FINANCE AND THE POOR

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The operation of the formal financial system is profoundly important for the poor. Financial development influences the degree to which economic opportunities are shaped by talent rather than by parental wealth. Considerably more research is needed on which formal financial sector policies boost aggregate economic efficiency, while simultaneously expanding the economic prospects of the poor.

1 INTRODUCTION

In this paper, I argue that the operation of the formal financial system is profoundly important for the poor. It influences how many people are hungry, homeless and in pain. It shapes the gap between the rich and the poor. It arbitrates who can start a business and who cannot, who can pay for education and who cannot, who can attempt to realize one's dreams and who cannot. Finance affects the degree to which economic opportunities are defined by talent and initiative or by parental wealth and social connections.

Moreover, I stress that the profession has done a stunningly inadequate job of examining how formal financial systems affect the poor. This deficiency is stunning because extensive theoretical work clearly advertises the central role of financial market imperfections in shaping poverty. Rather than dissecting the impact of financial sector policies on poverty, however, researchers too frequently take financial market frictions as given and examine how changes in schooling, savings behavior and fertility decisions influence poverty. Yet, these analyses, and resultant policy recommendations, are based on the erroneous treatment of financial market frictions as unchanging features of the economy. Financial market frictions are not immutable.

Although a considerable body of evidence indicates that the formal financial system affects aggregate economic growth (Levine, 1997, 2005), this paper focuses on the poor. Finance might help the poor by expanding the overall economy. Or, finance might boost aggregate growth by disproportionately benefiting the rich without expanding the economic opportunities of the poor. In other words, financial development might increase income inequality. A small, but growing, body of evidence, however, suggests just the opposite: financial development boosts growth by disproportionately

benefiting the poor. In this paper, I argue that theory and evidence motivate a dramatic expansion of research on how formal financial institutions and financial sector policies affect poverty.

I stress the formal financial system, which includes banks, securities markets and the full range of institutions covered in standard finance textbooks. I largely ignore micro-credit programs and informal systems, which have received considerable attention by development economists. At one level, there is no need to distinguish between formal and informal financial arrangements. Financial development includes contractual and institutional arrangements that lower transaction and information costs associated with evaluating and monitoring of projects and managing risk. It does not matter who provides these services. At another level, there are practical reasons for focusing on formal systems. First, all countries have extensive laws and regulations governing formal financial systems, so this seems like a natural place to examine the impact of financial policies on the poor. Second, when informal financial arrangements become economically substantive at a national level, these arrangements are moved under the umbrella of formal regulations. Consequently, I focus on the role of formal financial systems—and formal financial sector policies—in affecting poverty and the economic opportunities of the poor.

2   WHAT IS POVERTY?

I use three related definitions of poverty. Development economists frequently define the poverty line as those living on less then one dollar per day, although it is becoming increasingly common to use a line of two dollars per day. In the European Union and the USA, essentially nobody lives on less than two dollars per day, so analysts create different poverty lines. While somewhat arbitrary, the poverty line is useful. It identifies how many people are living in conditions that a particular society at a particular time finds abhorrent. Once measured, society has a quantifiable metric of people living in unacceptable conditions.

Nevertheless, the poverty line provides only a limited conception of poverty. It implies that there are no poor people if everyone is above the line. This misses relevant qualities of what we mean by poverty. Everyone might be above the poverty line, but the distribution of income might be highly skewed. Everyone might be above the poverty line, but many might be stuck at the bottom with few opportunities to improve their living standards. The poverty line ignores income distribution and the degree of economic opportunity.

Consequently, I also consider income distribution, which measures comparative poverty. It quantifies how much of an economy's income goes to the poorest 10 or 20 per cent of the population. It gauges how far each country lies from perfect income equality each year. It does not, however, measure

hunger, disease or homelessness. Nevertheless, the distribution of income provides information on a relevant conception of poverty.

We as economists care about income distribution because we as people care about income distribution. Many studies suggest that an individual's welfare depends on comparative income, not simply on the individual's income. If the operation of the financial system influences income distribution, this will affect social welfare beyond poverty considerations. Thus, financial policies should be judged in terms of their distributional effects, not simply their aggregate efficiency effects. Indeed, I will make the more provocative claim that financial policies *primarily* reflect battles over income distribution, not disagreements about efficiency.

