which deal with development have drawn their theories from the practical experiences of the nations of the globe. Nevertheless, the numerous differences from nation to nation have proven restrictive of the number of generalizations that can be universally accepted. Each country is full of "accidentals" which are, for all practical purposes, very strong determinants of its stage of development. If the idea of economic development is conceived as a large set of interrelated variables, the most a generalization can do, to be truly valid, is to name and define these variables and perhaps hypothesize about their relative importance. Once development theory is applied to one country, the "accidentals" tend to become the decisive issues. This does not mean that generalizations are not helpful. In fact, it is probable that without generalizations it would be impossible to start on a solution to the economic development of a country.

Accidentals can be defined as the particular state of the economic-development variables of a country. When accidentals are linked together with the general developmental
theory, it becomes feasible to understand and define the problem of development of the setting involved. In a way, economic development is a universal problem which does not concrete itself until it is seen from the point of view of a particular setting -- continent, nation, region, town, or even social group.

Any study dealing with the theoretical or practical view of economic development is likely to find itself involved in issues such as the ones described above. This is why a practical starting line for any study is to draw its limits and to define its terms carefully. The reader may accept or reject the author's premises as any reader -- authority or not -- may accept or reject one theory or generalization on economic development or industrialization.

THE STUDY -- GENERAL PURPOSE

This study does not intend to clarify the concepts of economic development and industrialization. This is a rather impossible task for a study of this scope. The study pursues the less ambitious goal of applying some of the more acceptable concepts or theories on the subject to a particular setting: Bolivia.

In other words, the study will begin by accepting a number of "generalizations" given by authorities of the different aspects or viewpoints of economic development. Their validity is not to be debated here. The accepted generalizations are not to be tested either, but are going to be used
to determine and analyze the state of the "accidentals" of the mentioned setting. In a way, this is a case study, in which some factual data will be analyzed in terms of accepted theory.

GENERAL METHODOLOGY

Although certain theory will be accepted ipso facto, the general purpose of this study remains almost as broad as that of a theoretical study of the subject, because even a fairly practical aspect of development is difficult to formulate in concise form. There are too many aspects, implications, and dimensions of economic development and industrialization in one setting to allow a simple condensation of the context of the subject. Therefore, the study is expected to be a bit general in its form since it has several involuntary as well as self-imposed limitations which do not permit the author to discuss in full all the details of the economic development of Bolivia.

Besides the broadness of the subject, the study finds itself limited by space, time, and lack of sufficient data on Bolivia. This last restriction may force the author sometimes to hypothesize about factual information and to assume many facts about which supporting data was not found; however, this will be avoided as much as possible.

The general purpose of this study -- the analysis of data in terms of accepted theory -- will be fulfilled by pursuing a number of sub-purposes, later called "specific
objectives." The specific objectives are also set to limit the scope of this study and, in many aspects, to make it more concrete if possible. The study will not be an attempt to solve the Bolivian problem of economic development or industrialization but only to define it, thus restricting somehow the scope of the general purpose. Also, the author does not wish to deal directly with economic development theory, but with industrialization alone as a possible solution to economic development. This additional premise is also an attempt to restrict even further the context of the general purpose.

SPECIFIC GOALS AND PARTICULAR APPROACHES

There are three specific objectives in this study. They are to be outlined below and will be individually followed by the approach the author expects to take to fulfill each of them.

First Objective

The first objective is to establish an arbitrary level of the present industrialization of Bolivia. In many respects this objective seeks to define the basis of the study. It may be clear that Bolivia is not an industrialized nation, but it takes some figures and descriptions to justify such a statement.

To fulfill this objective, it becomes necessary to adapt and accept a suitable definition of industrialization; "suitable," because it must be adaptive to the data available and comprehensive enough to be used through the whole study. That
definition must be coupled with a measuring criterion which should be able to establish the level of industrialization of Bolivia in very concrete terms.

The measurement of the level of industrialization in concrete terms is an arbitrary concept. It could be debated whether or not the criterion used is truly representative of industrialization. Since industrialization, as well as economic development, is compared in both quantitative and qualitative terms, quantitative statistical information as a criterion of measurement might not be as complete as the concept of industrialization demands; however, statistical information is the only available yardstick. Although an incomplete one, it may be sufficient to illustrate, on a comparative basis, how industrialized Bolivia is. After all, this is all the first objective seeks. The author does not find it necessary to go to great depths to prove a fact which can be sufficiently demonstrated in numerical terms.

Second Objective

The second objective is to analyze the factors of the industrialization of Bolivia. Answers to the following questions are sought:

(1) How has Bolivia emerged to its present level of industrialization?

(2) How has each relevant factor acted or influenced the present stage of Bolivia's industrialization?

(3) How are these factors now impeding or encouraging further industrialization?
Industrialization, as said before, is a complex of many variables studied in many different scientific disciplines. Although all of these variables -- hereafter called factors -- are interrelated, to be fully understood they must sometimes be seen from one particular viewpoint.

To fulfill the second objective, three groups of factors or "viewpoints" will be taken: social, political, and economic. Most of the factors of industrialization are common to more than one of these viewpoints; therefore, there may be a great deal of conceptual overlapping. It could be said that the independent analysis of the components of the Bolivian industrialization will be like telling the same story under several different but tightly linked viewpoints.

The analysis of the factors under each of the three viewpoints will be done by following particular criteria for each separate group.

(1) Social factors, or factors seen from the social viewpoint, will be analyzed more in terms of their development through the history of the country. Some of these factors -- particularly value systems and institutions -- have emerged as a consequence of a large number of past conditions -- background conditions. Analysis of the social development of Bolivia can provide the necessary insight to what role social conditions have played in the nation's industrial development.

(2) Political factors, or factors seen from a political viewpoint, will also be analyzed in terms of the Bolivian political development. However, a particular emphasis will
be applied to the role of the government in industrialization. The development of political thought in Bolivia is not necessarily parallel to the social development. Although political and social development may be thought of as mutually inclusive, they will be analyzed here as independent sets.

(3) Economic factors, or factors seen from an economic viewpoint, will be analyzed in terms of their theoretical importance and their present state in Bolivia. Occasionally the background of these factors will be explored when the peculiarities of the factors are not clearly justifiable.

The outlined sets of factors have been chosen because it is expected that under them it will be possible to locate almost all the elements of the previously defined "industrialization" and the Bolivian "accidentals." The analysis does not have the ambition to be complete because this would result in a much larger study; but it is expected that it will be sufficient to fulfill the study's second objective.

Third Objective

The independence of all factors demands their integration. The third objective of the study seeks to "pull the strings together." Here, industrialization will be seen as the dynamic system that it is. The factors will be integrated with the purpose of analyzing how the dynamics of industrialization work in Bolivia. The study does not go so far as to point out specific ways to improve Bolivia's industrialization level, but the third objective will seek to outline
some basic principles of possible change in the Bolivian system.

To fulfill the third objective, factors will be seen as one whole by disregarding to the maximum possible extent the different viewpoints taken in the second objective. In addition, factors will be arbitrarily rated according to their mutual relationship and dependence, their degree of importance under the accepted theoretical concept of industrialization, and their degree of manipulatibility. This analysis is expected to lead to a better understanding of how change could be induced in the Bolivian setting.

The idea of integrating factors starts with the premise that not all factors are equally important and that not all factors can be changed with the same ease. If the relevant factors are carefully understood from a thorough analysis, it is possible to understand not only what the problem is but also how a basis for a solution can be found.

The dynamics of a system of industrialization can be summarized in its simplest form in the diagram shown in Figure I.

![Figure I](image)

When a factor is manipulated, change is provoked. Such change has a dynamic effect on the whole system because it
affects all other factors as to their degree of mutual dependence. There is also some natural change as a result of change and natural interplay. It is almost impossible to point out all of the many possibilities of the effects of one provoked change which may result in a chain-type reaction, becoming totally unpredictable as to its extent. However, the key of success to economic development lies in knowing how to control change toward a desired goal. The problem -- not in the scope of this study -- lies in where, how, and when to apply the pressure and take action. This study only pretends to go so far as to point out the degree to which the factors of industrialization can be changed to improve a predefined industrialization setting and to try to clarify the general view of the complex dynamic system of industrialization in Bolivia.

SUMMARY

Chapter I is a statement of objectives and methods of approach to the present study. It has divided the study into one general purpose (the analysis of some data in terms of economic development theory) and three specific objectives: (1) to define the Bolivian level of industrialization, (2) to analyze the factors relevant to that level, and (3) to integrate those factors to illustrate the dynamics of the system.

Chapter II is the first concrete step of the study. Theoretically, it will define industrialization in the context
to be used here, and it will analyze the Bolivian situation in terms of statistical information in order to determine where Bolivia stands in the scale of industrialization.
CHAPTER II

INTRODUCTION

This chapter intends to fulfill the first specific objective of the study. By accepting an arbitrary definition of industrialization, the chapter will determine (through the use of statistical information) the level of industrialization of Bolivia. The establishment of a level of industrialization of Bolivia is to determine a base upon which to analyze the industrialization components or factors.

INDUSTRIALIZATION -- A THEORETICAL DEFINITION

For the limited purpose of this study, the term "industrialization" will be used in its restricted sense to designate the growth of the manufacturing industry.

The growth of the manufacturing industry can also be thought of as the process of transferring all types of resources from one productive occupation -- exploitation of raw materials: mining and agriculture -- to another productive activity -- transformation of raw materials into manufactured consumer and industrial goods. The argument here is not whether industrialization is a "unique" key to economic development, but whether one particular concept of industrialization is one feasible solution to some economic problems of one particular setting.

If industrialization is defined as a "growth," the
existence of a process of change is implied on the one hand; on the other hand, the word "growth" also seems to imply that the highest level of industrialization occurs when the transfer of resources from primary to secondary productive activities is complete. Instead of being beneficial to a nation, this would be detrimental; therefore, the author accepts the idea of adding the word "balanced" -- to mean parallel but not simultaneous -- to the definition of industrialization, to describe industrialization as a process of "balanced" growth of the manufacturing industry with respect to the primary productive characteristics of the setting in question.

Implications to be Accepted with the Definition

Industrialization has implications in all the aspects of a nation. A transfer of resources implies:

(1) The availability of those resources in adequate amounts and quality.

(2) The adaptation of the transferred resources to the new industrial activity. In other words, the introduction of innovating technology is to utilize these resources fully.

(3) Changes in the economic, social, and political structures of the country, as a direct consequence of the transfer of resources and technological application.

(4) The initial generation of the "transfer" by some agent of change.

The significance of these implications, and the
different variations of them, will be felt in the chapters ahead, when certain theory must provide the meaning of the analysis of the factual data of Bolivia.

Measuring Industrialization

If some statement is to be made regarding the "level" of industrialization of a country such as Bolivia, it is necessary to couple the defined industrialization with some type of measuring scale.

It would be difficult to set arbitrary measures to all the relevant aspects of the concept of industrialization. The author believes that due to the circumstances of the setting in question, the analysis of some limited statistical information will be sufficient to make a well-supported statement about the level of industrialization of Bolivia. It is true that such an arbitrary criterion is not completely explanatory of the level of all the relevant aspects, but only of some well-chosen aspects of the concept of industrialization.

To determine the level of industrialization of Bolivia, a number of comparative tables have been chosen. These tables are included in the Appendix. Their value and interpretation will constitute the supportive information of a concrete statement about the industrialization level of Bolivia.

The comparative tables are directed toward setting a scale that places Bolivia on a relative level determined by other countries which were arbitrarily chosen as representa-
tive of other levels of industrialization. For example, the United States has been chosen to represent a highly industrialized country; Mexico and Colombia are also included as representatives of countries already in the process of industrialization. Bolivian data is compared to equivalent data of these three countries. More countries have not been chosen because it is expected that the small sample will be sufficient for the fulfillment of the objective.

The interpretation of these comparative tables is done under the exclusive viewpoint of the manufacturing industry and its status in the Bolivian economy. This is the reason why the criteria of interpretation of the factual information will look at four aspects of the manufacturing industry:

(1) How much it produces (measures of output).
(2) How diversified it is (measures of diversification).
(3) How productive it is, or how efficient it is in the utilization of its resources (measures of productivity).
(4) How much and how fast it is changing (measures of change).

These criteria are absolutely arbitrary and are designed only to simplify the analysis and to make the message clearer.

The selected data included in the tables was limited by the availability of information. Only data about elements which could best suit the purpose was selected and there was no fixed criterion behind their relation other than how practical and useful the piece of information could be.
BOLIVIA -- ITS LEVEL OF INDUSTRIALIZATION

A Comprehensive Review of Bolivia

Before going into the area of the industrialization level of Bolivia, a short and very general note on the country would be useful and illustrative to the reader.

The Country -- Its Geography

Bolivia is the fifth largest republic in South America. Its area is approximately 416,000 square miles, or about one and one-half times the area of the state of Texas. The nation is bounded on the north and east by Brazil, on the south by Argentina and Paraguay, and on the west by Peru and Chile.

The territory is divided into three distinct and very diverse regions. The Altiplano is a great plateau averaging 12,000 feet above sea level, lying between two almost parallel chains of mountains. The Altiplano occupies 16% of the southwest territory (see Map). It is a cold and a poor land. The mountains surrounding it are not considered to be a region of importance unless they are looked upon from the viewpoint of mining resources, which are the greatest wealth of the country.

The second major region is the Valles (east of the Altiplano), comprising about 14% of the land area of Bolivia. It is the chief food producing region of the country, and is situated at the foot of the eastern chain of mountains.

The great low land plains (east of the Valles), or Llamos Orientales, make up the third geographical region of the country and approximately 70% of its territory. It is a huge,
rich, tropical, unpopulated area which somehow is isolated from the civilized world.

Bolivia does not have a sea coast; it is linked to the outside world by the international railroads and largely by air transports.

The Population

The population of Bolivia was approximately 4.1 millions in 1965. Seventy per cent of the people live in the Altiplano or in the cities of that region. The Valles have around 20% of the population, and the remaining 10% live in the huge Llamos Orientales. The people in the Altiplano and Valles are mostly of Indian descent or are full-blooded (around 52.9%) Indians. That population is composed of two distinct Indian groups: the **Aymaras** and the **Quechuas**. The latter are direct descendants of the Peruvian Incas. Both groups have their own different languages which are widely spoken in these two regions. Nevertheless, Spanish is considered to be the official language of the nation. Indian ways and traditions have prevailed largely due to their living conditions. Little towns in the Altiplano seem to be living nearly a thousand years in the past.

The History

Harold Osborne\(^3\) says that there "is a great deal of

\(^2\)(estimate; last census was 1950) Economic and Program Statistics (Bolivia: USAID, December, 1965).

speculation and very little knowledge about man's earliest history on the Bolivian plateau." Almost the same thing can be said about subsequent Bolivian history. Historians have covered certain periods well, but the analysis of history of this country is still incomplete. In very general terms, it can be said that Bolivia has gone through three historic eras. The first one is the pre-Columbian era. As Osborne says, "it's almost unknown." Present Bolivia was a part of the Incan Empire but it was not the most important or active part.

The Colonial Period, after the Spanish conquest, gave Bolivia fame due to its great mineral wealth -- principally silver. The first Spanish "conquistadores" were astonished by the gold wealth of the Incas and later by the rich silver mountain of Potosi. The Bolivian Altiplano, then, was first described as "a gold table with silver legs,"^4 gold being representative of all precious metals.

The third period is the Republican one. The history of this period can be written in several volumes or in two or three words: "chaotic" and "inconsistent." Several wars cost Bolivia nearly half of its original territory. Changes of government through revolution or military "coup" occurred with great frequency. The words "anarchy," "civil strife," "revolt," etc. are integrated with Bolivia's past. The periods

^4United Nations (H.L. Keeleyside), Informe de la Mision de Asistencia Technica de las Naciones Unidas Sobre Bolivia (Lake Success, N.Y.: 1950).
of political stability are very few. In 1952, a revolution instituted some important changes, some of which are still going on.\(^5\)

Bolivia is presently governed by a military junta which came into power in November of 1964. Elections are expected to be held in July of 1966. Although things might be different from those 100 years ago, the historical picture has changed very little. Governments make history, and in this respect the Bolivian future is as "uncertain" as it has always been.

The Economy

The economy of Bolivia has the particular characteristic of being centered around mining. For many years it has been an economy totally dependent on the international quotations and prices of the minerals. After 1952, with a crisis originated by the nationalization of the mines, Bolivia has for the first time started to look into other means of development. Presently, its economy is almost stagnant. Per capita income has even decreased from its 1952 level.

In the last thirteen years, Bolivia's mines have worked at a loss. American economic assistance has come to play a very important role in the economy. People say that Bolivia "has gone from mining to become an American colony." The Bolivian will describe his country as a "beggar on a chair of

\(^5\)Osborne, op. cit.
gold" without realizing that it is he who must see that the gold serves its purpose. This picturesque phrase is justified by the contrast that still exists between the relative poverty of the people and the government on one hand, and the "unquestionable richness of Bolivia's heritage of natural resources" on the other.

To better understand the Bolivian economic paradox and its origin, it is necessary to look into the country's social and political development, or in the words of H.L. Keeleyside, head of the United Nations Mission to Bolivia in 1950, "... the explanation of the paradox can be found in the political and administrative instability that has characterized the history of this nation." 8

The background given on Bolivia is expected to illustrate to the reader the general view of the country. Some of the general facts and other specific ones will be seen again later in greater detail. This will be done when factors are analyzed to determine their importance on Bolivia's industrialization process.

Bolivia and Industrialization

Given the definition of industrialization, a rather strong statement can be made: Bolivia has a very low level of industrialization. Supportive arguments will next be made

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7 Ibid., p. 15.
8 Ibid., p. 12.
on the basis of the information compiled in the Appendix.

Measures of Output

The percent contribution of manufacturing industry to Gross Domestic Product (GDP) of Bolivia is very low (below 12%) when compared to other countries (see Table II-2). If the United Nations averages of Industrial Distribution of Gross Domestic Product, ranking countries according to their per capita incomes, is taken as an acceptable measuring criterion, Bolivia (per capita income = approximately $90) ranks low in the scale of non-industrialized countries (see Table II-1). The Bolivian output per sector of the economy fits well into the averages of those countries with low (below $125) per capita income.

Bolivian manufacturing industry is centered around the production of first need elaborated articles -- food, beverages, textiles, wearing apparel, and other non-durable goods -- which constitute 89.9% of its industry. Durable goods, and especially capital durable goods, must be imported in high proportions: 98.9% of those goods consumed (see Table II-4). Industrialized countries produce a larger proportion of durable goods than non-durable goods. Thus, Bolivian output, besides being relatively poor, it not even "balanced" according to the needs. The imports of manufactured products are 85% of the total imports. This is a very high figure considering that Bolivian imports are equivalent to almost one-third of the Bolivian GDP.

