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What Capital is Missing in Developing Countries?

By MIRIAM BRUHN, DEAN KARLAN, AND ANTOINETTE SCHOAR*

What capital is missing in developing countries? We put forward “managerial capital,” which is distinct from human capital, as a key missing form of capital in developing countries. And it has also been curiously missing in the research on growth and development. We argue in this paper that lack of managerial capital has broad implications for firm growth as well as for the effectiveness of other input factors. A large literature in development economics aims to understand the impediments to firm growth, particularly in small and medium enterprises. Standard growth theories have explored the importance of input factors such as capital and labor in the production function of firms and countries. At the micro level, empirical studies such as Suresh de Mel, David McKenzie and Christopher Woodruff (2008), Abhijit Banerjee et al. (2009), and Dean Karlan and Jonathan Zinman (2009) have estimated the impact of access to finance for capital constrained micro-enterprises (see Karlan and Jonathan Morduch, 2009, for a review). At the macro level, papers by Robert King and Ross Levine (1993), Raghuram Rajan and Luigi Zingales (1998), and Marianne Bertrand, Antoinette Schoar, and

David Thesmar (2007) suggest the importance of the financial system for economic growth.

Human capital is the second traditionally studied input factor in the production function. Most of this research has focused on how distortions in labor markets or education affect productivity. For an example of the emerging literature that documents the effect of labor market distortions on firm productivity, see Chang-Tai Hsieh and Peter Klenow (2009) or Erik Bartelsman, John Haltiwanger and Stefano Scarpetta (2009).

However, the role of managerial capital for production has largely been ignored in the debate on development and growth.¹ Classic macro growth models like Robert Solow (1956) relegate managerial or “soft” inputs into the residual of the production function, the error term. Famously, Moses Abramovitz (1956) called it also the “ignorance term.” Modern growth theory, in contrast, such as Paul Romer (1990) or Philippe Aghion and Peter Howitt (1992), are more explicit in modeling endogenous technical progress as a function of technological innovation. While this literature acknowledges the importance of entrepreneurial activities and R&D investments for productivity and growth, they mainly focus on how the economic environment affects the incentives to engage in innovation.

One could incorporate the idea of managerial capital into endogenous growth theory by making it part of the intercept shifter, A , in the production function: $y = Ak^\alpha l^{1-\alpha}$. As such it is central for the productivity of other inputs. If we assume that managerial capital is an important component of A , this production function suggests that high levels of other inputs do not lead to high levels of output if managerial capital is particularly low. In fact, there is an

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¹ One exception is the literature on family firms that investigates how the involvement of family members affects the quality of managerial decisions within these firms, but this evidence is only indirect (see Francesco Caselli and Nicola Gennaioli 2003 or Bertrand and Schoar 2006).

earlier tradition in micro theory that models the importance of managerial capital and its allocation across firms. The seminal papers by Robert Lucas (1978) and Sherwin Rosen (1982) propose that “talent for managing” is an important factor of production. Lucas (1978) assumes that there is a wide distribution of managerial ability in the economy and derives an endogenous firm size distribution based on a neoclassical production function. Managerial capital is assumed to be complementary to other firm inputs and leads to a convex distribution of returns. Rosen (1982), in an extension of the Lucas model, explicitly focuses on the internal managerial structure of firms and explains an observable relationship between firm size, earnings, and firm profitability.

Despite these early proponents of managerial capital in the theory literature, little empirical work has been done to understand the nature of managerial capital and to document its impact on firm productivity. For development economics it is therefore important to investigate if managers and firm owners (who are often managers as well) indeed lack the organizational and managerial abilities to manage an effective operations scale-up. Such managerial skills may require either training or experience in other well-run firms or might be acquired through outside consulting inputs (or a combination of these).²

We argue that managerial capital can affect the production function of firms in two distinct ways. The first channel is based on the idea that firms with better managerial inputs are able to improve the marginal productivity of their other inputs, for example labor, physical capital, etc. Better managers may motivate and retain workers better, may make fewer mistakes in how they employ physical capital, such as maintaining machinery, or may identify better marketing or pricing strategies when selling their services. This channel resembles the traditional view of how heterogeneity in productivity affects firm output.

² The idea that managerial talent might be formed through training and prior experience is echoed in the literature on managerial backgrounds in the United States. Results have shown that successful entrepreneurs come from large well-run firms, e.g., Paul Gompers, Josh Lerner, and David Scharfstein (2005), or that CEOs are shaped by the early career experiences they are exposed to as in Schoar (2010).

The second channel through which managerial capital can affect firms is through its effect on the amount and type of physical and labor inputs that a firm buys or rents. The decision to access inputs like capital or labor in itself requires managerial inputs to forecast the capital needs of the firm, plan the process by which to approach lenders, invest the obtained resources, etc. This second channel suggests that resource constraints themselves are a function of managerial capital. The literature on management styles in the United States context suggests that individual managers are central in shaping their firm’s capital structure, investment strategy, and overall business plan (see Bertrand and Schoar 2003; or Morten Bennedson et al. 2009).