The third definition of poverty stresses economic opportunity. This concept is the most difficult to measure empirically, but it is typically the most central in theory and public policy debates. One might define the poor as those whose economic opportunities are severely limited by parental wealth, race, religion or other traits (Solon, 1999). Comparatively talented and industrious individuals may face extraordinary obstacles because their parents lack resources or other characteristics. The role of finance in shaping economic opportunities has not yet received much attention in empirical studies of finance and the poor. Below, I present preliminary empirical work on the connections between finance and racial discrimination, which provides some information on finance and opportunity.

3   THEORY

3.1   Introduction

Financial market imperfections are a keystone of many influential theories of persistent poverty, including path-breaking studies by Becker (1957), Stiglitz (1969), Becker and Tomes (1979, 1986), Bourguignon (1981), Loury (1981), Greenwood and Jovanovic (1990), Banerjee and Newman (1993), Galor and Zeira (1993), Bénabou (1996a, 1996b), Aghion and Bolton (1997), Galor and Tsiddon (1997), Piketty (2000) and Townsend and Ueda (2006), and influential review articles by Bardhan *et al.* (2000), Bertola (2000) and Piketty (2000).

What I mean by a keystone is that financial market imperfections are necessary for sustaining a persistent class of poor dynasties. In these theories, perfect financial markets imply that individuals have access to capital to fund education, training or business endeavors based only on individual talent and initiative, not on parental wealth. In these theories, perfect financial markets equalize opportunities by reducing the importance of parental wealth. From this perspective, financial development might exert a disproportionately positive influence on the poor. Even while holding the median level of income constant, financial development can pull the left part of the distribution of

income to the right by expanding. Furthermore, in some of these theories, better functioning financial markets imply a more efficient allocation of resources, spurring economic growth and hence reducing the fraction of the population living below any arbitrary poverty line. Financial development might reduce poverty by accelerating aggregate economic growth while holding income distribution constant. Finance can push the whole distribution to the right. Thus, researchers need to dissect the channels linking finance and financial sector policies with the fraction of the population living below the poverty line, the distribution of income and the distribution of economic opportunities facing different segments of the economy.

3.2   Basic Framework

To better appreciate the mechanisms linking finance and intergenerational policy persistence, consider first the following equation:

$$y(i, t) = h(i, t) * w(i, t) + a(i, t) * r(i, t) \tag{1}$$

where $y(i, t)$ is the income of dynasty i in generation t, $h(i, t)$ is the corresponding level of human capital in dynasty i, $w(i, t)$ is the wage rate per unit of human capital, which might be dynasty specific as I discuss below, $a(i, t)$ is dynastic wealth in dynasty i in generation t and $r(i, t)$ is the return on assets, which may also vary by dynasty as discussed below. From this simple framework, it is easy to see that if the bequest motive that transfers savings from generation t to generation $t + 1$ is a convex function of parental wealth, so that the bequest rate increases with wealth (i.e. $a' > 0$ and $a'' > 0$), then (i) dynastic wealth will not converge in the steady-state, (ii) wealth differences will persist in the long run, and (iii) the long-run distribution of wealth will depend on the initial distribution of wealth.

3.3   Human Capital Accumulation

Next, consider human capital as being a positive function of both ability, which I designate by the letter 'b' for brains, and of schooling, which I designate by the letter 's':

$$h(i, t) = H\{b(i, t), s(i, t)\} \qquad \text{where } \partial H/\partial b > 0 \text{ and } \partial H/\partial s > 0 \tag{2}$$

Further, assume that (i) brains and schooling are complementary inputs into the production of human capital, so that $\partial^2 H/\partial b \partial s > 0$, and (ii) brains are not strongly persistent across generations within a dynasty, i.e. ability is mean-reverting as in Loury (1981), Becker and Tomes (1986) and Bardhan *et al.* (2000).

