Development Policy

Lecture Note 11

Small is Beautiful?

According to the World Bank, small and medium sized enterprises with 250 employees or fewer generate 86 percent of jobs in a sample of 99 developing countries. The researchers conclude that small businesses have a disproportionate role in job creation, even after controlling for the age of the firm.[2]
We hear similar arguments in Vietnam. UNDP estimated that the Enterprise Law, which stimulated registration of small businesses, created one million jobs in small businesses between 2001 and 2003.[3] Numerous donor reports refer to small and medium scale enterprises as the "engine of growth" that is responsible for a majority of new jobs.

Is it true that small enterprises are responsible for creating a majority if new jobs? Are they the engine of growth in developing countries? Or is "small is beautiful" another development myth?

In order to analyze this question, we need to separate out the different claims made about small firms. The *first* and most important claim is that small firms are more efficient. Efficiency usually refers to the amount of production that can be realized from a given amount of capital and labor. The *second* claim is that small firms use more labor per unit of output and therefore create more jobs. In developing countries with surplus labor, it is generally thought that labor is cheap, and therefore small firms are more appropriate because production in them is more labor intensive. Since they are more labor intensive, it is often assumed that small firms are more effective than large firms when it comes to reducing poverty. The *third* claimis that small firms are more innovative than large firms.

Let's begin with the first proposition about small firms, that they are more efficient. It is important to recognize from the outset that firms that use more labor per unit output are not necessarily more efficient. Whether the more labor intensive firm is more efficient or not depends on the relative cost of labor and capital and the substitutability

[2] Meghana Ayyagari, Asli Demirguc-Kunt and Vojislav Maksimovic (2011) "Small versus Young Firms Across the World: Contribution to Employment, Job Creation and Growth," World Bank Policy Research Paper 5631, April, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/04/11/000158349_20110411130747/Rendered/PDF/WPS5631.pdf.
[3] http://content.undp.org/go/newsroom/choices-one-million-jobs-created-by-new-enterprise-law-in-viet-nam2003-06.en;jsessionid=axbWzt8vXD9?categoryID=349424&lang=en.

of labor and capital. In the figure, technology A dominates technology B at the given set of relative prices. Technology A (for example, a large firm) uses more capital and less labor per unit of output, but it is more cost efficient than technology B (the small firm). Switching from technology A to technology B just to increase employment would represent a net loss of output to society.

Similarly, it is not sufficient to show that a technology uses more labor and no more capital per unit of output. In the second figure, technology B (the small firm) uses the same amount of capital and more labor per unit of output than technology A (the large firm). This is not a superior position. Since labor has some opportunity cost (even if just the opportunity cost of sitting around playing cards rather than working) technology B is never superior to technology A. Better to adopt technology A and pay the extra workers to do nothing than to use technology B.

Therefore, the main case for small firms depends on their *capital* efficiency: in other words, they produce more output per unit of capital using cheap labor. This is an empirical question that can be tested. The most prominent study of the relative efficiency of small firms in developing countries is a World Bank publication from 1987 entitled *Small Manufacturing Enterprises* by Ian Little, Dipak Mazumdar and John Page.[4] The book contains a detailed analysis of the efficiency of small firms in India—a country that has strongly emphasized the importance of small firms to poverty reduction—and in other developing countries. In their survey of the literature, the authors find some consistent patterns in the data.

First, capital intensity and labor productivity rise consistently with firm size (with size measured in terms of the number of employees). This is an expected result, since larger companies use more machines per worker, and labor productivity increases with the more intensive use of capital and the technology embedded within it. Snodgrass and Biggs report that total factor productivity tends to increase with firm size.[5] They present data from a range of countries to show that value added per worker increases with the size of the firm. The only way that small firms can survive given this productivity disadvantage is through access to cheaper labor.