This focus on managerial capital allows us to shed new light on the interpretation of many previous studies of small and medium enterprise (SME) growth. For example, the very high returns to capital that were found in papers such as de Mel, McKenzie, and Woodruff (2008) or McKenzie and Woodruff (2008) could be a combination of returns to capital plus managerial inputs that are provided through the experiment. If these small businesses have limited access not only to capital but also to management resources, the experiment itself might solve the planning problem for these firms as well as the capital constraints by significantly reducing the burden of accessing bank finance or convincing a lender about the firm’s creditworthiness. This managerial capital gap can be quite significant in many situations. Anecdotally we know from many developing countries that the success of small business lending strongly depends on having a well trained set of loan officers who are able to assess the capital needs of the business. In many cases small business owners rely on the loan officer and the bank to suggest the right loan size and even what to invest in and how to expand the business.³

³ Such an interpretation could imply that those with higher managerial capital should have *lower* returns to capital increases, if they were able to solve their credit constraint problem but those with lower managerial capital were not. De Mel, McKenzie, and Woodruff find the opposite using digital span recall as a proxy measure of managerial capital. The circumstances of that study, in particular the micro-size of the firms and the post-tsunami context, suggest alternative relationships between managerial or human capital and returns to financial capital; thus we do not consider this evidence dispositive against the above theory.

I. Empirical Evidence on the Importance of Managerial Capital

Several recent papers suggest that management education, as well as management practices, are of lower quality in developing countries than in developed countries. Azam Chaudry (2003) reports the results from an International Finance Corporation survey conducted in 78 different countries that asked firms to assess the quality of locally educated MBAs the firm had hired. Firms in lower income countries were more likely than firms in higher income countries to say that these MBAs were inadequately prepared overall and that they had lower technical skills. Nicholas Bloom and John Van Reenen (2010) collected a measure of management practices for firms in a number of countries. Firms from non-Organization for Economic Cooperation and Development (OECD) countries scored significantly below firms from OECD countries on this management practices measure.

However, these cross-country studies and our discussion above provide at best circumstantial evidence of the impact of managerial capital. To carefully test the importance of the proposed management channel, we ideally need to find exogenous variation in the access to managerial capital across firms. Two studies, Karlan and Martin Valdivia (forthcoming) and Alejandro Drexler, Greg Fischer, and Schoar (2010), conduct field experiments that introduce exogenous variation in managerial capital across microenterprises through business training. The former paper reports on a randomized control trial of an entrepreneurship training program in Peru. The training consisted of classroom-style interactive lectures for preexisting clients of a group lending microcredit program for women. The lessons focused on basic business and record-keeping skills and targeted micro and not small and medium enterprises. The authors find that business knowledge increased, but that no consistent improvements occurred for business revenue, profits, or employment (although there is some suggestive evidence of stronger impacts for those with less interest in receiving training as self-reported in a baseline survey, and some suggestive evidence of an increase in the revenues during bad months). Drexler, Fischer, and Schoar (2010) test different approaches of teaching record keeping skills to micro entrepreneurs.

They find that a simple, rule-of-thumb based approach to teaching does better than a more intricate training program. The results suggest that an improvement in these skills increases sales, and in particular helps to reduce months of very poor sales outcomes.

Bruhn, Karlan, and Schoar (2010) examine whether lack of managerial knowledge can be alleviated by providing consulting services to supplement the managerial skills of the business owners. They conducted a randomized control trial in Mexico, where small businesses were paired with a consultant from one of a number of local management consulting companies for the period of one year. Consultants were asked to (i) diagnose the problems that prevented the firms from growing, (ii) suggest solutions that would help to solve the problems, and (iii) assist the firms in implementing the solutions. The cost of the consulting service was highly subsidized.

Early results show that the consulting services had a positive effect on firms' productivity. Productivity increased significantly, measured as either the residual from a productivity regression or return on assets. Monthly firm sales and profits also are higher in the treatment group than in the control group (78 percent and 110 percent, respectively). The estimated effects are economically large but are only significant at the ten percent level, likely because the data is noisy and the sample size is relatively small (433 firms in total). The described impact of consulting services is much larger than the estimates of improved access to capital for small businesses found in the literature. De Mel, McKenzie, and Woodruff (2008) estimate a return to capital of five percent per month for Sri Lankan microenterprises, McKenzie and Woodruff (2008) find 20–33 percent monthly return to capital in Mexico, and Christopher Udry and Santosh Anagol (2006) find 60 percent annualized return to capital in Ghana. However, the estimated impact of managerial capital seems reasonable since Bloom and Van Reenen (2010) find about a 30 percent variation in management practices between the best and the worst countries, which translates into much larger productivity differences.

II. Conclusions

The experiments described above test not only whether managerial capital is a limiting factor in the growth of firms but also whether this

knowledge can be taught in the first place. They cannot separately analyze the above two questions. In other words, lack of managerial capital could indeed be a hindrance to growth, but failure to find a result in these studies would not disprove that, since it may simply mean that the program was not effective in teaching managerial skills (or that managerial skills are innate skills and simply not teachable). The early studies discussed above suggest that managerial capital seems to matter and is at least in part teachable. Of course, the results also indicate that there is a lot of heterogeneity in the treatment effects and the possible approaches to training.

Going forward we envision that we need much more research to better understand the importance of managerial capital. First, what is the impact of managerial capital, and what is the precise channel by which it interacts with other inputs in the production function? Second, can managerial capital be taught, and how? Short-term training and consulting services as described above might not be the most effective form of management training. Managerial capital might be developed through work experience or exposure in the family.

Lastly, much remains to be learned about the operational practicalities of teaching managerial skills. Several development organizations provide business development services, including training and consulting, to SMEs. Yet little data has been generated that rigorously demonstrates the impact of any of these approaches. With more consistent data and experimentation, researchers should be able to learn more about not only whether such initiatives work, but how and why they work.

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