From equation (2), social efficiency requires that kids with lots of brains receive lots of schooling. With perfect capital markets, the economy achieves social efficiency. People with lots of brains get schooling

irrespective of parental wealth, so that schooling is simply a function of brains: $s(i, t) = S\{b(i, t)\}$. An individual's economic opportunities are determined by his or her abilities.

With imperfect capital markets, however, schooling is jointly determined by brains and parental wealth, so that $s(i, t) = S\{b(i, t), a(i, t − 1)\}$. Dumb rich kids get too much education. Smart poor kids get too little. This (i) increases the cross-dynasty persistence of poverty and (ii) lowers the socially efficient allocation of resources with an adverse effect on economic growth. These points have been developed by Loury (1981), Becker and Tomes (1979, 1986), Galor and Zeira (1993) and Galor and Tsiddon (1997). In emphasizing the central role of financial market imperfections in accounting for both persistent inequality and aggregate inefficiency, Loury (1981, p. 851) provides an excellent quotation from Arthur Okan (1975, pp. 80–81):

> The most important consequence (of an imperfect loan market) is the inadequate development of the human resources of the children of poor families—which I would judge, is one of the most serious inefficiencies . . . today.

While theory advertises the potentially central role of financial market imperfections in shaping the intergenerational persistence of human capital inequality with negative ramifications on the efficiency of resource allocation and growth, too little research evaluates the implications of finance on the persistence of poverty. Do bank regulations, bankruptcy laws and contract enforcement mechanisms affect human capital development? Is Okun right?

3.4 *Entrepreneurship*

Some theories highlight the role of financial market frictions in determining who can become entrepreneurs and who cannot. In these models, individuals are endowed with different levels of entrepreneurial ability, $e(i, t)$, and the return to opening a business depends positively on entrepreneurial ability. There is a fixed cost associated with becoming an entrepreneur.

With perfect capital markets, those with the most entrepreneurial talent have access to the required funding at the economy-wide interest rate. Entrepreneurial activity is a function of entrepreneurial ability, not familial wealth. Thus, the rate of return on savings is a function of entrepreneurial ability, not dynastic assets, so that $r(i, t) = R\{e(i, t)\}$, where $R' > 0$. Furthermore, society's resources are funneled to those with the most talent, not to those with the most assets.

With imperfect capital markets, however, capital will not simply flow to individuals with the most entrepreneurial talent. With capital market imperfections, lenders will demand collateral and large injections of capital by the entrepreneur before funding a business endeavor. Thus, the accumulated assets of a dynasty will influence the ability of that dynasty to attract outside funding and to open a business. The rate of return on savings is a function of both entrepreneurial ability and dynastic assets, so that $r(i, t) = R\{e(i, t),$

$a(i, t - 1)\}$ and $\partial R/\partial e > 0$, $\partial R/\partial a > 0$. Society's resources are not funneled only to those with the most talent, which is emphasized in papers by Banerjee and Newman (1993), Aghion and Bolton (1997), Bardhan *et al.* (2000) and Piketty (2000). In particular, a poor person with a great idea might not be able to get the project funded, while a rich person with a mediocre idea might have easier access to credit. With financial market imperfections, the initial distribution of wealth influences which dynasties can obtain external finance and which dynasties are essentially cut off from entrepreneurial endeavors. From a policy perspective, however, theory has not yet examined how particular regulations and policies influence financial market imperfections and the cross-generational persistence of poverty.

3.5   Discrimination

Finally, from equation (1), consider the wage rate. It is common to think of the wage rate per unit of human capital as not varying across individuals. As Gary Becker clearly articulated in 1957, however, employers might discriminate by particular characteristics, such as race. Blacks with exactly the same skills as whites might receive lower wage rates because employers are willing to lose some profits in order to satisfy their preferences for hiring only white workers. Discrimination might contribute to the intergenerational persistence of relative incomes across different groups.

Becker (1957) argues that discrimination is cheaper when there is little competition. When an owner is earning large rents, the marginal cost of hiring a more expensive white worker rather than an equally productive and less expensive black worker is not a very large share of the profits. With more intense competition and smaller profit margins, the cost of discrimination increases. Thus, competition reduces discrimination in wage rates and employment.