However, the fact that labor productivity rises with firm size does not necessarily mean that larger firms are more efficient. Smaller firms could record lower labor productivity but higher productivity of capital if they are able to squeeze out more output from each unit of capital. In other words, if lower labor productivity is accompanied by higher capital productivity, small firms could still be more efficient. For example, if larger firms enjoy access to cheap capital (for example, large state-owned firms) they might

[4] Little, Mazumdar and Page (1987) *Small Manufacturing Enterprises: A Comparative Analysis of India and Other Economies*, World Bank. See also Little's summary published in *The World Bank Economic Reivew*, 1:2, 203-235.
[5] Donald R. Snodgrass and Tyler Biggs (1996) *Industrialization and the Small Firm: Patterns and Policies*, Cambridge, Mass: International Center for Economic Growth and Harvard Institute for International Development.

use too much of it, lowering the marginal productivity of capital and creating inefficient large enterprises.

However, this does not appear to be the case. The second common finding in Korea, Thailand and India is that capital efficiency *is not highest* in the smallest firms. Capital efficiency rises at least until the middle of the distribution of firms (until firms reach a size of around one hundred workers). In Korea, capital efficiency continues to increase even in large firms, while in Thailand and India the productivity of capital falls in the largest firm size category. This does not mean that these firms are inefficient, since labor productivity is quite a bit higher. Moreover, output per unit of capital is still higher in the largest firms than in the smallest firms. Small enterprises cannot claim that they are more efficient because they achieve more output per unit of capital. They do not.

This result applies to the manufacturing sector taken as a whole. Little, Mazumdar and Page point out at that this high level of aggregation conceals some important information. If we look at individual product classifications, we find that the smallest firms are *not* always the most labor intensive in some or even most sub-sectors. This relates to the second proposition about small firms: that they are always more labor intensive. Many firms produce using an expensive machine that is operated by just a few workers. In terms of the number of workers, these companies are small. But in terms of capital (and capital intensity—K/L) they are not. So the belief that small firms are more labor intensive is based in part on the way that we define "small firms."

These findings have important implications for policy. Any policy that favored small companies based on the number of employees (for example, providing cheap credit) could have unintended consequences such as: i) helping many capital intensive companies and therefore not necessarily increasing the level of employment; or ii) helping less productive firms survive implying negative effects on domestic output and economic growth.

Little, Mazumdar and Page find that the relationship between firm size and technical efficiency varies from industry to industry. Compare results for the printing and shoe industries in India. The largest printing firms are less efficient than middle-sized companies, as the low output-capital ratio is not compensated by a high output-labor ratio in firms of over 100 workers. But in shoe manufacturing, the smallest firms are low capital-intensity handicraft producers that achieve low output-labor ratios. The largest firms, by way of contrast, are factories that apply more capital and achieve sharply higher output per unit of labor.

The evidence therefore demonstrates that small firms are neither consistently more labor intensive nor more efficient than large firms. The claim that they create more jobs than large firms is therefore based more on a romantic view of small companies than empirical evidence. The vast majority of new jobs are created by firms that grow into

big companies. Harrison cites an interesting statistic: in 1985, 245,000 new businesses were set up in the United States. By 1988, 75 percent of the employment gains had occurred in just *735 fast-growing companies* (0.3%) from among the original 245,000. *None* of these successful companies employed less than one hundred workers in 1988.[6]

Politicians tend to stress job *creation* in small firms without reference to *job destruction*. Small firms are easy to set up because they often do not require much capital. But they also fail in large numbers. Net job creation must consider the jobs destroyed when small companies go out of business as well as job creation when they are established. In the United States, the largest share of net job creation occurs in firms with 500 workers or more. Biggs and Shah report similar findings from Sub-Saharan Africa. In countries recording net job growth in manufacturing in the early 1990s, the dominant source of net job creation was firms with more than one hundred workers.[7]

