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Financial Development, Productivity, and Economic Growth

Policymakers and economists generally agree that financial development—that is, well-functioning financial institutions and markets, such as commercial and investment banks, and bond and stock exchanges—contribute to economic growth. More debatable, however, have been issues about *how* financial development promotes growth. These issues would have an impact on choosing the design for financial policies and regulations.

In this *Economic Letter,* I discuss recent empirical studies on the relationship between financial development and growth. I begin with a review of studies indicating that financial sector development does improve growth. Then I address two fundamental questions. First, does financial sector development help growth through faster capital accumulation, or does it also improve sustained productivity growth? Second, what is the impact of financial regulation on the relationship between financial sector development and growth? These empirical studies consider a range of data, including aggregated, national level data (e.g., gross domestic product and the size of the overall financial sector), and disaggregated, industry-level and firm-level data (e.g., earnings and borrowing by firms). Aggregate data are more useful in studying the overall impact of financial sector development on growth across countries, while the added detail of disaggregated data is useful in identifying the particular channels by which financial development affects growth and in studying the importance of financial regulation.

Does financial development cause growth?

The prevailing view in economics is that financial development contributes to growth in various ways. For example, financial institutions are better suited than individuals to identify potentially successful projects because these institutions are big enough to pay large fixed costs of collecting information about individual projects and to analyze this information more efficiently. In addition, once a project has started, they can better monitor its managers to ensure that savers' resources are used productively. Financial markets also can enhance growth. First, they help collect resources from many savers necessary to invest in large projects. Second, they facilitate the pooling and hedging of risk inherent in individual projects and industries. Finally, secondary financial markets also reduce securities holders' liquidity risk by allowing them to sell their securities without affecting firms' access to the funds initially invested. Thus, well-developed financial markets and institutions can generate growth by increasing the pool of funds and by reducing the risk and enhancing the productivity of fund transfers from savers to investment projects.

Economists have found empirical evidence that countries with developed financial systems tend to grow faster. King and Levine (1993) find that growth is positively related to the level of financial development. Looking at the evidence from 80 countries from 1960 to 1989, they show that the relative size of the financial sector in 1960 is positively correlated with economic growth over the period. However, positive correlation may simply reflect the fact that faster growing countries have larger financial sectors because of the increase in the number of financial transactions conducted. By measuring financial sector development at the beginning of the period, in 1960, King and Levine try to mitigate concerns about possible reverse causation between financial development and economic growth.

However, this evidence does not necessarily prove that financial development causes growth. The size of the financial sector in 1960 may depend on the expectation of future economic growth. Subsequent work using statistical techniques to control for the endogenous effect of economic growth on financial development as well as for country-specific factors that are not explicitly considered, and using both time series and cross-sectional data to extract more information from the data, has shown that

the effect of financial development is robust (For example, Levine, Loayza, and Beck 2000, Benhabib and Spiegel 2000).

What are the transmission channels?

The economics profession has evolved in its views of the primary factors driving economic growth. Traditionally, economic growth theory focused on labor usage and capital accumulation as the main engines of long-run growth. This approach, however, has been unable to explain sustained growth without also assuming ongoing productivity growth, because the impact of capital accumulation is limited by diminishing returns for a given labor force; each unit of capital added in the economy will have a smaller marginal improvement on output. Beyond some point, the marginal return on adding new capital will be smaller than the marginal cost of adding new capital. Therefore, growth would stop at this point without increases in productivity.

"New" growth theory has focused on the ongoing technological change that raises productivity as the main engine of growth. In principle, technological development could lead to sustained long-term growth because the increases in productivity would be enough to offset the decreases in productivity from diminishing returns to capital accumulation. "New" growth theory models the production of new and better technologies through research and development in an imperfectly competitive sector, for example. Thus, it can generate growth as a result of the economic structure. Thus, it is often termed "endogenous growth theory."

The question then becomes whether financial sector development affects growth through the channel of capital accumulation, as in the old growth theory, or through the channel of productivity increases engendered by knowledge creation, as in the endogenous growth theory. The second channel is potentially more important because it implies that growth may be sustainable for long periods. Benhabib and Spiegel (2000) find that both channels are present: financial development improves capital accumulation as well as productivity growth.

To assess which channel is more important, it is useful to look at the relationship between financial development and growth at the industry and firm level, because it is much more likely that the level of a country's financial development affects the behavior of particular firms rather than the other way around. In a study using firm-level data, Rajan and Zingales (1998) find that younger firms in higher productivity sectors tend to depend more on external finance and therefore benefit more from the lower cost of financing in a developed financial system than do more established firms. This finding suggests that if these younger firms represent the units of production where new and more efficient technologies are created, then financial development may improve productivity growth, thus potentially sustaining long-run growth.