Financial policy reforms fit comfortably within Becker's theory of discrimination. Some financial sector reforms will spur financial intermediaries to expend more resources seeking out the best firms rather than simply granting credit to incumbents. For example, if a bank has a monopoly, it might lend comfortably to those with whom it has a long, multidimensional relationship. There might be other existing or potential firms with better ideas, but the bank can earn comfortable profits by lending to its friends. If this bank's monopoly position is threatened by regulatory reforms that expose the bank to more competition, however, the intensified competition might weaken long-standing bonds between the bank and firms. Competition might spur the bank to screen borrowers more carefully. In turn, firms will compete more intensively to attract bank capital. Firms will have to demonstrate their superiority in product markets to attract bank capital. Thus, intensified competition in banking intensifies competition throughout the economy. According to Becker (1957), competition makes discrimination

more expensive. Thus, financial sector reforms that improve the allocation of capital and intensify competition will tend to reduce discrimination, driving up the wages of the disadvantaged and expanding their opportunities.

3.6   Alternative Views and Discussion

Theory does not unambiguously assert that the financial system exerts a first-order, positive impact on the poor. Indeed, if the poor are simply excluded from access to financial services, improvements in the financial system will help only the rich as modeled by Greenwood and Jovanovic (1993). Financial development might not operate at the extensive margin by providing a broader array of new and improved financial services to the poor; financial development might operate primarily on the intensive margin by improving financial services for the rich who were already using financial services. Thus, financial development might increase both the inequality outcomes and the inequality of opportunities. Again, the longer-term research goals are to identify those financial policies that improve the efficiency of resource allocation while expanding the economic opportunities of poor dynasties.

4   Evidence

4.1   On the Empirics

On the evidence, I summarize three of my papers that address the different conceptions of poverty: those living below a poverty line, the distribution of income and economic opportunity. By choosing to discuss my papers, I am not suggesting that my work is the best in this area. Rather, I have a comparative advantage in presenting my research. I emphasize weaknesses in these analyses and urge others to improve the study of how formal financial institutions and policies affect poverty.

4.2   Cross-country Evidence

Thorsten Beck *et al.* (2007) examine the relationship between financial development and the fraction of the population living on less than one dollar per day. For a cross-section of up to 68 developing economies, we use data on poverty averaged over the period 1980–2005. Thus, we use one observation per country. We average over this long time period to aggregate away any business cycle fluctuations or crises that might distort our assessment of theories that focus on the long-run relationship between the operation of the financial system and changes in the fraction of the population living below the poverty line.

   We look at both the relationship between finance and the level of poverty and the relationship between finance and the growth rate of poverty. The

growth rate has statistical advantages because we can reduce the importance of country-specific factors. The growth rate also has conceptual advantages because then the analyses of poverty link directly with larger cross-country growth investigations. Since we find similar results when using either the level or the growth rate of poverty, I simply review the results using the growth of poverty.

In defining financial development, theory focuses on what the financial system does. The financial system ameliorates informational problems before investments are made; it affects corporate governance by reducing informational problems after investment is initiated; it facilitates risk diversification and reduces liquidity risk by lowering transactions costs; and it directly affects the ease of exchange through both information and transactions costs. Obviously, some financial systems perform the functions comparatively better than other financial systems. Poorly functioning financial systems do a lousy job at reducing information and transaction costs; they do not efficiently allocate resources; and they frequently keep credit flowing only to cronies. Other financial systems are better at providing these financial services to the economy. Differences in the ability of financial systems to identify good projects, monitor firms, diversify risk and ease transactions are what I mean by the level of financial development.

The empirical proxies for financial developments, however, do not directly measure these concepts. A common measure of financial development is the variable Private Credit, which equals the value of credit going to privately owned firms as a fraction of a country's gross domestic product. It isolates the intermediation of credit that goes to private firms, and excludes credit flowing to the state or the state-owned enterprises. Nevertheless, Private Credit is not a direct measure of overcoming information or transaction costs to improve credit allocation, corporate governance and risk management. I think the value-added of improving our measures of the level of financial development is much greater than the value-added of improving the econometric methods used to examine the impact of finance on the economy.