Looking at manufacturing output from another point of
view, Bolivia's labor force is employed to a low proportion (8.8%) in the manufacturing industry (see Table II-8). And the urban population, which is the source of manufacturing labor, is only 29% of the country's population (see Table II-9). Industrialized countries have high indices of urbanization and the largest (single) percent of their population is employed in manufacturing. This deficiency of Bolivia is also reflected in the minimum amount of all kinds of energy consumed per capita (145 kg. of coal equivalent) compared with the much larger quantities of more industrialized countries (see Table II-7).

Measures of Diversification

The low output of manufacturing in Bolivia is not well diversified. Manufacturing industries tend to produce non-durable goods of primary needs. Capital is invested in the production of those goods which sell best. The Bolivian manufacturing industry is not only limited in the number of goods it produces, but even in these goods, production is low. The imports of non-durable goods are a larger percent of total imports (50%) than are the imports of durable (35%) goods (see Table II-4), even though non-durable goods encompass 90% of all of Bolivia's manufacturing output (see Table II-4). There is a clear unbalance here. As a country becomes more industrialized, resources are transferred not only from primary to secondary activities but also within the secondary activities, from consumer goods to industrial and capital goods production. Bolivia still seems far from reaching such
a stage.

From another angle it can be seen that the transferring of resources must come mostly from the agricultural group containing over 60% of the population; but such a transfer must be balanced according to the nation's agricultural needs.

Measures of Productivity

It is very difficult to measure how productive the existing manufacturing industry of Bolivia is in relation to the labor force and to its capital investment. Statistical information on labor force productivity and productivity of machinery and equipment is extremely unreliable. Therefore, it will not be used in this study to avoid misinterpretation or unrealistic conclusions. Nevertheless, the educational level of the managerial class can give a fairly good indication to support the fact that Bolivian industrial productivity per worker or per dollar investment is also low. The illiteracy rate of Bolivia (67.9%) of the total population over 15 years of age (see Table II-11) is one of the highest in the world. This is not necessarily an indication of low productivity but it gives an idea about what can be expected.

Educational attainment (see Table II-10) can, on the other hand, present a better indication of inefficient production. In Bolivia there are less than 7,000 professionals and 8,000 technicians. Only 10% of them are directly or indirectly

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involved with the manufacturing industry. This is a very low proportion compared to other countries. The United States, for example, has around 3.5% of its total population with a high educational level (college or university) directly or indirectly related to the manufacturing industry. A comparable figure for Bolivia would be 0.08%.

One other indication of productivity would be the number of industrial establishments and the rate of their success. Between 1952 and 1964 the number of industrial establishments has decreased by 200 to a figure of 1410. Some sources indicate that 9 out of 10 new enterprises in Bolivia fail before five years of existence. This might be true.

Measures of Change

For the last 12 years, Bolivia's industrial output has remained stagnant. The population has been increasing at a rate of 2.16% per year (see Table II-12) while the Gross Domestic Product has increased only 26% in 12 years (see Table II-5). Per capita income and per capita GDP levels were lower in 1964 than in either 1950 or 1952. Manufacturing output has increased at an even slower rate than GDP or population. However, in the last four years both GDP and manufacturing output have increased faster than population. This could be a favorable signal if conditions are maintained. The

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percent of urban population has increased slightly in the last few years (see Table II-9). That is not a significant increase when compared to other more industrialized countries.

It is very difficult to say how much the manufacturing industry of Bolivia has changed with respect to the whole economy. Through the analysis of factors in the next three chapters of this study it might be possible to say with more certainty whether or not Bolivia is now prepared to take the road to industrialization.

SUMMARY

To measure the level of industrialization of one country it was necessary to limit the context of the word "industrialization" to the restricted meaning of the manufacturing industry. A survey of the evidence shows that Bolivia stands relatively low on the scale of industrialization levels. This fulfills the first objective of the study by defining "industrialization" in suitable terms and arbitrarily setting a level for the Bolivian industrial conditions.

This chapter also constitutes an important part of the study because it lays the basis for analyzing those factors contributing to change or perpetuation of the established level.

The next chapter is the beginning of a series of three chapters dedicated to the analysis of factors. First, the social factors will be analyzed. This would be a lengthy subject if certain restrictions are not established. The ana-
ysis of social factors will be limited to a description of the development of those elements of a society deemed relevant to industrialization. Included in the social study, demographic factors will also be analyzed to a minor extent. That chapter is not designed to be a general survey of Bolivia's social conditions but only an explanation of Bolivia's industrialization from a sociological point of view.
CHAPTER III

INDUSTRIALIZATION AND THE SOCIO-CULTURAL ASPECT

INTRODUCTION

This chapter deals with the analysis of factors of industrialization. The social viewpoint has been chosen first because the author believes that it is more general and it apparently covers an area which could be used as a basis of reference to analyze the other viewpoints.

This chapter will analyze the social factors in terms of their past development and their present significance regarding industrial development. It will view the factors as retarding or encouraging factors of industrialization as defined -- together with their particular implications in Chapter II.

The social factors derive directly from the structure of the country. For reasons of simplification, those factors will be divided into institutional (institutions, organizations, value systems, and thought trends) and demographical. These two groups are chosen only to set some order in the method of analysis. The institutional factors are directly related to the structure of the society while the demographical factors, indirectly related to the society, will deal more with matters of population, mobility (geographical), and ethnic groups.
Time is an important part of social development. In order to achieve a comprehensive explanation of the role of the social structure in the industrialization level, it is necessary and practical to look backwards. Therefore, arbitrary periods in history have been set in order to see how society has developed and how each period has contributed to the progressive shaping of the existing social structure. Each period has particular elements of influence. Also, after the descriptive development of the society, a description of the present emergent society is expected to serve as a basis for the conclusion to be drawn regarding the industrialization and the society of Bolivia.

BOLIVIA'S SOCIAL DEVELOPMENT

From the defined level of industrialization (Chapter II) it can be stated with some "reservation" that Bolivia is still living in a stage of "Traditional Society." The reservations come from the fact that, in the last 14 years, Bolivia has undergone some basic structural changes after the 1952 revolution; therefore, in some respects or points of view -- such as W. Rostow in his theory of economic develop-

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11 The meaning of "traditional society" is relative. For the purpose of the present study, the meaning of it will be borrowed from E.E. Hagen, who defines traditional society as one with static technology without a continuing technological advance. See E.E. Hagen, "The Process of Economic Development," Economic Development and Cultural Change, (Vol. V; No. 3, University of Chicago, April, 1957).

ment -- it is partly possible to say that Bolivia is starting a period of transition from a traditional society to a pre-conditioned one. However, from a strict sociological viewpoint (Hagen's) and for the purpose of this chapter, Bolivia's technology is still static and its society remains a traditional one.

The analysis of Bolivia's social background will be directed to support the above statements as well as orderly pointing out those factors which might be moving Bolivia out of a traditional state.

The Background

Three periods will be considered in the background of social development in Bolivia: Pre-Columbian, Colonial, and Republican. Sociologically, these periods are not necessarily as distinct as they are historical. The time division, as mentioned before, is wholly arbitrary and is used only for practical purposes.

The Pre-Columbian Period

Before the arrival of the Spaniards, Bolivia was inhabited by two main types of Indians. The "Aymaras," originally from the Altiplano, were the oldest Bolivian civilization. Their origin is a matter of several theories. Later, the "Quechus," or the Peruvian Incas, conquered the Aymaras and settled in the southern part of the Altiplano and the eastern valleys while the Aymaras remained in the surroundings of the Titicaca Lake of the northern part of the "Altiplano." The Aymara traditions dissipated with time and they assimilated
many of the characteristics of the Quechua culture; however they always kept distinct languages. For practical purposes, the groups can be looked upon as only one, since by the time the Spaniards reached Bolivia, the basic components of their social structure (to be seen later) were very similar.

The Eastern part of the country (Llanos Orientales) was populated by a large number of small tribes whose social significance is almost negligible. Most of the tribes were of "Guarani"\footnote{Guarani is the type of Indian living in the region now occupied by Paraguay.} or Brazilian origin. Their lack of unity made their social structure undefined, and, for the purpose of this study, unimportant.

Therefore, if there is any influence of this period on the present Bolivian society, such an influence originates in the Aymaras and Quechuas. From now on, both will be referred to as the Bolivian Indian.

Values and Institutions

Before Columbus, the Indian civilizations of Peru and Bolivia have been described as "highly political and professional."\footnote{A. Cespedes, \textbf{Bolivia} (Washington, D.C.: Pan American Union, 1962).} It had a highly stratified social structure. The Indian was more of a farmer than a warrior, and he had deep respect for spiritual things and religion. Although their values have changed a great deal through time, these are things in their social structure that have prevailed:
The basic social unit was the Ayllu (i-lu). It was a social unit formed by a small group of families who owned and lived from a small tract of land called "marca." Each Ayllu was stratified within itself, the older males and members being of higher status and authority. This institution has prevailed through time.15

The society as a whole was also stratified into very distinct social classes: the nobility, the religious class, and the people. Mobility between these classes was virtually impossible. However, these classes were stratified within themselves in several levels. For example: the nobility was divided into those with royal blood and those without it -- usually warriors; the religious class had several levels among which mobility was considerably easier; the people, besides having distinct social levels also had sub-levels within each level; intralevel mobility was possible with some exceptions such as the lowest level (called "yaconas," or servant), whose members and descendants could never abandon their status. This stratification of classes -- one more powerful than the others -- made the Bolivian Indian an easy-to-manage individual since his idea of respect for the authority was a very important value.16

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15 Bautista Saavedra, El Ayllu (2d. ed.; Santiago, Chile: Sociologicos Estudios, 1938).

The Ayllus existed at all levels and classes. Even the "Inca," or Emperor, who always came from the royal nobility, had his Ayllu that he left only to become the "Inca."

When a man married a woman from another Ayllu, he took her with him. The families of one Ayllu were always of the same social class and most of the time from the same social level. Only women had some kind of horizontal mobility due to marriage.

The Indians had a number of economic institutions composed of members of one social class and level. The only institution where classes were mixed was the army, but even there a stratification was set. Only members of the non-royal nobility could become army generals.

The Ayllu was also the basic political institution; but the supreme authority came from the Inca, who legislated and instituted justice through all of his empire. The Ayllu carried out the will of the Inca.

Demographic Aspects

The Inca Empire was large which made immigration (by foot) a slow process. It is said that the Indian population in the south of Bolivia took several centuries to get there from Peru. The largest concentration of people was around the Titicaca Lake.

As ethnic groups, the Aymaras and Quechuas are somewhat different, although at present that difference is hardly noticed. Nevertheless, anthropologists argue that the groups never mixed together and that their differences have partially
been maintained. It is true that the Aymara lags behind the Quechua in change and adaptation. This could be because the Aymaras have been oppressed for a longer period of time and the geographical difficulties of the region that they have always occupied. The environment of the Altiplano apparently has influenced the character of the Bolivian Indian. He has become a quiet, conservative, undernourished, but hard-working individual.

The Colonial Period

The arrival of the Spanish conquerors in Bolivia meant the introduction of a disrupting element in the society of the Indians. The social structure of Bolivia changed almost completely due to the importance of this new element. The mixture of these two cultures is still a process of the present.

The Spaniard came to Bolivia looking for wealth. After the discovery of the rich Potosi silver mines, Bolivia came to be known as the paradise of the precious metals. This attracted a large number of Spanish immigrants who settled in isolated cities all through the territory.

Labor was inexpensive. The establishment of the Royal "Encomiendas" (the word implies "to make responsible for") gave the Spanish Colonist the right virtually to own a group of Indians with the ideal but unreal purpose of indoctrinating them with the Catholic religion. The Indians became a commodity which, differing from slavery, could neither be bought nor sold, but were assigned to the "conquerors" by the
authorities.

Values and Institutions

In her three centuries of Spanish domination, Bolivia became populated by a small ruling minority and a large subordinated majority. The Spanish population never surpassed the native one. The Spanish minority founded a few existing cities and instituted a society of their own. This society resembled a great deal the mother-country's, differing only as to the environment and the existence of the Indians. Social classes were instituted according to family name, authority, and wealth. Internal mobility in that society was not impossible even if the cause was not the right one. The lowest class members were in any case considered to be of higher status than any Indian. A drop of Indian blood in any individual made him virtually unacceptable.

Important institutions started during the Colonial Period. The mineowners, as a socio-economic institution, were powerful in some cities and almost unknown in others. From this institution, the first nationalistic feelings were born when the members saw their properties challenged by the ambition of the Spanish authority. The "haciendados" (landowners), another socio-economic institution, worked thousands of Indians and were controlled by only a few people. The "patrones" were somewhat less powerful than the mine-owners. Finally, there was the "new class" of "criollos," or patriots, who were sons of Spaniards but were born and raised in the land of the colonies. This institution started to question
the authority of Spanish rule. However, neither the "criollos" nor the ruling Spaniards ever questioned their right of ownership of the land against the rights of the Indians. The Spaniards also did little to upgrade the conditions of the Indian.

A majority of the Indian population remained silent and apparently oppressed. Their social structure and their values changed a great deal through the colonial period. Social classes virtually disappeared but the "Ayllu" remained as a basic social unit. Their culture and civilization was virtually destroyed. Science and religion were replaced by the cult of the "white-patron" -- miner or farmer -- and the Catholic Church. The spiritual values of the Indian somehow remained supported by these two Spanish institutions. Some Indians broke the barrier separating oppressor and oppressed and were able to gain some status in the Spanish society; but those were exceptions. The methods of work of the majority never improved and only a very small minority of the Indians came close enough to the colonist to learn to speak the Spanish language. It was not so much oppression as it was an almost complete isolation.

Although other countries such as Peru and Ecuador had

17 Alcides Arguedas, Obras Completas (Pueblo Infermo and Raza de Bronce), (Mexico: Aguilar, 1959).

18 Ibid., p. 897.

19 Federico Avila, El Drama de la Sangre (La Paz, Bolivia: 1944).
a similar environment to Bolivia, their colonial development took different patterns. Bolivia, as a unique case, engendered a disintegrated social, demographical, and economic system, and this has changed little ever since.20

Demographic Aspects

The population was centered around a few well-populated cities. Intercity communication was a question of weeks or months. In the Altiplano, a few isolated Indian villages lived under the influence of the landowners. The Spaniard worked toward the educational betterment of the colonist and descendants. Universities were founded in every major city, and the educated "criollos" started to conceive ideas of independence. The Indian was far from having access to education. Some Catholic missionaries -- Jesuits in particular -- worked with the Indians, but their achievements were insignificant.

In the latter part of the colonial period, the "mestizo"21 began to appear more as a new ethnic group than as a social class of significance. Some male Spaniards, especially those of lower social status, mixed with Indians. The mestizo, later to be known as "cholo," acquired some ethnic characteristics that made him quite distinct to the other two already

21 "Mestizo" is a Spanish word to designate the white-Indian racial mixture.
in existence. Those characteristics will be analyzed later.

Geographical mobility during the Colonial period was rather difficult, especially for the low-class Spaniards and Indians. This originated a certain type of "city-nationalism" more than an integrated feeling for a whole nation. Some historians argue that Bolivia was born by the accidental grouping of several independent cities and not by a common nationalistic feeling for one nation.22

The Republican Period

Mixed reasons brought about the independence of Bolivia. On one hand, the "criollos" wanted to feel complete ownership and control over "their land;" on the other hand, there were the subversive movements of other Latin American nations as well as the ideologies derived from the independence of the United States and the French Revolution.23

On the social level, independence brought little change. Political power changed hands but the social structure remained the same.

After the independence, Bolivia was granted quite an extensive territory. At that time, it was the third largest South American country. The evolution of society during the Republic was slow until the 1952 revolution.24


23 Vasquez, op. cit., p. 122.

Values and Institutions

Until 1952, two distinct groups -- white and Indian -- remained, and their attitudes toward each other changed very little. The white people, or ruling class, instituted itself in a very stratified society. There was an aristocracy usually holding both the political and economic power through some well-defined political and economic institutions: political parties, the mineowners, and the landowners (or "latifundistas").

The clergy gained social significance because it monopolized the educational system -- especially primary and secondary -- of the ruling class. The exploitation of the arts was almost entirely in its hands.

The many wars with the neighboring countries which meant a loss to Bolivia of one-third of its original surface area gave rise to a new institution: the military. Their political, social, and economical significance started to grow when military governments frequently seized power. The army was a society within itself. It had, of course, the authority stratification, where upward mobility through promotion was feasible. This is an interesting fact because the army presented one of the few ways to gain social status. Maybe it was a unique way.

The government as a special social institution deserves special attention which will be given to it in the next chapter.

The white Bolivian, with all his institutions, continued to be a minority of the population. The wealth holder
aristocrats opposed all possible change. The military kept themselves too busy with wars and political ambition. The church as an educational institution was always ultra-conservative. Nevertheless, it is interesting to note that despite the social stability, Bolivia never had political stability. The word "social change" was rarely mentioned, and those advocating it were rapidly outcast.

Meanwhile, the Indian majority remained isolated and silent. With rare exceptions, the Indians never left their society or were accepted by the white one. The social development of the Indian remained totally stagnant from the Pre-Columbian and Colonial days. The Ayllu retained its importance as a social unit. The many Indian villages continued to be of an agricultural nature. Those Indians in the cities usually served as servants. The white landowners had power over the Indians living on his land. Many times this could mean entire villages given a small tract of their own land which was cultivated in the tradition of the Ayllu. The Indian always had a great deal of respect for the patron. It was almost a veneration. This attitude was encouraged by their old traditions of respect and also by the church, where the Indian satisfied his spiritual needs. The idea of being owners of something was almost unknown to them.

25 Saavedra, op. cit.
26 Avila, op. cit.
27 Arguedas, op. cit.
The mestizo's importance gradually grew in the first half of the twentieth century. After World War II, the role of the "cholo" was undeniable. It had become a social class of its own, possibly classified between the ruling white one and the Indian class. The mestizo class, excluded by the Indians and rejected by the white people, gained its importance through the military and as small owners of land and small mines. Many of them were illegitimate sons of wealthy aristocrats, and inherited some land or bought mines which they worked to make productive. Some of them (exceptions) were accepted in the social circles of the ruling class, and others, driven by political ambitions, tended to come back to their Indian side where they struggled to become leaders. But the mestizo always had a personality of his own. It was a resentful personality. Perhaps the mestizo might have been the basis of a "Bolivian people" if he had been set on the right track. By 1952, the significance of the mestizo was almost uncontrollable. They were the main argument for social integration of the nation.

Demographic Aspects

The ruling class, including the aristocracy, the military and the clergy, was educated to a limited extent; but being such a small minority, their education meant still a very low educational standard for the whole nation. Little was done to educate the masses of Indians and mestizos. With a lack of education, traditions tended to become reinforced.