Another important issue is the quality of jobs created in large and small firms. A consistent finding across countries is that large firms pay higher wages. Larger firms are more capital intensive, and therefore they need a more skilled and reliable labor force to ensure that machines are not idle or used improperly. Small firms tend to use cheaper, transient labor that is less skilled and therefore more easily replaced. Similar findings are reported in industrialized countries. The effect also works in the opposite direction: workers earn higher wages in large firms because they have more seniority (they stay longer). Large firms are also more likely to provide health insurance coverage, pension plans, paid holidays and safe working conditions. This finding is robust and has been verified wherever it has been tested, and does not depend on union membership, skill intensity or sector.[8]

Many economists have observed that small firms play a more important role in poor than in rich countries. As domestic markets grow in size, some companies are able to achieve economies of scale and scope. Access to technology also plays an important role. Alfred Chandler famously compared the development of large firms in the US, Great Britain and Germany, and showed how market size, urbanization and innovation provided unique opportunities for large American firms.[9]

Micro and small firm sector in developing countries acts as a "last resort" source of employment in many, if not a majority of cases. Lisa Daniels, in her analysis of income from micro and small enterprises in Kenya, concludes that only 26 percent of firms

[6] Bennett Harrison (1994) "The Myth of Small Firms as the Predominant Job Generators," *Economic Development Quarterly*, 8:3, 3-18.
[7] T. Biggs and M. Shah (1998) "The Determinants of Enterprise Growth in Sub-Saharan Africa: Evidence from the Regional program on Enterprise Development," World Bank.
[8] Charles Brown and James Medoff (1989) "The Employer Size-Wage Effect," *Journal of Political Economy*, 97:5, 1027-1059.
[9] Alfred Chandler (1990) *Scale and Scope: The Dynamics of Industrial Capitalism*, Cambridge, Mass: The Belknap Press of Harvard University Press.

generate earnings equal to or greater than the minimum wage.[10] Participation in this sector is therefore a sign of desperation rather than entrepreneurship or innovation. A large majority of these workers would have been better off in waged employment. The dominant role of small and micro enterprises in developing countries is a product of low levels of technology and small markets, not job growth potential.

The third claim in favor of small firms is that they are more innovative than large firms. Many small firms, particularly in technology-intensive fields like computer software and telecommunications, do produce important innovations in rich countries. Small companies are good at creating marketable products from research and development undertaken in large companies and at universities.[11] In developing countries, small firms undertake very little if any research and development. Most innovation in these countries takes the form of acquiring foreign technology and adapting it to local condition, functions that are generally performed by larger companies. Large firms have more direct contact with international markets and therefore possess a better awareness of quality and technology standards.

Despite romantic stories of solitary geniuses producing great inventions in their back gardens, the vast majority of useful innovations are made by very large companies. And while it may be true that some small companies grow into large firms, there is no evidence that small firms are any more likely to grow into large companies than medium sized companies, or companies that come into existence as relatively large companies.

The evidence therefore suggests that small firms are neither more labor intensive nor efficient than large firms. As countries grow richer, the role of small firms declines. Large firms arise that achieve economies of scale and scope as shown by Chandler. While many small firms continue to prosper in specific niche markets, in most manufacturing sub-sectors they are unable to compete with the superior levels of productivity achieved in large firms.

This does not imply that government policy should discriminate against small firms because big is better. But neither should the government favor small firms to counter supposed advantages of large enterprises. In India, the policy of reserving certain sub-sectors for small companies has retarded growth and led to other distortions. Government policy should instead reduce obstacles to investment in manufacturing for both big and small firms through the provision of public goods, for example the development of infrastructure and investment in education and research. The

[10] Lisa Daniels (1999) "The Role of Small Enterprises in the Household and National Economy in Kenya: A Significant Contribution or a Last Resort?" *World Development*, 27:1, 55-65.
[11] Z. Acs and D. Audretsch (1987) "Innovation, Market Structure and Firm Size," *Review of Economics and Statistics*, 69.

promotion of either large or small firms because they are large or small is not a well-targeted policy, and it is unlikely to achieve either more rapid growth or job creation.