The evidence is quite clear. There is a robust negative relationship between financial development and poverty alleviation that holds even when controlling for average growth, initial income, initial poverty and the full range of country traits mentioned above. It is worth emphasizing that the negative relationship between financial development and poverty alleviation holds when controlling for average growth. We are not simply finding that finance accelerates economic growth which helps the poor. We are finding that finance exerts a disproportionately positive influence on the poor. While illustrative, these results are suspect because of the small sample, which makes it difficult to use instrumental variables and panel procedures to control for endogeneity.

Beck *et al.* (2007) also examine income inequality. Since the data on income inequality run from 1960 to 2005 for 72 countries, we use a dynamic panel instrumental estimator to control for potential endogeneity bias.

There is a strong, negative relationship between the level of financial development and income inequality. Finance exerts an especially positive impact on those at the bottom of the distribution of income. These results are also not definitive. The measure of financial development is not closely tied to theory. The study does not examine policy; rather, it examines a proxy for overall financial development that reflects many factors. Future work that develops better measures of financial development and uses exogenous innovations in particular policy changes will substantively improve our understanding.

4.3   Deregulation Across the US States

Thorsten Beck *et al.* (2008) test whether a policy reform that improved the quality of banking services increased, decreased or had no effect on the distribution of income. Individual states of the USA removed regulatory prohibitions on opening branches within state boundaries in different years over a 20-year period ranging from the mid-1970s to the mid-1990s. Past work shows that liberalizing restrictions on intra-state branching (i) increased the average size of banks through consolidation, (ii) improved bank efficiency, and (iii) accelerated average per capita income growth. We examine the impact of bank deregulation on the distribution of income, which has been the central battle line over bank regulations in the USA since Hamilton and Jefferson first tangled over the formation of the Bank of the USA.

Methodologically, the deregulation of intra-state branching provides a natural setting for identifying and assessing the impact of regulatory reform on the distribution of income. Kroszner and Strahan (1999) show that national technological innovations triggered deregulation, which was exogenous to income distributional changes within individual states. The invention of automatic teller machines (ATMs), in conjunction with court rulings that ATMs are not bank branches, weakened the geographical bond between customers and banks. Checkable money market mutual funds facilitated banking by mail and telephone, which weakened local bank monopolies. Improvements in communications technology lowered the costs of using distant banks. These innovations reduced the monopoly power of local banks, and therefore weakened their ability and desire to fight deregulation. Kroszner and Strahan (1999) further show that cross-state variation in the timing of deregulation reflects the interactions of these technological innovations with pre-existing conditions. Thus, the driving forces behind deregulation and its timing were largely independent of state-level changes in income distribution. Consequently, we exploit cross-state, cross-year variation in income distribution and deregulation to assess the impact of a single policy change on different state economies.

We use the differences-in-differences estimation technique to assess the relationship between branch deregulation and income distribution. Specifically,

$$Y_{s,t} = \alpha_s + \beta_t + \gamma D_{s,t} + \delta X_{s,t} + \varepsilon_{s,t} \qquad s = 1, \ldots, 50 \qquad t = 1976, \ldots, 2005 \qquad (3)$$

where $Y_{s,t}$ is a measure of income distribution in state s during year t, α and β are vectors of state- and year-fixed effects, $X_{s,t}$ is a set of time-varying state-level variables and $\varepsilon_{s,t}$ is the error term. The variable of interest is D, a dummy variable that takes on the value one after a state deregulates. The year-dummy variables control for economy-wide shocks that might drive income distribution over time, such as business cycles, long-term trends in income distribution and changes in female labor force participation. The state-dummy variables control for unobserved, time-invariant state characteristics that shape income distribution across states. The coefficient γ therefore indicates the impact of branch deregulation on income distribution. A positive and significant γ suggests that deregulation exerts a positive effect on the degree of income inequality, while a negative and significant γ indicates that deregulation pushes income inequality lower.

The paper's major finding is that deregulation of branching restrictions reduced income inequality. After controlling for national trends in income inequality, the Gini coefficient of income inequality drops after bank branch deregulation. The drop becomes statistically significant three years after deregulation. The negative impact of bank branch deregulation on income inequality is a level effect that fully materializes over the six years following deregulation.