Geographical mobility was very low.28 All economic

activities developed around the cities and communication between them was difficult. Most of the population and the largest cities remained in the Altiplano and Valleys. Roads between them were difficult to build and this discouraged any mobility. With the railroads this changed to some extent. The importance of La Paz as a center of all economic activities increased and the individual independence of the other cities tended to decrease. La Paz grew as the only significant economic center and as the only contact with the external world through the international railroads.

The outlined ethnic groups hardly knew how to communicate with each other. Each one had pre-conceived feelings about the other and they seemed to strive in different directions. Even within the ruling group, as seen before, there were discrepancies.

By the 1940's, apparently through natural development, change had happened very slowly. Before the 1952 revolution the Indian was still a peasant; the cholo headed for the city where they constituted a small working class; and the white took turns with the military in ruling the country. The wealth remained in the hands of the aristocracy ("latifundistas" and "mineowners").

The Emergent Situation

This paper does not attempt to analyze directly the causes of the 1952 revolution. Nevertheless, from the brief outlined background, it can be judged that there were enough social reasons to justify a revolutionary environment. It happened on April 9, 1952. No matter how much debate there
can be about the accomplishments of the revolution, it is an undeniable fact that it shook the Bolivian social structure in a very radical way. The revolutionary government instituted, almost at once, five major changes: (1) universal suffrage without literacy tests; (2) nationalization of the major tin producing combines; (3) dissolution of the army and formation of a militia of workers, peasants, and miners; (4) agrarian reform; and (5) the establishment of workers' participation in management. These changes have an economic background but their implications in society are significant. They were instituted in the first fourteen months, putting Bolivia in a revolutionary state. Change and adjustment have been going on ever since.

Due to their economic importance, these measures put Bolivia into a deep economic depression. Inflation (about 3000% in three and one-half years), disorder, and corruption resulted. The revolution dissolved and destroyed many old institutions and originated others. In many underdeveloped countries, changes of this nature are eagerly awaited. In Bolivia, however, it seems to have been a case of too much too soon. The revolution got out of control but the important fact is that some changes were set in motion.

In 1964, there was another minor revolution which could be better classified as a coup d'etat. The old military


30 Ibid.
force came back to power. Although the army had been dissolved after 1952, a new one was formed by the revolutionary government and it took over its creator.

The Present Social Structure

Although the Bolivian society is in a state of change and it is expected to continue that way until the effects of the revolution are settled down, an attempt will be made to describe the basic components of the new society departing from the assumption that those components are the basis of the present social development.

The Social Institutional Classes and Their Values

(1) -- Top social level -- The minority is still leading Bolivia. This "ruling class," however, is less stratified than before. Upward mobility is not an impossible venture any more. A small traditional aristocracy still remains but the importance of names as status symbols has been replaced by wealth or political power. Racial discrimination continues to a certain extent but the "cholo" has found places at all levels of society. Aristocracy as an institution is, in one word, being substituted by a "high society" whose members can change continually according to who is up or down (especially in political influence). The political leaders are every day more numerous and their elite is an important institution. Consensus of opinion among them seems to be impossible and some one said that "there are as many ideologies as there are leaders." There is a small managerial circle composed mostly
of owners of industrial establishments, prominent businessmen, and illustrious professionals. All advocate change but few do anything about it. Bolivia has an apparent lack of an entrepreneurial or innovating class. Most of the innovators at present belong to the managerial circle; but even there, the true "entrepreneurs" are a minority. No ethnic, religious, social, or political institution or group has, until now, shown particular characteristics of the status-deprived, eager-to-achieve institution or individual. The church has maintained its passive role in society, and its influence, now diminishing, is concentrated in the education of the top class. Nevertheless, Bolivia being a predominantly Catholic country, the clergy is an important social institution since it symbolizes restraint. The passive attitude of the church is somehow altered by the few American or European missionaries working mainly with the lower class and also by the apparent change of policy affecting the whole Roman Catholic church.

The army, now in power, is a distinct social institution, seemingly disliked by everybody else, but powerful enough to impose its will. After the announced July 1966 elections, it is possible that the army or military will reassume its old traditional position of a semi-independent and apparently "dangerous" force, with enough discipline but little social and political judgement.

The intellectuals were reduced in number in the last few years. However, their influence is always present and their role cannot be neglected.
All the outlined institutions, and some others of less importance, mistrust each other. They will not accept change, nor will they generate any since their power is restricted. 31

(2) -- The middle social class level -- This level is even more reduced than the top one (under the author's arbitrary division of levels). Public employees, teachers, technicians, skilled labor, etc. constitute this level. They are different from the top level in the fact that their education and wealth are smaller. There are a very few distinct but insignificant social institutions at this level. The upward mobility of this class is rather difficult, but not impossible. Education and wealth can suffice to reach a higher level. The important fact about this level is that it is so limited in number of people and also that it is a class which has been practically unaffected by the revolutionary changes.

The next lower level -- called "upper lower class" -- is in many countries recognized as a middle class, but in the case of Bolivia, the author has made the distinction for practical reasons. Eventually, it is expected that the upper-lower class will absorb the whole middle level and become one itself.

(3) -- The upper lower class -- This is a small but highly significant social class. It has been growing both in power and in size. The industrial worker, already an important part of the urban population has come a long way since the 1952 revolution. With the measures taken by the revolu-

31Ibid.
tionary government after 1952, a period called by some the "syndical tyranny" was originated. The workers almost took over the private enterprises and, together with the economic crisis of the country, sent more than 50% of them into bankruptcy.\textsuperscript{32} From the syndical tyranny, the unions, or "sindicatos," emerged as powerful and important institutions. The worker found in the union the protective shield which he lacked before 1952. Patronal-worker relationships took a sudden shift. Although the management-participating worker never reached that level for too long, the managerial "elite" felt the need to change their policies. With that, "paternalism" almost disappeared in the large enterprises although it still remains in the small ones. When the "junta" came to power, it set some regulatory legislation from which an autocratic managerial system seems to emerge; that is, the paternalism which was partially destroyed by the revolutionary changes turned into a new type of management philosophy. During the "syndical tyranny" management found some kind of an excuse to prove to itself the incapabilities of the worker. When the "tyranny" was over, and management felt protected, it became more authoritative than before and started treating workers in a very impersonal manner. The industrial workers are not too satisfied with this situation. They have learned the meaning of power and have started to struggle to get it back. With that in mind, it seems that the "sindicatos" have chosen to

\textsuperscript{32} Camara Nacional de Industrias, XXXIV Memoria, \textit{Industria}, June, 1965.
profess political change as a means of social betterment. The syndical leaders are an important institution. Not every worker has ambition to become one, and, as a matter of fact, the leadership does not always originate within the workers, as they also come often from political circles or universities. The educational level of a syndical leader could be enough to put him in the middle class, but their sentiments and goals make them identify themselves with the workers.

In small industries, things run smoother. The prevailing conventional paternalism keeps both workers and patrons satisfied. There the sindicatos cause trouble only when instigated by political leaders but most of the time the patron learns how to keep them down.

The mestizo reigns in this class and his spirit can be identified with industrial workers' -- especially the young generation of them, also the syndical leaders.

The mining worker or miner is the other significant group of the upper lower class. He resembles a great deal the manufacturing worker in his social constitution and values. However, there are other notable differences between them. The miners at the moment have considerably more power because they have retained the weapons given to them by the revolutionary government, while the industrial worker has been disarmed in the last few years. The working environment is also different, and these conditions have made the miner less socially stable. Since the nationalization of the major mining companies, the miner feels that he is the owner of the
mines. Order has been very difficult to enforce without using the army. The mining "sindicatos" appear to be dictatorships of the so-called important economic centers of Bolivia. This has become a problem for any government due to the importance of the mines. Disorder and lack of discipline, together with the relevancy of the mines, also set a crucial sociological problem. The miners have become a formidable barrier against the introduction of technology in the mines because it seems that they see technology as a threat to their status and security.

The hardest step of upward mobility is between the upper lower class and the middle class. Although every industrial worker sees himself as a potential "empleado" (white-collar), there are too many forces of resistance to make the move easy. The middle class, insignificant as it is, is also very traditional. If a factory worker is promoted to an "empleado," he is rarely accepted in the middle class. The unique link is education, but, in a country where two-thirds of the population is illiterate, sufficient education to move upwards is not a common reality. On the other hand, the workers themselves (as a group) discourage upward mobility by isolating those workers striving too hard to become an "empleado."

Management, finally, in order to avoid internal conflicts, procures its white collar workers from local schools and universities, that is, from the same middle class. The social structure here tends to reinforce the "class system" and the idea of the "traditional" society. If any positive social
progress is to be achieved, the hope lies in the weakness of the middle class and the increasing power of the upper lower class.

There are other institutions in the upper lower class such as the servants, salesmen, chauffeurs, etc. Their significance is not large enough for the purpose of this study.

(4) -- The lower class -- The largest portion of the population -- the peasants -- constitute the lower class. Since 1952, their social condition has changed somewhat: they have power.

Most of the peasants are Indians despite the fact that the proportion of Indians to mestizos are changing. With the agrarian reform, the large "haciendas" have been dissolved. Economically, the Indian may have lost temporarily because they lost the technical support of the patron (markets, tools, seed, etc.), but now they seem to feel freer. The agricultural villages of the Altiplano and Valleys still live under the influence of the Ayllu. The reform gave them small tracts of land which have become the old "marcas" again. Since they have become owners it is possible to notice some revival of cultural values and a desire to improve their properties. Also, the social work of some missionaries and social workers, as well as the contact with the merchants from the cities, have awakened in the Indians some curiosity for new things. The trips to the city are becoming frequent. However, they still are fearful and mistrustful, and many of them, especially the
old ones, often told about the "old days." There is one significant trend: the new generation has started to leave the Ayllu and go to the city. It seems that for the first time, a new horizon is open to them. There are men coming from among the Indians or mestizos, too, who had had close contact with the city civilization. Their words are listened to by the peasant but the effect, although significant, is slow. Political interest is backing many of the "leaders."

The peasant is armed and this power has made him hard to control. His communication with other levels of society is still poor. Not many of them can speak Spanish. There is the impression that a silent war is going on among the distinct social classes. Many times this is reflected by killings of other farmers, public functionaries or social workers (committed by the peasants). A visit to an Indian village can be full of surprises!

Mobility between the upper lower class and the lower class is not difficult and it is occurring at the relative rate of urban growth.

(5) -- Other relevant institutions common to all classes -- The Bolivian Educational System has, in the opinion of many, always been inefficient. The revolutionary government decreed the Educational Reform with the purpose of diminishing


34 Ibid.
the illiteracy rate; however, it is difficult to institute a sound educational system if a teacher earns an average of $35 a month, or about one-half of what a skilled laborer can make. Private primary and secondary schools are few and are open only to the top class. Rural schooling is practically non-existent. The state-owned schools are mostly in the towns and cities.

Within the educational system, the university student has become a very significant social institution. The "new generation" -- apparently uncertain of its objectives -- has a loud voice and enough education to strongly influence both the political and social circles. As strong advocates of change, the students jeopardize their studies for politics, and seemingly, through disorder and lack of discipline, originate instability in the university education system. Student strikes have occurred at an average of three per year in the last twelve years. The number of students is nevertheless too reduced to supply Bolivia with a force capable of implementing change as much as it has been professed.

Some Demographical Aspects of the Existing Society

(1) -- Geographical mobility -- The government has tried (with little success) to encourage internal migration of people from the poor Altiplano region to areas of greater natural resources. The failure, it seems, occurs because the traditions of the Bolivian peasant are still deeply rooted against change, and the physiological complexion of the Indian is weak and in more tropical climates cannot survive
due to the diseases it contracts, especially tuberculosis.\textsuperscript{35}

The increase of the urban population is relative. Most of the increase in the index of urbanization is due to the fact that the life span in the city is almost twice that of the country while the size of the family is about the same.\textsuperscript{36}

(2) -- Racial differences -- Despite the many changes of recent years, Bolivia still has three distinct ethnic groups. Racial integration is still far from being a reality. As seen before, each one of those groups has also become identified with a certain social level or class, each with different values and characteristics. Acceptance of one into another is slowly developing, but from acceptance to integration is a long way.

The breakdown of the population in 1961 was: 52.9\% Indian, 32\% "cholo," 14.8\% white, and 0.3\% others.

THE BOLIVIAN SOCIETY AND INDUSTRIALIZATION

The Bolivian society seems to have raised a series of barriers against the realization of industrialization. The degree of resistance to change varies with the different aspects of the society, but it is undeniable that the traditional -- stratified, low mobility, authoritative, and static technological advancement -- institutions and values of the

\textsuperscript{35}Junta National de Planeamiento, Planeamiento -- Revista Trimestral 3-4-5 September, 1961 (La Paz, Bolivia: 1962).
\textsuperscript{37}Osborne, op. cit.
society represent a formidable barrier to the introduction of further change. Also, as accepted in Chapter II under the implications of the defined industrialization, the society seems to be unable to generate change by itself. Very few institutions have either the power or the drive to do this; and if any of them does, it is not clear which one.

The society as a whole can be considered one large obstacle to new dynamic technology. The data presented is the best supporting argument to that statement above. Nevertheless, there are some specific types of barriers which deserve further explanation and classification. Here are some of them.

**Institutional Barriers**

(1) The agricultural sector and the landowners -- The traditionalistic agricultural sector, the lack of agricultural technology and efficiency, and the low output per capita have made agriculture a more tangible problem than industrialization. "The resultant inefficiency in the use of resources has been immediately apparent in the inefficient use of the land itself."\(^3\)\(^8\) The problem of producing enough food for the country outweighs the immediate importance of the manufacturing industry.

(2) The political institutions and attitudes -- The government, the army, the political parties, the political leaders, unionism, legislation, bureaucracy, etc., etc., are

significant barriers in many aspects of industrialization. The next chapter analyzes this area independently and so for the moment, this particular subject is not elaborated further.

(3) The entrepreneurial elite -- Hagen\(^{39}\) is a strong advocate of the role of the entrepreneur. He is not underestimating this elite. A capable entrepreneurial class can be crucial in the development of a nature not only as an agent of change but also in implementing it. However, for this to be a reality, there is a need to have a "capable entrepreneurial institution," which is now lacking in Bolivia. Of the few Bolivian professionals, only a minority are concerned with changing things. It is true that some of the managers introduce new technology, thereby playing the role of innovator; but their contribution is rather small in the macro-scale of the nation. Many of these innovators are foreigners or have an education from outside Bolivia. The problem is that they are too few. Nevertheless, theoretically speaking, the contributions of a few can get the system going if all other conditions are favorable. It is possible that innovators did not develop because there was not a place for them. Perhaps the ideal solution is to encourage the potential innovating individual if any achievements are to be expected from him.

(4) The church -- R.H. Tawney\(^{40}\) together with Max Weber


has attributed many of the differences in development in the Protestant and Catholic countries to differences in certain economic practices which are the by-products of the two religions. Although, the Catholic social doctrine has recently undergone changes, the Bolivian church still maintains a very passive and conservative attitude in matters of development. This attitude has certain influences proportional to the influence of the church in the population.

(5) The "Sindicatos" -- The union system in Bolivia is an apparent barrier to industrial development in the sense that it preaches social disturbances and instability. The effects have been a drop in productivity according to CEPAL values, disorder and undiscipline, absenteeism and strikes, little mobility, etc. 41

(6) The educational institutions -- The development of skills in labor is very slow because of the unfavorable distribution of the population and the inefficiencies of the educational system. 42

(7) The working class -- The industrial worker and the miners constitute another barrier to industrialization because without skills, they do not know about technological change despite their struggle for change: change of a different type -- social and political. However, it is necessary to remember that

social and economic development go hand in hand. \footnote{Ibid.}

(8) The Spanish language -- This is also a minor barrier since very little of the technically important work of the world has been written in or translated into Spanish.

**Demographical Barriers**

(1) The lack of geographical mobility caused by the semi-primitive status of the rural population, as well as inadequate distribution of the population puts human resources in the non-productive areas.

(2) The ethnical differences and the lack of racial integration put a barrier to progress since the degree of group-mutual tolerance causes mutual mistrust and a lack of basic common values. Change cannot be instituted in such a way as to affect each group in the most desirable way, at least in the short run. Each group is powerful enough to block any change originating from the other groups.

(3) The geography of the country tends to isolate both the people and the social institutions.

**SUMMARY**

The social development of Bolivia is one significant perspective from which to view its level of economic development and its industrialization. This chapter analyzed the important aspects of society in industrialization. It is not unsound to say that the social structure of our country
is a clear reflection of the type of intangible barriers that a process of industrialization encounters in a particular socio-cultural environment. Bolivia, still in a traditional social stage, has had a very slow development of its society. The existing institutions and values are partly a consequence of forces emerged from the past and partly a consequence of recent political developments.

The analysis of the social development of Bolivia was done following three historical periods: Pre-Columbian, Colonial, and Republican. These periods were used as arbitrary guidelines for the descriptive analysis. The description of the development of the social institutions and value systems lead to a more thorough description of the present social structure of the country. Today's society is found to be highly stratified and somewhat unprepared to sustain changes leading to a higher level of industrialization without some degree of disruption. Some specific institutions and value (besides the social structure as a whole) were considered particularly significant to the process of industrialization. Those institutions were analyzed to a larger extent and are expected to serve as a basis for further analysis at the end of this study.

Linked with the social aspects of industrialization, some demographical factors were considered also. The demography of the nation is perhaps the true background of the composition of the present society.

The next chapter is an expansion of this chapter. It
will analyze some factors of society which the author believes to be of very special significance: the political elements of the social structure. Political viewpoints are only a specialized aspect of society, but this study will consider them independently because of their mentioned importance. The criterion for analyzing the political factors is similar to the one used in this chapter. Nevertheless, the central point of analysis, instead of being the society, will be the government as the center of political activities.
CHAPTER IV

THE POLITICAL ASPECT AND INDUSTRIALIZATION

INTRODUCTION

Although politics can be viewed as a subset of the social structure of a nation, it deserves special attention due to its particular importance.

This chapter seeks to analyze the Bolivian case of industrialization from a political viewpoint. It is the author's opinion that the government and other political institutions play a crucial role in the development of a nation such as Bolivia. The role is crucial because, through history, the Bolivian government has seized increasing power, becoming a determinant factor in the country's economic and social structures. The government has gone from a regulatory institution to an institution of control. It has become the largest single enterprise (mines, land, and public utilities) as well as the largest single source of capital (foreign aid, loans, and banks).

Bolivia's political development is also an intimate part of its economic development. As will be seen, Bolivia has been traditionally a country lacking enough political stability to support a stable economy.

This political analysis is directed to explain how and how much the political development of Bolivia has influenced
its industrial development. It will also include some factors not necessarily political but closely related to the government and other political institutions. Such is the case of the role played by Bolivia on the international scene and the foreign influences on the Bolivian system.