Some economists have focused on events that have led to large changes in the size and development of the financial sector in a short period of time to isolate the impact of financial development on growth *within* a country over time. These studies are usually called "event studies." A study by Galindo, Schiantarelli, and Weiss (2002) evaluates whether financial liberalizations in 12 developing countries are accompanied by an improvement in the allocation of capital to firms. Of course, because financial liberalizations usually are not implemented in isolation, it is important to control for other changes in the economic and legal environment that also may affect growth. The authors find an increase in the efficiency with which investment funds are allocated following reform. This effect holds for most countries in the study and persists after controlling for other possible sources of improvements of resource allocation, such as trade reform or other macroeconomic structural reforms.

What is the role of regulation?

How do financial regulations affect the relationship between financial sector development and growth? A common finding of the studies by Rajan and Zingales (1998) and Galindo, Schiantarelli, and Weiss (2002) is that the positive impact of financial development on growth depends on the quality of financial regulations and supervision. Rajan and Zingales find the quality of corporate governance predicts higher growth in financially dependent firms. Galindo, Schiantarelli, and Weiss also find that financial liberalization has more beneficial effects if there is better regulation and supervision. Levine, Loayza, and Beck (2000) find that cross-country differences in legal and accounting systems are important factors in determining financial sector development. In particular, countries with regulations that give creditors priority in receiving their claims on corporations, encourage publication of more comprehensive and accurate financial statements, and are more efficient at imposing compliance with financial regulations have better functioning financial systems. They also find that contract enforcement, for example, in the case of property rights, is even

more important than the formal regulatory code in financial development. Thus, strengthening financial regulations and enforcement has a positive effect on long-run growth.

Conclusions

Recent economic literature has documented that financial development is associated with higher economic growth. Moreover, there is strong cross-country and industry-level evidence that financial development causes growth through increases in the rate of capital accumulation and through the allocation of funds to more productive firms, leading to overall improvement in productivity. Finally, financial regulation is an important determinant of the development of the financial sector, which improves the relationship between financial development and growth.

Understanding how financial development promotes growth is important for designing financial policies and regulations. For instance, financial liberalization in emerging markets often is followed by an expansion of the financial sector. Depending on the channel of transmission between financial sector development and growth, policies may be designed to make the channel more effective. For example, if financial sector development affects growth mainly through improved monitoring of managers of individual projects, then establishing and enforcing regulations that prevent conflicts of interest that may arise when a person in charge of evaluating a firm has a financial stake in the same firm may improve the health of the financial system.

The long-run benefits of having a better financial system still must be weighed against possible short-run costs. One way for countries to develop their financial systems is to open up the sector to foreign competition and liberalize international capital flows. However, many countries are reluctant to do so because it also may expose them to more foreign shocks. Moreover, many economists also argue that if the institutional framework in which the banks operate is not well enough developed, the costs of liberalization may be high. A poorly regulated financial system may increase a country's susceptibility to bank runs and balance of payments crises (due to more external shocks), crony capitalism (due to poor enforcement of regulations), and excessive risk-taking by banks (due to implicit government guarantees). Thus, the costs of having a larger financial system could overwhelm the benefits from higher growth. However, the strength of the evidence indicates that financial development, if accompanied by well-designed regulations and enforcement, plays an important role in channeling savers' resources to more productive firms, thus resulting in sustainable long-run growth.

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References

Benhabib, Jess, and Mark M. Spiegel. 2000. "The Role of Financial Development in Growth and Investment." *Journal of Economic Growth* 5 (December) pp. 341–360.

Galindo, Arturo, Fabio Schiantarelli, and Andrew Weiss. 2002. "Does Financial Liberalization Improve the Allocation of Investment? Micro Evidence from Developing Countries." Working Paper 503. Boston College.

King, Robert G., and Ross Levine. 1993. "Finance and Growth: Schumpeter Might Be Right." *Quarterly Journal of Economics* 108 (August) pp. 717–737.

Levine, Ross, Norman Loayza, and Thorsten Beck. 2000. "Financial Intermediation and Growth: Causality and Causes." *Journal of Monetary Economics* 46 (August) pp. 31–77.

Rajan, Raghuram G., and Luigi Zingales. 1998. "Financial Dependence and Growth." *American Economic Review* 88 (June) pp. 559–586.

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