The negative relationship between branch deregulation and inequality is robust to using different measures of income distribution, examining different components of income, controlling for many time-varying state characteristics and conditioning on state- and year-fixed effects. While income inequality widened in the USA during this period, we show that branch deregulation lowered income inequality relative to this national trend by using year-fixed effects. The magnitude is consequential: deregulation explains 60 per cent of the variation of income inequality during the sample period relative to state and year averages. Furthermore, deregulation reduces income inequality by exerting a disproportionately positive impact on the poor, not by hurting the rich.

Again, the analysis has limitations. This study examines the USA. Do these results hold for other countries? While Burgess and Pande (2005) find similarly compelling evidence for India, do these findings generalize to other countries with political and legal institutions? Furthermore, we study one specific regulatory reform. Do these results hold for other policy reforms that boost competition among banks? While these shortcomings should be addressed, the empirical results thus far support a class of models predicting that better functioning financial systems disproportionately help the poor.

4.4 Discrimination

With Alex Levkov and Yona Rubinstein, I have been examining whether the intensification of bank competition reduces discrimination (Levine *et al.*, 2008). Here, we again use branch deregulation across the states of the USA as an exogenous increase in competition. We have data on hundreds of thousands of individuals across all of the US states for the period 1976–2005.

Using standard labor market procedures, we compute the race gap: the difference between the wage rates of white men and black men after controlling for a wide array of personal characteristics. The race gap is the difference between white and black wage rates that is unaccounted for observable characteristics. As in other studies, we find a positive race gap: white wage rates are above black wage rates when holding other traits constant. Then, controlling for state- and year-fixed effects, we study how this race gap varies with deregulation.

We find that the race gap falls after deregulation. After conditioning on individual characteristics, as well as state- and year-fixed effects, the race gap drops by about 20 per cent after a state removes restrictions on intra-state branching. More specifically, before a state deregulates, a white man with identical observable characteristics to a black man earns 14 per cent more. After a state deregulates, the race gap falls to 11 per cent. These findings suggest that improving the financial system reduces discrimination, expanding the opportunities of groups that have been disproportionately stuck at the bottom of the distribution of income.

5 Concluding Remarks

I conclude with two observations about policy.

First, improvements in the financial system can increase both efficiency and equity. For comparison purposes, consider redistributive policies. Many theories motivate redistributive policies as a mechanism for de-linking an individual's opportunities from parental wealth. As I mentioned earlier, however, one cannot simply change the distribution of income and hold everything else constant. Redistributive policies create disincentives to work and save, although researchers debate the actual economic magnitudes of these disincentive effects. These tensions between efficiency and equity, however, vanish when focusing on financial sector reforms. Financial developments that expand individual economic opportunity create positive, not negative, incentive effects, and avoid the adverse repercussions associated with attempts to equalize outcomes.

My second policy observation is that this assessment of the costs of financial development is too good to be true. The evidence suggests that improvements in the financial system accelerate economic growth, while

disproportionately helping the poor. This raises an obvious question: if finance is so beneficial, why do only a handful of countries have well-functioning financial systems?

I believe the answer is also obvious: some people do not want well-functioning financial systems that give the economically disenfranchised greater opportunities. They do not want to compete on equal terms. For some, there are huge costs associated with financial development because well-functioning financial systems will expose them to greater competition. In the USA, monopolistic banks and their clients benefited handsomely for almost a century from bank regulations that protected them from competition. These banks used their monopolistic rents to maintain political support for these regulations. The elite favored protective bank regulations even though these regulations hindered aggregate growth. Indeed, distributional considerations have dominated debates about financial policies since Hamilton and Jefferson first tangled over the creation of a national bank as discussed by Beck *et al.* (2008). Similar distributional battles shape financial policies around the world as shown by Barth *et al.* (2006) and Haber (2007). Many countries do not have well-functioning financial systems because decision makers do not view it as in their best interests to create well-functioning financial systems. Generating financial reforms, therefore, will involve much more than identifying which financial sector policies are good for economic growth in general and the poor in particular.

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