POLITICAL BACKGROUND OF BOLIVIA

The historical background of Bolivia, as described in the previous chapter, is relatively important in explaining some aspects of political development. Nevertheless, since an analysis by periods has already been done, a repetition would hardly be helpful. A more practical approach would be to look at the individual development of the political values and institutions using historical periods only when necessary. Not all values and institutions originate in one particular period; therefore, if they are to be analyzed individually, the periods can be kept only as a reference and not as a criterion of analysis.

Although most of Bolivia's political values and institutions emerged at different stages from the Republican periods, the Pre-Columbian and Colonial periods left a very relevant contribution: a political scene controlled by a minority. Such a pattern has continued until the present and it has also been the possible source of the very accidental political development of the country.

In analyzing the political values and institutions, the author has chosen only those values and institutions which are relevant to the industrialization and economic develop-
ment of the country. Although the viewpoint of analysis is strictly "political," it is impossible to divorce totally some social and economic concepts from the analysis, since this chapter has the specific purpose of relating the political development to the industrialization of the nation.

The Development of the Political Values and Ideologies

In its 140 years of independence, Bolivia has had 65 different presidents. This is just one minor sign of the lack of political harmony in the life of this nation. It is quite true that many other nations have had similar political developments, but the Bolivian problem is that political instability continues while other nations (though not all by any means) have finally found an adequate balance of their political forces. All governments in Bolivia have lived with the constant "fear" of being overthrown. Not one government has been peaceful enough to avoid sending opposers into exile or prison. The number of subversive movements, revolutions, civil wars, etc. exceeds 200. Possibly the causes of such political instability could be found in terms of the development of the values behind the political institutions and individuals. Many arguments can theoretically explain such development. Some of them -- the most important ones in the author's opinion -- will be seen next.

(1) A white minority inherited the power from the Colo-

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nial period. Within the minority, there always was disunity. Preservation of power was a value that grew in the minds of the Bolivian politicians. Preservation of power was linked with strong party politics and party favoritism. The high need for power originated deep hatred between distinct political parties.

(2) In addition to party politics, personal ambition became one force within the parties themselves and the army in particular. Fortunes were spent in an eagerness to seize and hold power.

(3) "Militarism" gathered strength through the many wars that Bolivia was engaged in after its independence. Seldom was there a definite ideology behind a military government; but quite often the army stepped in with little reason but the personal ambition of a general. The military became a constant threat to any civilian government.

(4) Almost until the Chaco War against Paraguay (1932-1935), power preservation, personal ambition, and political militarism were the driving motives of Bolivian politics. Political issues as such did not particularly matter or did not exist in a consistent manner. The Chaco War brought up for the first time a true political issue: the social problem; that is, the problem of a vast Indian majority which had been ignored for more than one century.

(5) The Chaco War was an exercise in nationalism.45

Bolivia had an apparently efficient army, German trained with a German general officer (Kundt). Nevertheless, Bolivia lost the war. The reasons for the defeat are not relevant, but the political consequences of the war are.

When the war started to turn in favor of Paraguay, the Bolivian army was discredited and "Indians" had to be drafted "en masse" to supplement the volunteers of gente decente (decent people). Bolivia lost, but the balance of the Indian's inmobility and exploitation was disturbed when a sense of participation arose in the indigenous population. The equilibrium was unbalanced and the sense of participation, sometimes frustrated, grew stronger. The ferment was further leavened in the 1940's, by the rise of socialist and Marxist groups at the universities. 46

After the war, the political chaos continued but, a new movement called "Liberal" started to play a role in the scene. The movement was ultranationalistic, anti-imperialistic, and pro-indigenous. Liberal governments and traditional governments succeeded one another, the former acting legislation favorable to the Indians, the latter trying to suppress such legislation. The achievements were not great but the balance was permanently upset and the social issue gained strength.

The Chaco War also brought disruption between and within both the civilian rule and the military. The war was lost under a civilian government and it discredited civilian poli-

46 Ibid.
tical parties as far as the army was concerned; but within the army there was a further split between junior and senior officers -- the younger blaming the older for the loss of the war.

(6) The international events of the 40's greatly influenced the political ideologies of Bolivia. World War II had a great redundancy in the acting of the liberal and traditional governments. Initially, liberal movements (civilian liberals and junior officers) tended to support the Axis powers. As a matter of fact, fascist ideology was behind the founding of the MNR (Nationalistic Revolutionary Movement -- the revolutionary party of 1952). The party was founded after the death of a junior officer who was President (Bush -- 1939). The MNR came to power after the war, with another junior officer (Major G. Villaroel) as president. The United States refused to recognize Villaroel's government on the argument that it came to power with Nazi funds. Villaroel discharged his MNR cabinet and declared war on the axis shortly before the war was over. The United States recognized Villaroel, and six months later the MNR cabinet was again installed. During Villaroel's administration there were the first attempts to legislate against the wealthy mine-owners in order to gain popular support. Those attempts had little success. In 1946, the regime was terminated by a brief but bloody revolt in La Paz. After that the traditionalists took over once again.

(7) From then on, the political tension increased. The political issues were clear. During the traditional govern-
ments (1947-1951) there were several attempts of the exiled liberals (MNR) to return to power. Landowners and mineowners supported the traditional government. With the exception of a few liberal officers, the army was also supporting the traditionalists.

(8) The elections of 1951 -- partially gained by the MNR -- brought about greater political tension. The MNR did not obtain the necessary 51% of the votes. The last traditional president, Urriolagiotia, handed the government to a military "junta." On April 9th, 1952, the MNR took power through a bloody revolution. It truly was the first revolution in which clear political issues were involved.

(9) It is difficult to say what types of values and ideologies prevail in the Bolivian politician today. Inconsistency has become "synonymous" with Bolivian and Latin-American politics.47 Perhaps after the Chaco War politics shifted toward a more ideological level, but how these levels are defined is not known. If vague terms are used, the dichotomy traditional-liberal or right and left could be used; but that would be misleading because it appears that political ideologies take more the form of a continuum than the form of a dichotomy; and the values of the politicians constantly shift from one side of the continuum to the other. What has emerged from all the past will be seen ahead in this chapter.

The Development of Political Institutions

(1) The Universities

Universities in the largest Bolivian cities were originated in the Colonial period. Through history, the Bolivian university created most of the influential political leaders. Traditionally, education was a status symbol, and social status has usually been a necessary condition for a civilian to gain some political recognition. In the last two decades, the passive role of a university as a simple source of political leaders has become more active in the sense that universities themselves, through their student bodies, have developed into an independent force capable of overthrowing, or at least weakening, governments, or forcing them to take particular stands. In Bolivia, the idea of having a communist controlled university or a conservative university is accepted as a political success of its students.

(2) The Army

To divorce the army from politics is a rather impossible thing to do. It has gradually gained political power and significance. As it became an institution where ethnic groups mixed, the army went from being the instrument of the political ambition of high-ranking officers to a political institution under undefined ideological influences now gathered under the name of militarism.

(3) The Wealth-holders

Until 1952, the power of the mine- and land-owners was remarkable. In the first place, they were the source of
government revenue and political funds. In the second place, to protect their interests, wealth-holders were active political figures themselves in supporting governments of their choice.

(4) The Workers, Miners, and Peasants

Until the Chaco War, political participation by the masses had been almost none. After the war it began to increase, but it was not significant until after the 1952 revolution.

(5) The Political Parties

The lack of real political issues before the Chaco War made the parties more an instrument of common or personal interests. Family traditionalism was clearly identified with political parties; this matter has disappeared in time. The idea of party loyalty was never too strong in Bolivia. Apparently this was caused by the lack of sound ideological backing and the limited number of capable leaders and politicians.48

(6) The Government

The government as a political institution is a simple reflection of the other institutions and the prevailing values. One thing has characterized the government of Bolivia through time: it never reached maturity because it was in the hands of inexperienced politicians or irresponsible army officers; therefore it was never capable to perform well

in society, in the economy, or in politics. The number of
governments with sound policies are, in some respect, excep-
tions to the general rule.

THE EMERGENT POLITICAL SITUATION

As noted before, the 1952 revolution brought changes of different natures. On the political scene, the country experimented with drastic changes in some values and insti-
tutions.

The MNR stayed in power 12 years. The drastic changes imposed by legislation induced a chaotic economic situation after the revolution. All the reforms instituted seemed to be sound in principle but were not properly implemented. "The revolution consumed the revolutionaries." The nation-
alized mines started to lose money. The agrarian reform caused a sharp drop in agriculture production -- administra-
tive complexity and slowness dampened incentive of owners threatened by exploitation and potential owners who did not receive their titles.49 The army was dissolved and a new one was formed. The new army gained strength and political inde-
pendence. It took over in 1964 after the MNR was disrupted, and divided within.

The Emergent Political Values

The revolution seemingly eliminated extreme tradition-
alism. Everyone seemed to agree that change has been induced

49 Gordon, op. cit.
and that now a strong political issue seems to be the way to implement it. The ideological struggle appears reduced to one between the extreme left (Communism) and the center-left (Democratic Socialism). But this is not a dichotomy either because the large number of parties have stands somewhere between the two extremes. The revolution had also induced a greater political consciousness in the people. Industrial workers, miners, peasants, and higher social classes are in the political game today.

Eagerness to hold power is stronger than ever, although, momentarily with the exception of the exiled MNR, the opposition is less aggressive with the hope of prompt elections.

Campaigning has been increased as the universal suffrage is instituted. The support of the "masses" is now very important.

There is an increasing nationalistic sentiment. Today, as during the MNR years, the issue of the sea shore lost to Chile is back again. The phrase: "Bolivia demands her right to the sea" is sung and taught in schools, printed on mail stamps, and posted on walls.

Nevertheless, Bolivians seem not to have learned that political unity is a virtue. The idea of agreeing with someone is like accepting defeat. The issues have changed but the personal attitudes have not. The need for power is still stronger than a need for achievement. Politics is still seen as the "easy way out," as well as the fastest. The Bolivian politician seems full of fallacies and is very
unsure of himself. Political maturity appears to be even further away than before.

The Emergent Institutions

The political influence of the wealth-holder has almost disappeared. The richest people in Bolivia today are the politicians. The other political institutions remain, although the balance of power has changed somehow.

(1) The Universities

The universities still are an active center of political influences. They may be more political than ever. Both students and faculty identify themselves with a defined political ideology. The educational system reinforces that pattern because it allows the introduction of political leaders in those centers and student organizations.

(2) The Army

Following its traditional pattern, the army is as political as ever. Now in power, it remains temporarily united; however there are distinct groups of officers pulling the rope in opposite directions. No particular political ideology governs the military in general; but a mixture of political trends constitute the "militarism."

(3) The Parties

Unable to reach some kind of coalition, the political parties tear themselves apart through the press and their speeches, getting, every time, further apart.

(4) The Working Class (workers and miners)

Now more powerful than ever, the working classes have
the political votes to make the parties promise them almost anything. They are well organized in unions. Extreme leftist influence is strong and appealing to this class but the workers are many times very unpredictable in their support. The "sindicatos" are political units of power and great value for the politicians.

(5) The Peasants

The agricultural population has become an independent force by itself. It can be a valuable support to any party. At the moment, the appeal depends on the strength of the leaders. "Campesino" leaders have become crucial in the struggle for power and control.

(6) The Government

The image of the government has not changed much. To "be with" the government is a temporary status symbol. As an institution, the government is still staffed with low-paid, unqualified personnel operating a heavy bureaucratic and inefficient system. The economic dependence on foreign assistance has made the government much more sensible to the international picture. The U.S. influence in the internal affairs of the Bolivian government has unavoidably increased. The foreign influence has also become a political issue.

The Emergent Consequences

The political uncertainty, tension, and instability of Bolivia has created a very peculiar state of mind in the population. Although everyone seems interested in the develop-
ment of the political events, politics have become identified with corruption. Too many promises have been made and too many failures have followed for people to believe each other. Mutual mistrust and its consequences is a set reality.

Nevertheless, in a country where 70% of its people lived until recently in a feudal system, the problem is not to compare the past conditions with Utopia but to compare the past with the present. This is why a partial integration of a nation of Bolivians has been an extraordinary factor worthy of attention. Although chaos continues, it cannot be denied that there is a partial integration which might mean a gigantic step toward a better future. The fact that leaders have started to think about "implementing" rather than changing things is significant because somebody must find out some technology to be introduced to do the job. This is a long-range argument. In the short range, however, the political situation is still a problem to face if industrialization is to become a realistic goal for the nation.

SHORT-RANGE IMPLICATIONS OF POLITICS IN THE BOLIVIAN INDUSTRIALIZATION LEVEL

(1) The power of the government is definitely decisive in the industrialization of Bolivia. The availability and distribution of credit, the management of public enterprises, the establishment of a sound educational system, etc. are examples of vital factors of industrialization in the hands of the government. These factors can only be instituted by a solid government, and a solid government is the consequence
of a solid political structure. Bolivia does not have a solid political structure.

(2) Looking further into the details of the political implications there are several distinct political factors which concretely restrain the development of the manufacturing industry. Examples:

-- Lack of political consensus. Any policy favoring industrial development is bound to find strong opposition.
-- The bureaucratic system discourages delegation of authority and retards the handling of government policies.
-- Adequate legislation may exist but it is neither enforced nor well implemented. Political discrimination helps to widen the political gaps between parties.
-- Lack of capable people, together with the lack of solid political beliefs, leaves the political scene in the hands of unpredictable individuals who, once in power, lack self security and enough knowledge to carry on.
-- The problems of the government are too many and too complex. When a party takes power it faces enough problems inside the government before it can start to solve the problems of the nation.

(3) Foreign influence tends to become decisive in countries depending heavily on their international trade and foreign aid. Such influence can be detrimental or beneficial. Bolivia has failed many times to handle her foreign relations properly. In several instances, foreign assistance was not properly managed and its effects proved negative. In other opportunities, foreign aid contributed largely to the
betterment of the conditions. Nevertheless, there seems to be a disagreement between local and foreign governments about the true objectives of foreign aid. This conflict has given rise to a large anti-foreign attitude which is detrimental to the effectiveness of foreign assistance. The anti-foreign climate has become a political issue reflected in a stronger nationalism. However, the local government feels committed to foreign causes which often are contrary to the ideology of the party in power. The result: political inconsistency.

**SUMMARY**

This chapter is a brief outline of the importance of politics in industrialization. The problem has been treated separately from the socio-cultural analysis of Chapter III, because, in the author's opinion, politics could be a decisive matter in economic progress.

Political values and institutions were analyzed as they developed through time. Although changes have occurred, the Bolivian political scene remains full of uncertainty, instability, and immaturity. The consequences of this could be very detrimental to the question of industrialization.

The government, as the central political institution, fails to perform due to the inadequacy of solid political value systems and disunited institutions. Other external forces, such as foreign assistance, complicate the picture.

The next chapter will be directed toward the analysis
of the factors of industrialization from an economic viewpoint, that is, how some components of the economy of Bolivia are closely or indirectly related to its industrialization.
CHAPTER V

THE ECONOMIC VIEWPOINT
OF THE BOLIVIAN INDUSTRIALIZATION

Economics is one important viewpoint of industrialization and economic development. This chapter will attempt to analyze Bolivia's stagnant industrialization in terms of the nation's economy; that is, it will try to explain how the existence of certain economic factors in Bolivia have affected, limited, or discouraged its industrialization. With that purpose in mind, the factors chosen will be seen more as barriers to industrialization since, as seen in the previous chapters, one of the purposes of this study has been crystallized to be the answer to this question: why has Bolivia not industrialized?

Economically speaking, there are a number of factors directly relevant to industrial development. In this particular case only a few have been chosen, but in their analysis the author has tried to cover as completely as possible all the different aspects of the economy related to industrialization. Three factors -- land, labor and capital -- may be sufficient for the study's purpose since the others -- organizations, technology and scale -- are variations of the first three and the social, demographical, and political factors analyzed in the last two chapters. Nevertheless,
they serve the purpose of illustrating how the viewpoints overlap and how much the separate factors are interrelated.

The criteria of analysis of the economic factors will differ from the approach used when analyzing social and political factors. The analysis will be done more in terms of the present conditions of each factor than in terms of their development through time. This is done because the author considers that the present state of the economic factors represents an underdeveloped or non-industrialized economy -- a state which has not considerably evolved through time.

LAND

Land as an Agricultural Input

If industrialization is to be accepted as a "balanced" growth, as seen in Chapter II, it is not possible to deny the importance of agriculture. However, agricultural resources as such are not a sufficient condition for development. Their importance is relative, or as Kindleberger\footnote{Charles P. Kindleberger, Economic Development (2d ed., Economic Handbook Series, New York: McGraw Hill, 1965).} says: "More and better agricultural resources are better than less."

The development of agriculture can have an indirect influence on industrialization besides being a sector of the economy which is ideally expected to develop in parallel fashion to industry. Their relationship comes from the fact
that land is a consumer of both capital and labor and until land productivity is sufficiently high, resources will not be appropriately transferred from agriculture to manufacturing, especially if the country's labor force is mainly agricultural (as it is in the case of Bolivia).

Bolivia cannot complain about scarcity of land. The population density is only 0.5 people per square mile, which is around nine times less than that of the U.S. Only 2% of Bolivia's land is estimated to be under cultivation, while 21.7% of the territory is considered to be first-class arable land. This rich geographical heritage provides Bolivia with a climate appropriate for the cultivation of all types of produce. Therefore, the quantity and quality of agricultural land in Bolivia are not problems or limitations per se.

Nevertheless, land productivity is low. Although two-thirds of the population is engaged in agriculture, Bolivia imports about 50% of the value of the agricultural produce it consumes; in food and other products (cotton, etc.) indices of consumption are also low. (Bolivia consumes around 2,000 calories per capita per day in food. The U.S. or United Kingdom consume over 3,000.)

To explain that phenomenon, some reasons and hypotheses

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can be made; however, two things cover most of them: bad population distribution and lack of technological advancement. Here are some facts:

(1) Although two-thirds of the population is agricultural, 70% of them live in the "Altiplano." As high as 13,000 feet above sea level, agriculture in the Altiplano is difficult, almost impossible. The products cultivated there have not only a low nutritive value but also a low commercial and productive one.

(2) The Indians in the Altiplano are still using agricultural methods hundreds, or perhaps thousands, of years old. Oxen and wooden plows barely scratch the hard and dry land of the Altiplano. Tractors are being introduced but in such quantities that they are not worth mentioning. Commercial agriculture becomes even more difficult with the lack of appropriate transportation facilities to the potential markets.

(3) The underdevelopment of agriculture in Bolivia is a limitation to its industrialization. It is difficult, although not impossible, for a country to industrialize before it is capable of feeding itself (Russia, China) at a large cost and pressure. It is also very likely that institutions such as the government will make the agricultural problem of higher priority than the industry's. Labor, capital and technological efforts are attracted more to agriculture at the moment.
Land as an Industrial Input (Resources)

It has been calculated that over one billion dollars' worth of silver has been taken out of the mines around Potosí, during the colonial period. Since then, Bolivia has been known for its great mineral resources. This has been mentioned several times through this study. The author believes that its importance is already clear.

Mineral resources are also helpful but not essential to development; however, it is a fact that development implies big increases in consumption of many industrial materials. Among the most important are steel and energy. Iron and energy are not particularly the most common resources in Bolivia. Tin and others are. But, as Kindleberger says: "A country needs not only high grade mineral resources but easy transport to bring them together; ... in many instances ... cheap transport is more important than high grade materials." Bolivia's resources are hardly accessible at the moment, and the problem of transportation (to be seen next) neutralizes in part the advantage of such resources as Bolivia has.

Industrialization in Bolivia is affected by the conditions of its natural resources in the following ways:

(1) Since not all the Bolivian resources needed are

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54 Kindleberger, op. cit.
55 Ibid.
readily available, there is a need to import many of them. Foreign trade and balance-of-payment problems can, in this respect, be a setback to industrialization.

(2) The exploitation of natural resources is expensive. Capital, labor, and technology, as well as the government's attentions are diverted from possible industrial ventures. Since the productivity of the mines is low (deficits in the last ten years) due partially to social conditions, the number of problems is multiplied, especially if the country is small and its economy is centered around the exploitation of its resources.

(3) In Bolivia, all iron and steel consumed must be imported as manufactured products or raw materials. There are iron reserves of tremendous proven value (Mutun, near Brazil), but they are almost inaccessible. It was estimated that to produce one ton of steel from Mutun would cost $240 while good German or Swedish steel can be bought at $110 a ton c.i.f. La Paz.

(4) Mining could be a good place to start with technological innovation if the conditions so required; but, for that, capital, labor, and technology are necessary, all of which are not available in Bolivia.

(5) Energy, which has a strategic value for development and industrialization, is not produced in a large enough quantity. There are enough natural resources for energy but their exploitation and transportation costs are too high. At the moment consumption is low. Bolivia consumes 50 times less energy per capita than the U.S. (see Table
(6) Bolivia has become too "resource-minded." One out of three Bolivians studying outside the country is following a mining or geological career. This is relatively good if mining were a better long-range prospect than industry.

(7) All the natural resources (mines, energy, etc.) are hard consumers of capital, which, as it will be seen later, is necessary for any kind of development if correctly channelized.

Land as a Communicating Network

An important aspect of land for economic development is the way it lends itself to transportation and communication. Countries which are badly broken up topographically labor under a serious handicap. Bolivia's geography can be described as "multiple." The Andes cuts the country in half, isolating the "Altiplano" from the valleys and lowlands. The construction of roads linking production sectors is difficult and expensive. At the present these links are very poor. Here are some of the ways in which the transportation problem has affected (and may affect in the future) industrialization in Bolivia.

(1) Bolivia does not have "natural" transportation facilities (rivers) which at the moment are useful; that is, with the present economic and social distributions. The

\[56\text{Ibid.}\]
extreme eastern part of the country has navigable rivers going up to the Amazon river, but that is a long and difficult way.

(2) Bolivia has lost its coast line. It must, therefore, depend on Chilean and Peruvian ports for international trade. Imported and exported products incur additional costs of transportation.

(3) Internal transportation facilities are poor. Bolivia's 0.7 miles of railroads and 11.4 miles of roads per 10,000 people are insignificant when compared with 12.6 and 193, the respective U.S. figures. The reason for such backwardness is the heterogeneous topographic constitution which makes the cost of building one mile of roads four times greater than the U.S.'s. \(^57\) cost, in addition to the differences in knowhow, materials, and labor.

(4) The population is distributed in the most accessible but least productive regions of the country. The construction of a road is many times not justifiable because population is not where resources are and the government is not in a position where it can, politically, look too far ahead.

(5) As a minor point it can be said that the difficult patterns of roads and railroads increases the consumption of fuels and the wear-out rate of equipment. \(^58\)

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\(^57\) Secretaria Nacional de Planificacion y Coordinacion, Planeamiento: Revista Trimestral 6-7-8 September, 1963 (La Paz, Bolivia: 1964).

Air transport is still deficient, but it constitutes a good future prospect.

CAPITAL

It can be useful to review why capital is so valuable for economic development and industrialization. Besides being the main ingredient of growth processes, the importance of capital lies in the fact that it is a substitute for resources and labor. Kindleberger says that, "given a capital/output ratio of some sort (productivity of capital), capital formation leads to more output which provides a surplus for further investment..." Industrialization is a process of growth which, requiring technological innovation, needs capital to produce, to buy, to pay...etc. The author believes that the best way to analyze the effects of capital in Bolivia's industrialization is to look at the sources of capital formation, the channels of investment and distribution, and the demand of capital at different levels of the economy.

Sources of Capital

Sources of capital are either domestic (internal) or foreign (external). However, the problem here is to see whether capital has or has not been formed there, and why.

Internal Sources of Capital

The domestic sources of capital formation are many:

Kindleberger, op. cit.
capital markets, savings, business investment, credit and loans, etc. The behavior of the individual sources is rather irrelevant for the limited purpose of this study because most of the sources failed somehow in forming adequate capital in Bolivia. Most of the reasons were common to many of them:

(1) A country such as Bolivia, with a low income per capital (est. $90 a year), has a rather low propensity to save. Bolivia's is around 0.09 (or 9%) when most of the countries in higher stages of development have between 20 and 36%. 60

(2) Capital/output ratios in Bolivia may be low (figures in this aspect are very unreliable), but that possible advantage is offset by the social, political, and economical instabilities which induce an instability in the ratio. Inflation, for example, is common, and the lack of markets as well as the economies of scale prevent people from investing more.

(3) There has usually been a lack of traditional industrial investment because the usual main objectives of the managerial class were short range profits and not an expanding operation.

(4) In that fashion, gross capital formation as a percent of gross national product was below 10%61 in Bolivia

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60 Figures are comparing consumption vs. national income. See Gordon, op. cit.
while other more advanced countries average over 15%.  

(5) The low rate of domestic capital formation makes Bolivia dependent on its foreign sources.

External Sources of Capital

There are many sources of external capital: foreign private investment, foreign loans, government loans, development institutions, foreign aid, etc. The flow of funds from abroad has been improving in Bolivia. That improvement can better be explained by the interest taken by the other countries in Bolivia and not by the manners with which Bolivian conditions welcome the capital. The flow, however, has been far from sufficient. Its effects are not very noticeable at the moment. Here are some of the reasons why foreign capital formation has not had the desired intensity.

(1) Inflation in the last few years has not only been disastrous for the economy but it has also discouraged all types of foreign investment.

(2) Political and social factors have made private investment a very risky matter. Investment laws and guarantees have not been adequate, and even when they were, governments did not fulfill their contracts. Almost every new government has decreed a new investment law. The last one is dated October 29, 1965.

(3) The investment rates of return have been very high in many instances, but other factors, just mentioned above, have generated a great deal of long-range uncertainty. The

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\[ \text{Gordon, op. cit.} \]
attitude of the people (especially top class) against foreign investment ventures has usually been negative (mistrust, etc.).

(4) Internal markets have not developed and that has limited even further the foreign investment in manufacturing industry. Investment had the tendency to go to government agencies, which usually did a good job in mismanaging the funds.

(5) There was a lack of qualified national personnel to handle aid and credit funds. Foreign companies had a difficult time staffing their companies with capable individuals.

(6) Foreign aid ended up many times as a political fund or was badly allocated. A great deal of projects failed on that basis. Bolivia has received more U.S.A. aid per capita in the last ten years than any other country in the world.63

(7) Agencies for economic development found problems in allocating their funds due to the lack of well presented projects and inadequate managerial planning.

(8) Private industrial planning, due to the limitations of the economy and industrialization, has concentrated more on labor-intensive manufacturing. Lack of technological advance has contributed to this fact.

Channels of Investment and Distribution

Closely linked to the sources of capital formation are the institutions in charge of distributing and incrementing the capital investment. Here are some of the highlights of

their behavior as related to the Bolivian industrialization.

(1) The 1952-58 inflation caused a serious setback in the Bolivian banking system. Since then, commercial banks and other commercial credit institutions have become extremely conservative in the credit policies. The central, mining, and agricultural banks, main fiscal sources of commercial and industrial credit, almost went bankrupt. The monetary stabilization fund established with American aid and that of the International Monetary Fund put those banks on their feet again but with different attitudes.

(2) The low propensity to save makes commercial banks depend on other sources of money -- government and foreign aid. Some of those funds are successfully allocated in the economy, but most of the successful allocations have been made in the mining and agricultural sectors, while industry was usually treated as a second alternative. Funds are available for these firms of strong financial backing and they are the least needy.

(3) Industrial banks and other sources of industrial credit are very limited in number and lending capacity. The political and economical situation forces them to be extra careful with their credit. Again, small and middle size firms find problems when looking for adequate sources of credit.

(4) The government, which is clearly obligated to furnish social and economic overhead, finds problems doing that because of its own internal problems.

(5) Other institutions' contributions are negligible.

(6) When the private businessman is the borrower, he
is not happy to share his decision-making power with the lending institutions. Traditional entrepreneurs have become reluctant to borrow funds, nor are the credit institutions willing to take the risk unless they are given certain control on the objective of the funds. Long-term financing is difficult in an inflationary economy.

The Demand for Capital

The process of industrialization encounters an obstacle in the way capital is channeled to all sections of the economy. As said before, the present main source of capital is foreign. Foreign capital, with the exception of private foreign investment, is usually channeled by the government of Bolivia and goes mostly to primary productive activities. The reasons are rather obvious.

(1) The government owns the largest mining enterprises. Failure of these would mean failure of the government.

(2) Social conditions of the peasant demand more capital in agriculture than in industry. It is also a good short-range political policy to give agriculture a priority.

LABOR OR MANPOWER

Labor is one of the ingredients of successful economies, not necessarily so essential in quantity as in quality. Differences in the level of economic development can be expressed in terms of the labor force. Kindleberger quotes Kuznets to illustrate the relevancy of labor quality: "The major capital stock of an industrially advanced country is not its physical
equipment; it is the body of knowledge amassed from tested findings of empirical science and the capacity and training of its population to use this knowledge effectively."  

The labor conditions in Bolivia have been partially analyzed under social factors (Chapter III); however, it might be useful to review some of its aspects under an economic viewpoint. Here are some of the reasons why the labor conditions in Bolivia constitute a powerful obstacle to the process of industrialization.

(1) The Bolivian distribution of labor, its mobility, its values, etc. contributes largely to a negative environment for the introduction of change. The transferring of human resources from agriculture to industry finds formidable barriers in certain institutions -- such as the Ayllu -- and some demographic aspects of the country.

(2) Industry demands not only a leading elite, but also middle-management technicians, supervisors, etc. with a minimum level of education. Bolivia, besides having one of the highest illiteracy rates in the world, has also one of the lowest in technically-inclined population.

(3) Productivity levels of Bolivia are very low in all sectors of the economy. The educational level plays another important role here.

(4) Investment in education is low ($0.70 per person

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against $92.0 in the U.S.). The decline of illiteracy rates has been small.

(5) The private managerial group has with a limited and inefficient stock. In Bolivia, the following practical questions remain unanswered. 65

(a) What are the requirements in the four broad categories: managerial, technical and supervisory, skilled and unskilled?

(b) From which areas and which sectors of economic activity is it that the different requirements could be drawn?

(c) What are other alternatives of manpower?

The author believes that it is the entrepreneur's job to provide an answer to these questions at the micro-level of the firm and the government's job to do it for the nation. This has not been done. The labor problem in Bolivia has not been carefully treated. The ideas of recruitment, commitment, advancement, and maintenance of a labor force as seen by Kerr, Harbison, Dunlop, and Myers 66 has not been explored in any fashion in Bolivia.

(6) Finally, social legislation is more advanced than the country itself, causing patronal-workers conflicts of complex nature. Discipline and disorder, usually reflected


in the incredible number of strikes and walkouts, cause instability in the already-weak industrial sector.

ORGANIZATION

Organization is one form of labor which needs some special attention. The man involved in this kind of work can be called the "entrepreneur," the manager, the risk-taker, the decision-maker, the administrator, the boss -- that man is the organizer. Hagen and others consider him the axis of development. The organizer is found in the government, the business, or the bank.

Bolivia has partially failed to create a responsible, adequate, and dynamic class of organizers. Here are some of the reasons why and its consequences on industrialization.

(1) Politically the government was usually more concerned with power to do something itself.

(2) Less than 0.1% of the "literate" population had sufficient education to see a need for innovation.

(3) Private business enterprise has always played a minor role in the economy and the private entrepreneurial class never found the support to become stronger, developing as individuals with a low need of achievement and a high need for power. Enterprises were more interested in maximizing short term security than in long term innovation and growth. Family-owned firms dominated the scene and still do. Risks

67 Kindleberger, op. cit.
were not taken for enduring security. Promotion was not done for the limited markets. Planning was out of the question.

(4) The government as a central economic change generator did not place emphasis on the formation of an organizing class. The criterion of maximization was more of a political than an economical nature.

(5) Innovation has usually been in the hands of foreign technicians hired on a temporary basis. Training programs were never formalized; therefore, when a technician left, a new one had to be brought in to replace him. This implies that technology, always there, was not communicated.

(6) Bolivia has not yet developed a conscious civic attitude in its leaders. The leading class found its inner needs satisfied with power and social affiliation.

TECHNOLOGY

Although this subject has been indirectly treated in the analysis of both labor and organization, it deserves separate comments just for the purpose of emphasizing its importance. Technology in fact can be thought of as a primary resource which is not an autonomous ingredient in the function of production as it has been treated in this study until now. The importance of technology can be best illustrated by quoting Schumpeter: "...national supply of productive means (labor, capital, resources...etc.) is obviously an important factor..., but it is completely overshadowed by the fact that development consists primarily of employing existing resources in a different way, in doing new things
with them, irrespective of whether those resources increase or not." Technological change is the principal contributor to economic development and industrialization. Bolivia's level can be partly explained first by its lack of technology and second by its negative attitude toward accepting technological change. Here are some examples of the role that technology has played in the Bolivian setting.

(1) The macro-sector of the economy of Bolivia (mining) has partially deprived the other sectors of the necessary capital and attention to introduce innovation there.

(2) Agriculture must reach some level of development -- achieved partially through technology only -- before innovation and progress can be brought to the industrial sector in adequate amounts.

(3) Bolivia has the great advantage of being able to follow the examples set by other countries. This is an asset because development from scratch, without help, requires not only innovation but also invention, which implies a rather sophisticated level of education at this point in time.

(4) The innovator, change agent, or enterpreneur is not willing to do his indicated task for the many reasons given through this chapter.

SCALE

Scale is the size of the factors of production and

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above all the size of the markets. Bolivia has a sparse population with a very low purchasing power. It must be accepted that the efficiency of production is partly a function of its scale. Taking a closer look at some of the factors of scale, the implication of a small market in Bolivia could become clearer.

(1) The economies of scale -- that is, larger production levels at a lower cost -- are not advantageous to Bolivia because its market cannot absorb that much.

(2) Low income per capita tends to limit the demand for some kinds of products and increase the demand for others. This is clear in Bolivia where food, clothing, and alcohol account for 75% of the consumers goods sold.

(3) Distributional systems, advertising, etc. became restrained and expensive, discouraging the business entrepreneur from taking risks in markets which are practically virgin.

(4) Labor, capital, and resources are used inefficiently because of lack of economies of scale, discouraging innovation to avoid further increases in cost.

(5) The private-enterprise sector tends to be in the hands of small businessmen who are the only ones capable of reaching the customer. Small business tends to be less dynamic than big business.

(6) Transportation, in addition to being expensive, becomes even more expensive by the scale of the markets. To ship two cases of beer might be as expensive as a truck load.
Markets grow with transportation, which, as seen before, is poor in Bolivia.

EXTERNAL FACTORS

As a side note to the economic factors, the author believes that there are some external factors whose influence in the process of industrialization in Bolivia should not be neglected. They are not necessarily economic factors per se, but their relationship to the economy has made the author locate them in this chapter. The main ones and their implications are the following:

(1) Bolivia, as a mineral-producing country, has had its economy fluctuating with the international market prices of the minerals. These exports, for example, were always a substantial part of Bolivian balance of payments. When the prices are high as during World War II, conditions were favorable, but a fall in prices can mean serious problems.

(2) As a raw-material producer, Bolivia has been too dependent on its foreign trade. There are several things against that: the transportation, other country's competitive advantages, and Bolivian high productive costs caused by many reasons outlined before. Constant trade deficits had to be financed by foreign aid or by currency reserves which brought about the inflationary pressures and internal economic problems.

(3) Immigration into Bolivia has been poor and not welcomed as much as it should have been. Immigrants went to
This chapter has seen the Bolivian industrialization from an economic viewpoint. It has analyzed a number of factors frequently identified as the important ingredients of an economy. It found that most of these factors largely contribute to the present stage of industrialization in Bolivia. Of all the factors, three of them have been given special attention: land, capital, and labor. All three present important aspects which must be carefully considered in any study of Bolivia's economic development. Land is quite adequate as a resource but inadequate in its present utilization. Capital was not formed at desirable rates for a number of reasons; aid was not distributed effectively. Labor is a problem, not only for its low quality, but also due to its uneven distribution and supply.

Other factors -- organization, technology, scale, and external economic factors -- completed the chapter by illustrating other interrelated aspects of the economy as it relates to the concept of industrialization. These factors are mostly complementary, and later, when factors are integrated, it is possible that they will be included as parts of other factors which are believed to be more important or basic. Nevertheless, their analysis represented a useful viewpoint.

With the analysis of economic factors, the second objec-
tive of this study is fulfilled. The components of industrialization have been analyzed under three different viewpoints. Now, the final step of integrating these factors is the next logical one. The next chapter is designed to integrate these factors. It is true that not all factors seen will be included in the integration because, as seen in this chapter, many of the factors were analyzed under more than one viewpoint; however, that partial repetition serves the purpose of illustrating the complexity of the problem.

The next chapter plans to integrate by re-classifying the factors according to their dependency, importance, and manipulatability. The goal of the chapter is to fulfill the third objective of this study.
CHAPTER VI

THE INTEGRATION OF THE FACTORS

INTRODUCTION

In Chapter I, it was stated that the analysis of factors from different viewpoints was not sufficient to fulfill the final objective of this study. The interdependence of the factors of industrialization demands integration if a more comprehensive picture of the Bolivian case is to be achieved.

The present chapter will integrate the factors by re-classifying them according to: (1) their mutual interdependence, (2) their importance, and (3) their individual degree of manipulatibility or flexibility to change when pressure is applied. This study is not seeking a solution to the Bolivian industrialization problem; but it is attempting to take the first step toward solving that problem by defining and concretizing what the problem is. This is the reason why this chapter will be focused only on the re-classification and re-arrangement of factors and not on suggesting specific plans for action.

In Chapters III, IV, and V, a consistent criterion of analysis was not used because each different viewpoint -- social, political, or economic -- presents special characteristics which make necessary and practical the use of different
approaches. Since many of the factors were common to all viewpoints, the different approaches partially illustrated also the interrelationship and mutual dependency of the factors. However, it is not yet clear how important one group of factors is in relation to another or how much weight one factor carrier on the level of the Bolivian industrialization. This chapter is directed to expand on that subject too by using one common criterion of analysis.

Before going into the analysis of the mentioned interrelationship, importance, and manipulatability of the factors, the author considers that it would be very practical to review the factors analyzed in the last three previous chapters, so that the reader has a more concise idea of the factors in play.

THE FACTORS OF INDUSTRIALIZATION -- A COMPREHENSIVE REVIEW

Throughout the social, political, and economic analysis of Bolivia, a number of factors were brought up in a rather disconnected manner under different headings and names. The review of those factors -- which may lead to a further classification of their interrelationship, importance, and manipulatability -- has the practical purpose of bringing all factors together without any particular emphasis on one viewpoint as it was done before; in other words, this review is directed to answer as simply as possible what the components of the Bolivian industrialization are. Also, this review expects to clarify the conceptual image of some of the factors because in the past analysis overlapping of concepts could not
be avoided -- one factor was brought up under more than one viewpoint and some factors were nothing else than the reflection of others. For example, an inadequate educational system from the socio-cultural viewpoint was also reflected in the low rate of qualified manpower formation from the economic viewpoint.

Here are the re-classified factors deemed relevant to the industrialization of Bolivia.

**Capital**

Three aspects of capital are particularly relevant:

1. The inadequate capital formation -- both domestic and foreign.
2. The ineffective allocation of capital in the proper sectors of the economy.
3. The inappropriate channels of distribution of capital, reflected in an inefficient banking system.

**Labor**

The factor labor will only define the productive human resource; that is, only one important aspect of population. It is difficult to avoid some conceptual overlapping of the factor labor with other factors related to society and population. Although it is not possible to divorce labor from some sociological implications, the present idea of it tries to disregard the social significance of labor.

Several aspects of labor are relevant to industrialization:

1. The uneven distribution of labor in the sectors of the
(1) Land as an agricultural input is adequate in respect to the quality and quantity of available land; however, this is only a potential advantage because presently, agriculture in Bolivia lacks other necessary ingredients: technology, labor location, capital, and accessible markets, to make it an asset to industrialization.

(2) Land as an industrial input is potentially available but it is not properly exploited for the encouragement of industrialization.

(3) Land as a communicating network is not the best (topography). This fact has several relevant consequences: first, transportation facilities at the moment are lacking and, second, the cost of making them is high. The geography of the country is rough and separates markets from resources.
Technology

This is an important ingredient of industrialization and weighs heavily in the Bolivian case due to the following reasons:

1. There is little institutionalization of technological innovation.
2. Technology is not accepted but is rejected.
3. The little available technology is centered around the mining sector of the economy.
4. Agriculture apparently demands more technology than does industry.
5. Foreign technology is not always available for the Bolivian conditions. Creativity is poor in Bolivia.

The Social Structure

The relevancy of the whole society can be summarized in the following statements related to the Bolivian industrialization.

1. Bolivia is a traditional society with static technology, stratified social classes, a number of authoritative ruling institutions, and a very low social mobility.
2. There are forces within the society acting for and against its possible disruption which may be presently leading it into a transitional stage toward modernization. The changing forces have gathered some strength and apparently have set in motion some elements of society; however, the observable results are not yet significant.
3. Through the social development of Bolivia, there has
not been one social (religious, class, sect, ethnic, or political) institution that has had an inherited sense of innovation or played the role of a true entrepreneurial "elite."

At the moment, the managerial group, or "elite" (managers, businessmen, professional), and the wealth-holders (landowners and mineowners) fail to perform an innovating role, although they may be -- due to the power they hold -- the only ones qualified to do so. (The terms entrepreneur, manager, professional, or sometimes wealtholders, are used interchangeably in this study. Nevertheless, to clarify their meaning, it can be said that all those terms, with the exception of "entrepreneur," have a more restricted meaning, while entrepreneur is used to signify the innovator or risk-taker disregarding whether he is a manager, a professional, a wealtholder, or a businessman).

The three previous statements are too general for the purpose of this study and this chapter in particular; therefore, it is necessary to include under "social structure" more detail about the Bolivian society. To do this in a concise form the social classes will be taken as starting points, and within each social class only the relevant institutions and value systems will be included.

The Top Class

The following institutions of the top class have large social significance and also are relevant to the concept of industrialization.

(1) The managerial elite and the wealth-holders. These
are small institutions in Bolivia and fail to perform their potential roles of "entrepreneurs" because: (1) most managers and professionals are also owners or "patrons" and choose security against risk or innovation; (2) their need of achievement is still low and it is seldom encouraged by other conditions and factors; (3) the manufacturing industry in particular never played an important role in the Bolivian economy; (5) although "paternalism," a supportive element of static technology, is starting to disappear, its influence is still dominant in the value system of the managerial class of Bolivia.

(2) The aristocracy, also in the process of disintegration, is a supportive element of social immobility and segregation.

(3) The political leaders (as a social institution only) are motivated more by the needs of power and affiliation than by the need of achievement. Their main values are reflected in mistrust and in an inability to delegate authority and fix responsibilities.

(4) The army is also an institution of social significance and exerts both positive and negative influences on the social structure: (1) it is an institution highly motivated by the need of power; (2) it opposes change and identifies itself as a conservative group; (3) it is powerful enough to impose its will; (4) it is unique because it allows social mobility; and (5) it is the nest for ideological groups which constantly cause its disunity.

(5) The church has been a traditional institution with
great social influences in the lower social classes. It reinforces the traditional system by assuming a conservative role. Its image is changing recently.

The Middle Social Class

As defined in Chapter III, the middle class in Bolivia is very small in numbers. Its institutions -- white collar workers, teachers, small businessmen, bureaucrats, and others -- are of little importance; but some common values to all the institutions are relevant to industrialization.

1. Upward mobility into the middle class is almost impossible. The class rejects outsiders.

2. The class's educational level is considerably higher than the educational level of the lower classes.

The Upper Lower Class

Several institutions of this class are significant to the social structure as well as to the concept of industrialization.

1. The industrial worker and the miner have certain characteristics of large importance: (1) an eagerness for social as well as political change; (2) a dissatisfaction with the authoritative management systems which are starting to emerge over paternalism; (3) a very low level of education; (4) a very low level of income and standard of living; (5) they are motivated to educate themselves if they had the means to, and incorporate themselves into the middle class; (6) they are afraid of technology, change, and innovation; (7) stirred up sentiments caused by the political pressures of the unions;
and, (8) they socially isolate deviants not conforming with the norms of the institution.

(2) The union and its leaders form an institution which exerts definite pressure in the process of industrialization by: (1) considering any change a threat to their security and the security of the workers; (2) in many instances, holding enough power to discourage any change not in agreement with their own objectives; (3) preaching social disturbances and instability; (4) being an instrument of other political institutions; and (5) identifying themselves with the upper lower class thus exerting more influence on the workers and miners.

(3) The "campesino" leader, as opposed to the union leader, enjoys a higher social status than the people he leads. His influence on the peasant's value system makes him important in the process of industrialization because: (1) he often encourages geographical mobility of the "campesino" -- mobility toward the city, and (2) he encourages social change in the peasant's class.

The Lower Class

The peasant's values have some relevancy in the industrial development of Bolivia. The following aspects are important: (1) the peasant lives in a very traditional social system; (2) the little knowledge of Spanish of the Indians widens the urban-rural gap; (3) the geographical and historical isolation of the Indian continues; (4) agricultural technology is static in its lowest stage and productivity of the soil is low; and (5) the peasant is fearful and rejects the white man.
Other Institutions Common to All the Social Classes

The present educational system is not adequate enough to internally supply the necessary forces of change: (1) technological education at the universities or other technical schools is poor and highly restricted by the lack of funds, lack of facilities (establishments), limited enrollment, and out-dated methods; (2) the family education still tends toward the close family system: the strong father and housekeeping mother. The children are raised under the shadow of the parents. Family ties and traditions tend to perpetuate the discouragement of social mobility to a large extent; (3) the illiteracy rate is too high and it discourages the establishment of a technically oriented educational system.

The students as an institution play an excessively active role in society. This role affects industrialization because: (1) the students jeopardize their studies; (2) they become vulnerable to political ideologies and activities; (3) they are becoming motivated by the need of power without responsibility; (4) disorder and lack of discipline are being originated in the mind of the potentially educated class of the nation.

There are other institutions which are common to all the social classes but they are not considered relevant to the concept here in question.

The Political Structure -- The Government

Several aspects of the political structure and the political institutions and values are important to the indus-
trialization level of Bolivia.

Government in Bolivia plays a crucial role in matters concerning development. This is because of its power -- both economic and constitutional. Nevertheless, the government has failed to perform its constructive task because it apparently is (1) too politically minded (oriented toward short-range "national interest" goals which can show immediate results), (2) inefficiently organized and staffed mostly with unqualified low-paid personnel, (3) conflicting with the interest of the private entrepreneur in regard to what to do and how to do it, and (4) too unstable to be consistent.

The political parties through (1) lack of consensus, (2) excessive power-motivation, and (3) undefined political ideologies, constitute a supportive factor of political instability and ineffective leadership.

The constitutional and legal institutions of the country, such as the judicial system or the social legislation, are inadequate and discouraging to the development of the nation. The fact that law is enforced on a discriminatory basis also supports political instability and encourages corruptive practices.

The political attitudes of the army are detrimental to the achievement of some kind of political stability because they weaken the position of the government and of the political parties.

Other political institutions such as the working class, the unions, the peasants and their leaders, etc., constitute
supportive forces to the political disorder. Aspects such as the lack of capable leaders, the social changes already instituted by the 1952 revolution, the economic conditions of the lower classes, etc., greatly influence the value systems of those institutions and indirectly affect industrial development.

**Demographic Elements**

Certain demographic aspects have a great significance in the present and the future industrialization of Bolivia.

(1) Most of the population is rural and the rate of urbanization is still low.

(2) Rural population is distributed in non-productive areas.

(3) Racial differences are too remarkable and nearly identifiable with the social structure of the nation. There are several important points regarding these ethnic groups: (1) the Indian constitutes a majority whose value system can be identified with the peasant's; (2) the "mestizo," excluded by the Indian and rejected by the white minority, has developed a resentful sentiment toward both groups. The mestizo constitutes a very distinct social and ethnical group of increasing importance and growing force; (3) the white minority, still holding power, develops inner defenses against the Indian and the mestizo, and fights more for its own security than for all the interests of the country.

(4) At the moment, distinct ethnic groups still prevail but in the long future racial integration is unavoidable to some degree. The predominant value system then is unpredictable.
The classification above shows a number of factors and their respective relevant aspects in a semi-independent form; that is, it neither puts the emphasis on the interrelation of factors nor tries to explain how and why each factor directly affects industrialization. The manner in which each factor relates to the industrialization of Bolivia was covered in the three preceding chapters; however, the interrelationship of the factors and their degree of importance are subject to be seen in this chapter.

THE INTERRELATIONSHIP OF THE INDUSTRIALIZATION FACTORS

The mutual dependency of factors is clear in some instances but not in others. Their degree of interdependency varies with the factor. For example, the external or foreign capital formation seems unrelated to the demographic characteristics of the nation, while the internal or domestic formation does not; land as an agricultural and industrial input apparently is an independent variable but the productivity of agriculture and the mines is clearly related to the level of available technology. Similar statements could be made about all the factors and their aspects; however, that would mean an endless task. The author believes that one good way to illustrate how all those factors interrelate is to bring back the conceptual definition of industrialization as a starting point and, by going deeper into the theoretical implications of the term, gain an insight of how the component factors interact.
As accepted in Chapter II, "industrialization is the growth of the manufacturing industry." In other words, it was stated, industrialization means transferring of all types of resources from primary productive activities to secondary productive activities -- the word "transferring" implying a whole process of change. If the process of change has not started or if the transferring is not occurring at a desirable rate, there is a need to induce change by artificial means. This is usually done by a "change agent." Thus, the generation of change can be conceived as the primary implication of the dynamic process of industrialization.

The primary implication or precondition is dependent upon: (a) the availability of the resources to be transferred: qualified labor, adequate amounts of capital, and technology; (b) the availability of a "mover" or change agent who, depending on the circumstances, could be: (1) a capable entrepreneurial institution with high need of achievement and proper risk levels in the setting, or (2) the government with a stable political ideology. If these institutions conflict with each other, or neither of them has enough control over the conditions because it is not sufficiently motivated or does not have the adequate means to do the job, the stagnant conditions are bound to remain. This is in part the case of Bolivia, where a weak entrepreneur feels further discouraged by the attitudes of the government; and (c) the availability of institutions and systems generating sufficient resources, properly motivated entrepreneurs, and mature political attitudes of the political institutions.
After the generation of change, given the proper resources and change agents, there is a need to implement that process. The implementation of change is a second implication of industrialization. Many times change was generated but it never got off the ground because it was not properly implemented. That is the case of the 1952 revolution. The implementation of change again demands the existence of the proper resources and their adequate utilization. It also demands creativity and innovation applied to maintain the process in motion.

The initiation and implementation of change is a dynamic process that induces further change in all aspects of the nation's systems; therefore, a third implication of industrialization is the fact that the system must be able to withstand the change and assimilate it as much as possible. Disruption is unavoidable even though in some instances it is less violent than in others. As the process of change occurs, the change agents must know how to control it and must be able to adjust themselves to the newly appearing conditions. The Bolivian social conditions -- still in a traditional stage -- are forces acting against the assimilation of change and strongly influence the attitudes of the potential change agents too.

A traditional society with a static technology will oppose any imposed change. If the change agents are powerful enough, the opposing reaction of society will become an endless process of re-adjustments of values, institutions, and general structure. Sometimes, however, society is capable of assimili-
lating an initial change; but after re-adjusting to the conditions imposed by that change, society reinforces itself and becomes static once more: the power of society balances the power of the change agents. Thus, the success of a process of industrialization depends on the strength and capabilities of the change agents to cope with the emerging situations.

After so much theory, the interrelationship of the Bolivian factors can be summarized in a few concise statements.

The stratified Bolivian society, with its authoritative institutions, traditional value systems, little mobility of any kind, and an inadequate distribution of the population is a source of internal forces acting against the generation, implementation, and assimilation of change. The scarcity of resources such as capital, qualified labor, and technology complicate the situation even further, making innovation a hard thing to introduce. From that point of view, the Bolivian problem seems to lie on the conditions of the potential change agents who at the moment have not enough power and resources to overcome the internally resisting forces of the social structure. This situation would be hopeless if the motivation of the change agents would depend wholly on the social conditions of the nation. Fortunately, that mutual dependency is not total and other factors can be used to strengthen the condition of the change agents.

It is important to understand the interrelationship of the factors if some type of judgement can be done about their individual importances. Figure VI-I summarizes in a more
graphical and concrete manner what this section of the present chapter attempted to illustrate: the mutual relationship of factors as a starting point to classify factors according to the importance of their role in industrialization.

THE DEGREE OF IMPORTANCE OF THE FACTORS OF INDUSTRIALIZATION: AN ARBITRARY WEIGHTING

Importance here is not a measure of how much a factor has contributed to the present level of industrialization but a measure of how much can a factor contribute to the future level. It is possible that Bolivia has not developed its manufacturing industry because its mining wealth seemed to be enough or because its social conditions never seemed to allow it; however, if Bolivia is to become industrialized, the importance of mining or the social conditions might not be as great as the importance of capital or the abilities of the entrepreneurial elite.

The criterion to be used to classify factors by their importance is related also to the theoretical concept of industrialization. It has been established that, despite the dynamism of industrialization, there are in it several identifiable priorities to set the process in motion. Arbitrarily also, the author has labeled those priorities as "generation," "implementation," and "assimilation." Although it is true that once the process starts to move these implications occur simultaneously, the same thing is not necessary when setting the process in motion. For all practical pur-
FIGURE VI - 1
INTERRELATIONSHIP OF INDUSTRIALIZATION FACTORS IN BOLIVIA

CHANGE AGENTS
* Entrepreneur
* Government
[inadequate in Bolivia]
"GENERATION OF CHANGE"

PRODUCTIVE RESOURCES
* Capital
* Qualified labor
* Technology
[scarce in Bolivia]
"IMPLEMENTATION OF CHANGE"

SOCIO-CULTURAL SYSTEM
* Institutions (society)
* Value systems
* Demography
[traditional stage in Bol.]
"ASSIMILATION OF CHANGE"

: Implications of Industrialization
: Relationship and Mutual Influences

- Inadequate formation and utilization
- Ineffective allocation
- Transformation and transferring
- Implementation and innovation

- Discouragement
- Reinforces lower need of achievement
- Ineffective management practices

- Maintain stratification and traditional values
- Provokes formation of resisting forces
- Social instability and political immaturity

- Reinforce traditional values
- Promote inefficiency in institutional system
- Maintain stratification

- Static technology
- Low domestic capital formation
- Inadequate educational systems
- Low labor mobility
- Adversity to change

- Paternalistic trends
- Resistance to change
- Low incentive to achieve
- "National interest" ideologies
- Higher need for power and affiliation

- Inadequate formation and utilization
- Ineffective allocation
- Implementation and innovation

- Maintain stratification and traditional values
- Provokes formation of resisting forces
- Social instability and political immaturity

- Reinforce traditional values
- Promote inefficiency in institutional system
- Maintain stratification

poses, Bolivia's industrialization level can be accepted as static; therefore, there will be an initial sequence of generation, implementation, and assimilation until the process has become wholly dynamic. This sequence of occurrence can serve as a basis for the criteria rating the importance of the factors.

The purpose of this classification is to set a basis for establishing later a realistic set of principles of future induced change.

The weighting of factors by their importance is arbitrary. Only three levels will be recognized. This does not mean that a trichotomy defines the importance of the factors; on the contrary, within each level there is a continuum as there is also one between each level. No more than three levels were chosen because, in the author's opinion, the purpose of this classification is rather limited and three levels are sufficient to gain the necessary insight on the factors' importance.

Factors of Primary Importance

Factors of primary importance will be defined as those factors which must essentially change to some degree if industrialization is to be possible.

Potential Generating Factors

The Entrepreneurial Elite -- The lack of a qualified innovating entrepreneurial institution, low need of achievement, paternalistic attitudes of the managerial group, low
level of creativity and innovation, and poorly-focused foreign technical assistance for the encouragement of a strongly motivated entrepreneurial institution, are all factors of primary importance.

The Government -- The traditional image and policies of the government regarding: (1) the manufacturing industry in the nation; (2) the role of the private entrepreneur in the economy of the country; (3) the way to solve the industrial problem; (4) the role of foreign economic and technical assistance; (5) the importance of an educational system encouraging the introduction of new technology; and (6) the legislation needs to encourage the availability of productive resources are also factors of primary importance.

Potential Factors of Implementation

The Productive Resources -- (1) capital: low internal and external rates of formation; inadequate allocation of capital investment; and ineffective distribution by financial institutions; (2) labor: inadequate formation of skilled, supervisory and technical labor; poor mobility and insufficient amounts of qualified labor; (3) technology: weak educational system; low levels of modern technical equipment; excessive labor intensive industries; disproportionate distribution of technology in the sectors of the economy; insufficient domestic creativity and research with unsuccessful adaptation of available foreign technology. The availability of these resources does influence the success of getting the process in motion.
The Political Institutions -- Political parties, the army, the unions, and political leaders are factors of primary importance. The following originate political instability, jeopardizing the functions of the government and also influencing the attitudes of the possible entrepreneurial elite: (1) their lack of consensus; (2) their extreme but not solid ideological inclinations; (3) their high need for power; and (4) their insufficient individual power.

Factors of Secondary Importance

Factors of secondary importance will be defined as factors which do not have to change prior to the process of industrialization "take-off," but will change as a consequence of it. These factors influence the state of the factors of primary importance and their interrelationship is usually direct; however, they are not the sole determinants of the factors of primary importance.

Factors Related to the Process of Assimilation

The structure of the society, its traditional value systems, and its authoritative institutions, as well as the lack of mobility or the static technology, are factors of secondary importance due to their great influence on factors of primary importance and their significance in the industrialization process.

The family system in all classes and the Ayllu in the lower class are psychological influences in the new generations which tend to perpetuate the traditional values of
society and the individuals.

The educational system which is inadequate is the origin of: (1) the low educational standards of the nation; (2) the detrimental political attitudes of the student; (3) the lack of encouragement of technological advancement; (4) supportive forces for the perpetuation of traditionalism.

Other Factors of Secondary Importance

The demographic factors are also highly influential to the factors of primary importance but are not essential in the process of industrialization. The bad population distribution is a barrier against the supply of labor, and the distinct ethnic groups may be a contributory element to class stratification.

Foreign relations, foreign assistance, economic aid, international markets and suppliers, and foreign political influences are factors which could influence the availability of productive resources as well as the attitude of the change agents. The foreign relations gain relevancy as the industrialization process progresses.

Factors of Tertiary Importance

Factors of tertiary importance will be defined as factors which are either semi-independent of industrialization or derived from factors of secondary importance. The condition of these factors could be influential in the condition of more important factors but never totally determinant of them.

Semi-Independent Factors

The natural resources (or land as an industrial and
agricultural input) have had a great relevancy in the past process of development of Bolivia; however, their significance in a possible process of industrialization is helpful but not essential. It is true that some implications of the exploitation of natural resources are more important than the availability of them. For example, tin is a source of foreign exchange and also of foreign capital; but whether or not tin is available is less relevant than what it can imply if produced efficiently.

Transportation facilities and the topography of the nation are semi-independent factors somewhat detrimental to industrialization; however, their role is not determinant and, in fact, the conditions of transport facilities may be temporarily only with the upcoming of air transportation.

Factors Derived from Others

The scale factors (size of the markets, location of the markets, and purchasing powers of the markets) are derived from the social, economic, and demographic conditions of the country, and are not totally irrelevant to the industrialization process since industrialization is directed to solve that problem.

Some institutions such as the landowners and the middle class have a recent tendency to become less and less important.

Other factors, such as the illiteracy rate, low domestic capital formation, religious attitudes, etc., are simple reflections of other factors and are not too important if they are looked at independently.
The classification of the factors according to their importance is related to the alternative strategies to follow if factors are to be artificially manipulated; but before strategies are discussed, it is necessary to analyze the factors according to their ease of manipulation or flexibility. This will be the next step in this chapter.

THE MANIPULATABILITY OF FACTORS

It can be assumed that there are no factors which are totally endurable. Modern technology, enough capital, and qualified labor can make important changes; however, considering the Bolivian possibilities, some factors can be changed with less difficulty than others. The degree of manipulatibility of one factor is only a measure of how much effort -- measured in tangible and intangible costs -- is necessary to change that factor toward a predetermined direction. The tangible and intangible costs involved in inducing the change are usually a reflection of the amount of resources put into and the consequences derived from the change. In addition, those costs are measured in the scale of the possibilities of the country. Bolivia does not have abundant facilities in terms of productive resources; therefore, its costs in inducing change in some factors might be considerably higher than in other nations.

The artificially induced change has a dynamic nature because once change is provoked, the scales measuring the manipulatibility and the importance of factors will also change;
thus, such disruption in the values of each factor must be visualized and even predicted to some extent if some success is expected.

The scale measuring the manipulatibility is also arbitrary. Several levels have been chosen; however, the line dividing one level from the next, lower or higher, is in many cases very thin, since within one level there are also some degrees. The levels are useful guide points to gain a better comparative idea of the factors' manipulatibility.

Temporarily Non-manipulatable Factors

To induce change in this type of factors, the cost and pressures are unrealistically high. Extreme force and disruption may change them, but for all practical purposes they may be considered unchangeable for a long period of time. These are the factors:

(1) Land as a natural resource and a geographic communicating media. This is a set of almost endurable factors. Some of their implications may be changed more easily by taking advantage of the available resources; but, the "amount" of available resources -- minerals, energy, or geography -- can only be changed at an unreasonable cost.

(2) The demographic characteristics of the population -- especially the racial configuration -- will take several generations to change even if immigration is strongly encouraged. The distribution of the population in the country is also another factor which might change but not in the immediate future. For reasons seen in Chapter III, projects of internal
migration have failed.

(3) The value systems of some institutions, in particular the peasant's, which are deeply rooted in tradition, are too large in magnitude at the moment and cannot be changed without violent disruption.

Factors of Slow Manipulatibility

These are factors which can be manipulated to a certain extent at a large but feasible cost and over a very long period of time. They are likely to become more flexible as a consequence of the manipulation of other factors.

(1) The educational level of the masses is a factor that may demand great tangible and intangible costs if it is to be improved. A sound educational system is feasible, but to educate 70% of the Bolivian population is a matter of several generations and many complications.

(2) The value system of various socio-cultural institutions belongs to this category. It includes in particular:

(1) the upper-lower class (workers and miners); (2) the unions and their leaders; (3) the present middle class; (4) the army; (5) the church; (6) the aristocracy; (7) the intellectuals; and (8) the students. The value systems referred to are for the institutions as a whole and to a minor degree to the values of their individuals in each one. It is quite possible that individuals of one or more of the mentioned institutions will change faster than the institution itself if an attempt is made to influence their personal values; however, the whole image of the institution is bound to remain unchanged for some time.
(3) Mobility of labor can be slowly induced at a reasonable cost. This is in reference to the mobility of labor between the economic sectors which involves a slight increase in the rate of urbanization. Nevertheless, this change is slow and cannot be precipitated with ease.

(4) The improvement of the inefficient productive systems of exploitation of natural resources; that is, taking better advantage of what land can produce. Here the author is referring to the improvement of the systems making available (non-manipulatable) land more productive; for example, building more roads or river dams.

(5) The improvement of the standard of living of the population as a means to encourage greater internal capital formation through personal savings and increasing the purchasing power of the population -- greater markets. This factor is the consequence of the whole process of development and is bound to occur very slowly.

(6) The political attitudes of the political leaders, which is one source of the lack of consensus, and the fear to delegate authority and responsibility. This is a very difficult but not impossible matter.

Factors of Intermediate Manipulatability

These factors can be manipulated with relative ease at a reasonable cost and results can be obtained in a short (around one generation) period of time. They are:

(1) the development of an innovating entrepreneurial elite. In other words, the encouragement of individuals with high need
of achievement -- especially those already in the managerial group. This factor has a good degree of manipulatability because the potential innovator is looking for supportive forces and some status identification which through some educational and academic institutions can be given to him.

(2) Parallel to the encouragement of a possible entrepreneurial elite is the encouragement of a qualified labor force of lower levels of management. To have a well trained and technically oriented labor force does not necessarily mean to have a well educated one. A well trained man-power could be the immediate consequence of a sound educational system which, as seen before, may pursue long range mass education. Training programs for skilled labor, supervisors, and technicians make the factor of unqualified labor a fairly manipulatable one if enough effort and time is put into it.

(3) The low domestic capital formation can be manipulated regarding the industrial savings and reinvestment of profits, if some legal encouragement is given to private industry.

(4) The low level of technology is a factor that may be manipulated by introducing modern productive methods and encouraging capital intensive industries. Computers in the universities and small research centers may produce immediate results at the technological level encouraging further innovation at the same time.

(5) The government's bureaucratic system can be manipulated to a large extent by reorganizing its administrative system. As it has been offered many times, use can be made of the foreign administrative assistance. By making the
government's machinery relatively efficient, the government's policies could be more reliable and effective.

Factors of High Manipulatability

These are factors which can be manipulated without difficulty and their cost of manipulation is relatively low for the Bolivian facilities. The results of manipulation of these factors can be important and immediate.

(1) The low foreign formation of capital can be manipulated (from inside the country) to be greater and more advantageous. If the government provides sufficient legal and economic incentives it is possible that foreign investment in Bolivia will increase.

(2) The partly ineffective use of foreign economic aid and foreign technical assistance can be corrected with some ease. For the case of industrialization, foreign economic aid could be channeled to improve some of the highly important factors which are retarding or impeding the process. Technical assistance, instead of being directed to make mines (which are nearly depleted) more productive, could be directed to the encouragement of private manufacturing industry, innovating entrepreneurs, and the technical qualification of the labor force.

(3) Government policies can regulate: credit and capital allocation, channels of distribution of capital—banks, etc., the legal order, and the educational system. These factors can be manipulated to favor the process of industrialization by giving a greater economic importance to manufacturing
industries, encouraging the proportional allocation of capital into primary and secondary productive activities, reorganizing the educational system and giving a greater support to education, and engaging in research and social work to encourage mobility of labor. Although the manipulation of the government's general attitude or policies as such is not a factor of high manipulatability, some aspects (as the ones mentioned above) can be manipulated without jeopardizing the government's "national interest" stand. In addition to all this, the government can contribute indirectly to the process of industrialization in one other respect: the management of the nation's economic infrastructure; that is, the availability of energy, transportation facilities, etc., which are part of the government's programs. Manipulation of the factors has been attempted many times with varying degrees of success; however, the question still is what factors should be manipulated when and how much. This depends on the integrated objective of the manipulation and the implementation necessary to follow the change. In Bolivia, as said before, many factors have been manipulated at different periods of time, but the results were never significant enough because the changes stopped one step too short due to the lack of integrated objectives and the lack of implementation. Which are these objectives, and where should manipulation start? These questions are partially analyzed next.
THE DYNAMICS OF MANIPULATION

Apparently the manipulation of factors must be directed to change those factors of primary importance: the entrepreneurial elite, government attitudes, utilization of productive resources, and the value systems of the political institutions. In addition, it seems that change should start by manipulating those factors of high and intermediate manipulatability. Using these two premises -- where to go and how to start -- the problem's solution seems simple, but it is not. It is not a simple solution because the complex relationship and mutual dependency of factors originate conflicts between factors of parallel importance in such a manner that the manipulation of one factor may cause emergent opposing forces in the conflicting factor, thereby offsetting the change's effect. Such is the case of the internal conflict that exists between the "necessary" values of the potential entrepreneur and the political attitudes of the government.

Government vs. Entrepreneur -- A Conflict

When commenting about the interrelationship of factors, the author mentioned the need of a "change agent." Again, when analyzing the importance of factors, the change agent and its implementing resources were rated as factors of primary importance. The entrepreneur and the government were classified as main potential change agents and through the rest of the chapter they were considered as one semi-integrated group. This is not true. The entrepreneurial elite will conflict with the interests of the government and it is very possible that
such conflict is the basic cause of the static industrialization of Bolivia. Here are some of the reasons:

(1) The "national-interest" ideology is powered and motivated by politics (politics essentially meaning the preservation of power). No government will risk popularity by making a move that apparently brings opposition; on the contrary, most of the government's moves are directed toward satisfaction of the "masses."

(2) Industrialization is a very disrupting process. It is quite possible that during its initial stages a great deal of dissatisfaction in the people -- especially the workers -- will be generated. This could be against the government's national interest policy.

(3) The entrepreneur feels subjected to forces which are stronger than his need of achievement and the constant failure of his efforts make him conform. In Bolivia, the power of the government is overwhelming when compared with the size, potential, and present importance of an innovating entrepreneurial elite.

(4) The government of Bolivia has also gathered great economic power by becoming the largest business enterprise itself. Its interests, however, are centered in primary productive activities (oil and mines) which are the most important sources of public funds. This fact keeps the government's attention away from the development of a manufacturing industry. The "beggar sitting on a gold chair" still lives in the imagination of the politician and power-holder. This makes the con-
Conflict under discussion more severe.

This clear conflict is the source of a number of secondary conflicts which were indirectly implied in the course of this study. Such is the case of the demographic and social conditions vs. the supply and mobility of labor; the general economic conditions vs. the formation of capital, etc. Conflicting situations of factors are simply one other way to look at the Bolivian problem and stage of development. This viewpoint could be particularly useful in planning alternative courses of action and strategies to follow in the manipulation of factors.

The Basis for a Solution

The political-entrepreneurial conflict essentially involves the factors of primary importance and possibly explains the complexity of the Bolivian problem. In the opinion of the author, any strategy of change must be directed to the reconciliation of objectives of those two institutions. Departing from here, it can be seen that there are many alternatives. They can range from a pure socialistic solution that suppresses all private initiative to a "laissez-faire" solution of private enterprise domination. Possibly the best solution lies somewhere in between, considering the conditions of all the other factors involved. For this to be a reality, it is absolutely necessary that both entrepreneur and government realize their mutual dependency and work to find a common goal with the integrated use of the available resources. The goal in this case could be industrialization.
Some Specific Recommendations

Assuming that the best solution of the Bolivian problem is some kind of compromise of the conflicting "change agents," it is possible to set forth some specific principles which can serve as a basis for designing a possible plan of action.

(1) Any possible strategy must keep in mind that the objective of industrialization is directly reflected in creating a change agent and providing him with the factors of implementation. The objective can also be worded as the formation of an integrated political-entrepreneurial conscience.

(2) The logical step to follow is to plan the action by analyzing those factors of high and intermediate manipulatability and applying change in those factors which contribute to the change of the "most important ones" sequentially; that is, direct change first to factors of primary importance and second to factors of secondary importance. All this, of course, in agreement with the possibilities of the nation.

(3) Both potential change agents -- government and entrepreneur -- must approach each other. This might be helped, for example, by manipulating factors of high and intermediate manipulatability. The government, without changing its national-interest stand can encourage industrial development by changing its policies regarding credit allocation, legal order, and education. The entrepreneurial elite can be encouraged by receiving internal and external support.

(4) The manipulation of factors must also be directed to: (a) capital formation; (b) encouragement of technological innovation and creativity; (c) the mobility of labor; (d) the
improvement of skills of labor; (e) the formation of solid economic infrastructure; and (f) other productive resources.

(5) The idea of "balanced" growth must not be forgotten. The effective utilization of productive resources can develop primary productive activities as an essential complement of industrial development.

(6) Finally, any pattern of action will result in disruption and change of "all" factors. This process must always be present in the minds of the change agents who at the proper time must know how to visualize the state of the conditions and apply the proper measures.

The number of principles outlined above are specific when compared with the number of generalizations that this study has dealt with, but they are also very general and vague in many respects. Nevertheless, further specifications of very concrete nature are beyond the scope and purpose of this paper.

SUMMARY

This chapter is the integration of the whole study. It has reviewed the factors of industrialization analyzed in the previous chapters and brought them together under a semi-integrated viewpoint. The complete integration was impossible because many of the factors have a very specific economic, social, or political nature. In bringing the factors together, this chapter has reclassified them according to their inter-relationship and mutual dependency, their degree of importance,
and their manipulatability.

The interrelationship of factors is complex. To gain an insight on the subject, the author went back to the theoretical concept of industrialization recognizing three important phases of it: generation, implementation, and assimilation. All factors can be identified with one or more of these phases.

The importance of the factors was found directly related to the mentioned phases of industrialization. Certain aspects of certain factors are more important than others. Factors of parallel importance were, in some instances, found to conflict with each other.

The manipulatability of factors was analyzed from an arbitrary viewpoint. Emphasis was put on the tangible and intangible costs compared with the Bolivian possibilities.

Finally, the analysis of the dynamic effects of manipulation lead to the conclusion that the conflicting situation of factors of primary importance can be considered the basic goal of a strategy of action. A set of principles was outlined as a possible guideline for planning alternative courses of action.

The Bolivian industrialization problem is far from being simple. Even the attempt to define what the problem is runs into complications and conflicting situations difficult to concretize. It is expected that this chapter achieved its purpose of giving the reader a general idea of the dimension and composition of the problem.
The next chapter is a summary of the study and an outline of the conclusions drawn from the analyzed data. Some personal opinions of the author about the subject of development and the Bolivian case will close the study.
CHAPTER VII
SUMMARY AND CONCLUSIONS

This study has been a case study of industrialization. It has attempted to classify and organize some factual data about Bolivia and interpret it in terms of modern development theory.

Three specific objectives, as outlined in Chapter I were pursued: (1) to establish an arbitrary level of industrialization for Bolivia; (2) to analyze the factors of the industrialization of Bolivia in order to determine how and why the country has reached its established level; and (3) to integrate those factors in order to reach general conclusions about the failure of Bolivia to industrialize and the future of industrialization there. Each objective was considered to be an integral part of the study as well as a means to fulfill the general purpose of it.

For each one of the objectives, several concrete conclusions were drawn from the analysis of the available data. These conclusions, seen from the guiding viewpoints, are summarized next.

The Industrialization Level of Bolivia

Through the analysis of the data -- mostly numerical -- it was concluded that: if the growth of the manufacturing industry is accepted as a basic concept of industrialization,
Bolivia stands low in the world's scale of industrial development.

Analysis of Factors of Industrialization of Bolivia

The industrialization factors were analyzed under three distinct viewpoints: social, political, and economic. A number of conclusions were reached through that analysis which was performed following different adapted criteria, best suited for each individual viewpoint. These conclusions are:

(1) Bolivia has a stratified social structure with a number of authoritative ruling institutions and a high percentage of traditional rural population. The society has not developed modern values; thus, its technology has remained static and internal forces have grown supporting the traditional system.

(2) The value systems of the political institutions, especially the political parties and the army, have developed a legally strong but functionally weak government. The power of the government over the industrialization of the nation is truly crucial.

(3) Demographically, the uneven distribution of the population and the distinct ethnic groups have become supportive forces of the traditional social system of Bolivia.

(4) Economic productive resources -- land, capital, labor, and technology -- have not developed in the quantity and quality desired or helpful for industrialization. Most of these economic factors are scarce or still in the stage of "potential" advantages. The fact that the Bolivian eco-
nomy has been for so long centered around mining, has been detrimental to the growth of the manufacturing industry.

(5) Most of the emergent conditions of the economy, society, and government of Bolivia tend to perpetuate the state of static technology and the low level of industrialization.

The Integrated Factors and Change Conclusions

The analyzed factors of industrialization were re-classified under a semi-integrated viewpoint in order to reach some conclusions regarding the interrelationship of the factors or their mutual dependency, their degree of importance, and their degree of manipulatability or flexibility to change. The conclusions from that triple analysis of integrated factors lead the way to a number of final conclusions and propositions about the inducement of change or how and where it should start if a higher level of industrialization is to be achieved for Bolivia. Here are some the main conclusions obtained from the integration of the industrialization factors.

(1) The factors are mutually dependent. In most cases, it is virtually impossible to distinguish cause from effect. Their mutual dependency causes a factor to change when another is artificially changed. In Bolivia, the process of change has not started -- at least in a noticeable manner; thus, it seems that the factors are interrelated in such a way that they tend to reinforce each other in a static condition.

(2) The factors capable of generating change or "change agents" (entrepreneur and government) together with the
necessary factors to implement that change (resources: capital, qualified labor, and technology) were found factors of primary importance; that is, if their conditions, presently static, don't change to some degree, industrialization is virtually impossible for Bolivia. Other factors, of secondary and tertiary importance are set in the dynamic process of change after the original change is generated. Initially, resistance to change will increase as pressure is applied; but later change might be less difficult at a cost of a strong initial disruption.

(3) The manipulatibility of factors shows that there are some factors which can be easily manipulated toward the conditioning of the factors of primary importance; however, if the manipulation of factors is not integrated with the dynamic process of change manipulation may be fruitless; that is, manipulation must be adaptive to the new appearing conditions.

The analysis of the integrated factors and the conclusions reached lead the way to a final set of conclusions outlining long range principles for the inducement of change.

(1) The existing conflict between the political attitudes of the government and the values of the private innovator or entrepreneur originate a deadlock in the possible process of industrialization. Any manipulation of factors should be directed to reconcile partially those institutions of primary importance -- total reconciliation was accepted as being impossible. Nevertheless, regarding the particular problem of industrialization, government and entrepreneur
can meet and join their own characteristics to initiate and implement the process.

(2) Other conflicts, usually described as representatives of the "vicious circle of poverty" (low standards of living vs. internal capital formation, etc.) are conflicts derived from the one between the factors of primary importance.

The outlined conclusions seem to point out an almost hopeless situation for future improvement. Perhaps that is true but the author believes it is not. The study has slanted toward analyzing the situation from a negative stand; that is, factors and conclusions were more directly related to answering why Bolivia fails and has failed to industrially grow stronger. Although all that painted a dark picture, Bolivia is not necessarily condemned to be a non-industrialized country. It is true that the country still has a long way to go to precondition itself to the dynamic process of industrialization; however, there are some factors, partially ignored through this study, that may develop as positive factors in a future betterment.

Here are some examples of them:

(1) The ethnic structure of Bolivia has had one particular characteristic: a small ruling white minority, a growing outcast "mestizo" population, and a large oppressed Indian majority. In principle (an argument followed in this study), it seems that a lack of ethnic integration is a demographical factor tending to reinforce static values in the whole population; however, in the particular ethnic
structure of Bolivia, one group is worthy of special attention: the "mestizo." This group will undoubtly grow faster than the other two because continuing racial mixture is unavoidable. As stated before the fact that the "mestizo" is excluded by the Indian and rejected by the white people is the possible cause of his hostile and resentful personality. This could be translated -- in Hagen's terms -- to mean that the mestizo is a status deprived individual. Although the present and immediate attitudes of the mestizo may be strongly reactionary, it is also probable that need for achievement will positively develop in him. At the present moment it is difficult to find data supporting such a possibility but that may be due to the general lack of reliable information and the reduced amount of studies done in that area.

(2) The international consciousness of the problem of development is constantly growing. The advancement of modern technology is making available new techniques and methods of research which are expanding through the whole world. Scholars of more industrialized nations are searching for new and faster solutions to the problems of other less industrialized nations, and are becoming more and more willing to lend this knowledge for the betterment of nations such as Bolivia.

(3) The gap between developed and developing nations tends to become larger as time goes on. This directly implies a shift in industrialization measuring scales. As the scales shift upward, underdeveloped nations find themselves lower and lower in that scale. This, undoubtly, is a motivational
factor for a nation having some contact with the rest of the world. In other words, if a nation is seen as one individual in a society of nations, the lower its status is the greater its concern to improve it if such individual is conscious that there are feasible ways. It is true that this is a long range argument, but considering the rapid evolution of technology in developed nations, the argument might become relevant sooner than expected. The author is not trying to defend the argument that Bolivia will eventually industrialize but to present some factors that may favorably influence its potential to do it.

There are other factors which may be considered positive in nature or potential. The situation is not by any means hopeless but is not too simple either. How feasible is it in the immediate future? The answer is not a short one because it would contain a great deal of "ifs" and "buts;" in any case, it rests mainly on the motives of the Bolivians who under proper circumstances can considerably shorten the "waiting" time.

SOME FINAL PERSONAL REMARKS

This thesis was perhaps useful to illustrate only the complexity of the problem of industrialization. The fulfillment of its original objectives was only partial because the number of answers to a question of this nature is nearly infinite. Any answer tends to reflect bias because it is almost impossible for one person to impartially master all the vari-
ables involved. Nevertheless, an attempt to deal with an issue of this scope is undoubtedly a challenging and largely stimulating experience. Development is a problem of the mind because it is there where it starts, and to fully understand the components of such a fascinating field is certainly impossible. The best that could be hoped for is that people, especially scholars in this area, share their findings and search for new ones so that at least some partial solutions can be found.
APPENDIX
### TABLE II - 1

**INDUSTRIAL DISTRIBUTION OF GROSS DOMESTIC PRODUCT**

1950 - 1960

(Averages for Countries Grouped by Levels of Per Capita Income)

<table>
<thead>
<tr>
<th>Per Capita Income Group¹ (U. S. Dollars)</th>
<th>Total</th>
<th>Primary² Production</th>
<th>Manufacturing</th>
<th>Utilities and Transport</th>
<th>Construction</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Industrialized Countries: (Bolivia)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than $125</td>
<td>100%</td>
<td>48.2%</td>
<td>11.7%</td>
<td>17.7%</td>
<td>0.5%</td>
<td>21.9%</td>
</tr>
<tr>
<td>$125 to $249</td>
<td>100%</td>
<td>47.0%</td>
<td>11.0%</td>
<td>5.0%</td>
<td>4.0%</td>
<td>33.0%</td>
</tr>
<tr>
<td>$250 to $374</td>
<td>100%</td>
<td>40.0%</td>
<td>14.0%</td>
<td>6.0%</td>
<td>5.0%</td>
<td>35.0%</td>
</tr>
<tr>
<td>$375 or more</td>
<td>100%</td>
<td>27.0%</td>
<td>17.0%</td>
<td>6.0%</td>
<td>5.0%</td>
<td>46.0%</td>
</tr>
<tr>
<td>Industrialized Countries:</td>
<td>100%</td>
<td>13.0%</td>
<td>32.0%</td>
<td>11.0%</td>
<td>6.0%</td>
<td>47.0%</td>
</tr>
</tbody>
</table>

¹ Per Capita Income Group

² Primary includes Agriculture and Mining

---

**SOURCES:**


Bolivian GDP per capita in 1963 was $106.7; income per capita is estimated at $90.
### TABLE II - 2

OUTPUT PER SECTORS OF THE ECONOMY
(As Percent of Gross Domestic Product)

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Mexico</th>
<th>Colombia</th>
<th>Bolivia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5.7%</td>
<td>25.0%</td>
<td>41.0%</td>
<td>33.0%</td>
</tr>
<tr>
<td>Mining and Oil</td>
<td>1.7%</td>
<td></td>
<td></td>
<td>13.1%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>30.7%</td>
<td>21.0%</td>
<td>16.0%</td>
<td>12.1%</td>
</tr>
<tr>
<td>Transportation</td>
<td>6.5%</td>
<td></td>
<td></td>
<td>8.5%</td>
</tr>
<tr>
<td>Construction</td>
<td>5.3%</td>
<td>7.0%</td>
<td>10.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Govt. Utilities</td>
<td>1.9%</td>
<td></td>
<td></td>
<td>8.6%</td>
</tr>
<tr>
<td>Services</td>
<td>48.2%</td>
<td>48.0%</td>
<td>33.0%</td>
<td>23.2%</td>
</tr>
</tbody>
</table>

**SOURCES:**
(2) "Economic and Program Statistics," USAID (Bolivia), October, 1964.
TABLE II - 3

COMPOSITION OF MANUFACTURING OUTPUT
(as Percentages of Total Manufacturing Output)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>YEAR</th>
<th>NON-DURABLES</th>
<th>DURABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Beverage, Food, and Tobacco</td>
</tr>
<tr>
<td>United States¹</td>
<td>1950-60 average</td>
<td>32.06%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Mexico¹</td>
<td>1955</td>
<td>61 %</td>
<td>23 %</td>
</tr>
<tr>
<td>Colombia¹</td>
<td>1953</td>
<td>88 %</td>
<td>45 %</td>
</tr>
<tr>
<td>Bolivia²</td>
<td>1963</td>
<td>90.60%</td>
<td>44.2%</td>
</tr>
<tr>
<td></td>
<td>1955</td>
<td>89.90%</td>
<td>34.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Durable Goods</th>
<th>As Percent of Total Imports*</th>
<th>As Percent of Manufactured Products Consumed by Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food, Beverages</td>
<td>18</td>
<td>72.5</td>
</tr>
<tr>
<td>Other (textiles, etc.)</td>
<td>32</td>
<td>42.8</td>
</tr>
<tr>
<td>Durable Goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer (furn.)</td>
<td>5</td>
<td>69.7</td>
</tr>
<tr>
<td>Capital Goods*</td>
<td>30</td>
<td>98.9</td>
</tr>
</tbody>
</table>

* Total imports for 1964 were $102.3 millions

a Main ones include:

<table>
<thead>
<tr>
<th>% of total imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery</td>
</tr>
<tr>
<td>Vehicles, Spare Parts</td>
</tr>
<tr>
<td>Construction Equipment</td>
</tr>
</tbody>
</table>

### TABLE II - 5

**BOLIVIA -- INDICES OF CHANGE**  
1950 -- 1964

<table>
<thead>
<tr>
<th>Year</th>
<th>Manufacturing Industry Output (1950=100)</th>
<th>Gross Domestic Product (1950=100)</th>
<th>Contribution to GDP per Active Industrial Worker (1950=100)</th>
<th>GDP per Capita US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>100.0</td>
<td>100.0</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>1951</td>
<td>104.2</td>
<td>109.0</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1952</td>
<td>102.1</td>
<td>106.4</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>1953</td>
<td>102.1</td>
<td>96.6</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1954</td>
<td>114.4</td>
<td>97.3</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1955</td>
<td>116.0</td>
<td>104.3</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1956</td>
<td>107.1</td>
<td>99.7</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1957</td>
<td>75.0</td>
<td>96.3</td>
<td>90</td>
<td>123.0</td>
</tr>
<tr>
<td>1958</td>
<td>82.3</td>
<td>98.7</td>
<td>93</td>
<td>123.0</td>
</tr>
<tr>
<td>1959</td>
<td>86.5</td>
<td>101.7</td>
<td>103</td>
<td>123.0</td>
</tr>
<tr>
<td>1960</td>
<td>92.9</td>
<td>103.8</td>
<td>145</td>
<td>123.0</td>
</tr>
<tr>
<td>1961</td>
<td>99.4</td>
<td>107.3</td>
<td>145</td>
<td>123.0</td>
</tr>
<tr>
<td>1962</td>
<td>100.4</td>
<td>111.8</td>
<td>153</td>
<td>123.0</td>
</tr>
<tr>
<td>1963</td>
<td>103.1</td>
<td>118.7</td>
<td>163</td>
<td>123.0</td>
</tr>
<tr>
<td>1964</td>
<td>113.7</td>
<td>126.0</td>
<td>163</td>
<td>123.0</td>
</tr>
</tbody>
</table>

[GDP= Gross Domestic Product]

**SOURCES:**  
<table>
<thead>
<tr>
<th>Country</th>
<th>Railroads (Miles)</th>
<th>Roads (Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>12.6</td>
<td>193</td>
</tr>
<tr>
<td>Mexico</td>
<td>3.6</td>
<td>12</td>
</tr>
<tr>
<td>Colombia</td>
<td>1.3</td>
<td>14</td>
</tr>
<tr>
<td>Bolivia</td>
<td>0.7</td>
<td>11.4*</td>
</tr>
</tbody>
</table>

* Only accessible roads are included in this figure

**SOURCES:**

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy Consumed (Kilograms of Coal Equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>8,042</td>
</tr>
<tr>
<td>Mexico</td>
<td>959</td>
</tr>
<tr>
<td>Colombia</td>
<td>549</td>
</tr>
<tr>
<td>Bolivia</td>
<td>145</td>
</tr>
</tbody>
</table>

TABLE II - 8
LABOR FORCE AND CONDITIONS OF EMPLOYMENT
("Percentage" Distribution of Males Economically Active -- By Sectors)
Active Age -- 15 Years or More

<table>
<thead>
<tr>
<th></th>
<th>UNITED STATES 1950 Active Pop: 43,542,000</th>
<th>ARGENTINA 1949 Active Pop: 5,163,000</th>
<th>COLOMBIA 1951 Active Pop: 3,054,000</th>
<th>BOLIVIA 1950 Active Pop: 780,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRICULTURE</td>
<td>15.4%</td>
<td>29.7%</td>
<td>63.2%</td>
<td>63.4%</td>
</tr>
<tr>
<td>MINING</td>
<td>2.2%</td>
<td>0.6%</td>
<td>1.5%</td>
<td>5.4%</td>
</tr>
<tr>
<td>MANUFACTURING</td>
<td>28.1%</td>
<td>19.8%</td>
<td>9.9%</td>
<td>8.8%</td>
</tr>
<tr>
<td>CONSTRUCTION</td>
<td>8.4%</td>
<td>6.5%</td>
<td>4.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>UTILITIES</td>
<td>1.6%</td>
<td>0.6%</td>
<td>0.3%</td>
<td>3.9%</td>
</tr>
<tr>
<td>COMMERCE</td>
<td>13.3%</td>
<td>14.5%</td>
<td>5.2%</td>
<td>4.2%</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>8.1%</td>
<td>7.3%</td>
<td>4.1%</td>
<td>2.6%</td>
</tr>
<tr>
<td>SERVICES</td>
<td>16.6%</td>
<td>15.1%</td>
<td>7.7%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

TABLE II - 9

PERCENT OF POPULATION IN URBAN AREAS

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>YEAR</th>
<th>URBAN PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITED STATES(^1)</td>
<td>1960</td>
<td>64.8%</td>
</tr>
<tr>
<td>MEXICO(^1)</td>
<td>1955</td>
<td>44.2%</td>
</tr>
<tr>
<td>COLOMBIA(^1)</td>
<td>1950</td>
<td>36.7%</td>
</tr>
<tr>
<td>BOLIVIA(^2)</td>
<td>1950</td>
<td>26.5%</td>
</tr>
<tr>
<td></td>
<td>1960</td>
<td>28.7%</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>29.5%</td>
</tr>
</tbody>
</table>

Note: U.S.A, Mexico, and Colombia statistics cover cities over 5,000 inhabitants. Bolivian statistics cover cities over 2,000 inhabitants.


## Table II - 10

**Percentage Distribution of Population 25 Years and Older by Educational Attainment**

<table>
<thead>
<tr>
<th>Country</th>
<th>Census Year</th>
<th>Less Than First Level</th>
<th>First Level</th>
<th>Second Level</th>
<th>Third Level and Higher</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1960</td>
<td>8.3%</td>
<td>50.6%</td>
<td>33.4%</td>
<td>7.7%</td>
<td>--</td>
</tr>
<tr>
<td>Mexico</td>
<td>1960</td>
<td>74.4%</td>
<td>22.7%</td>
<td>2.0%</td>
<td>0.8%</td>
<td>--</td>
</tr>
<tr>
<td>Colombia</td>
<td>1951</td>
<td>52.4%</td>
<td>40.4%</td>
<td>6.0%</td>
<td>1.1%</td>
<td>--</td>
</tr>
<tr>
<td>Bolivia</td>
<td>1950</td>
<td>84.8%</td>
<td>12.0%</td>
<td>2.6%</td>
<td>0.6%</td>
<td>2.4%</td>
</tr>
</tbody>
</table>

1. In general, less than four years of primary school; includes illiterate
2. In general, more than four primary years, but less than four at secondary level
3. In general, four or more at second level, but less than 4 at third level (college)
4. Persons having completed more than four years at third level

TABLE II - 11
EDUCATION -- PERCENT OF ILLITERACY

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CENSUS YEAR</th>
<th>AGE</th>
<th>TOTAL PERCENT</th>
<th>MALE PERCENT</th>
<th>FEMALE PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1950</td>
<td>14+</td>
<td>3.2%</td>
<td>3.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Mexico</td>
<td>1950</td>
<td>15+</td>
<td>34.6%</td>
<td>29.8%</td>
<td>39.3%</td>
</tr>
<tr>
<td>Colombia</td>
<td>1951</td>
<td>15+</td>
<td>37.7%</td>
<td>35.0%</td>
<td>40.2%</td>
</tr>
<tr>
<td>Bolivia</td>
<td>1950</td>
<td>15+</td>
<td>67.9%</td>
<td>57.6%</td>
<td>77.2%</td>
</tr>
</tbody>
</table>

TABLE II - 12
RATES OF POPULATION INCREASE

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>YEAR</th>
<th>TOTAL POPULATION 000's</th>
<th>PERCENT INCREASE PER YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITED STATES</td>
<td>1960¹</td>
<td>179,323</td>
<td>1.58%</td>
</tr>
<tr>
<td>MEXICO</td>
<td>1960¹</td>
<td>34,923</td>
<td>3.08%</td>
</tr>
<tr>
<td>COLOMBIA</td>
<td>1960¹</td>
<td>14,443</td>
<td>2.23</td>
</tr>
<tr>
<td>BOLIVIA</td>
<td>1960²</td>
<td>3,696 est.</td>
<td>2.16</td>
</tr>
</tbody>
</table>

(2) "Economic and Program Statistics," USAID (Bolivia), December, 1965.
BIBLIOGRAPHY


Avila, Federico. El Drama de la Sangre. La Paz, Bolivia: 1944.

Camara Nacional de Industrias. XXXI Memoria, Industria, June, 1962.

Camara Nacional de Industrias. XXXIV Memoria, Industria, June, 1965.


