Poverty Traps

Oriana Bandiera Robin Burgess Anton Heil Munshi Sulaiman*

Abstract

Poverty traps are among the most influential yet elusive ideas in economics. This chapter reviews the challenges involved in identifying poverty traps and surveys the progress made over the past quarter century. It examines both individual and societal traps, and explores the links between them. Individual traps are feedback mechanisms that make poverty self-reinforcing. Societal poverty traps are interactions between workers or firms create complementarities and can lead to multiple equilibria at an aggregate level. We also discuss evidence on the mechanisms that underlie each of these traps. We highlight open questions and draw policy implications.

1 Introduction

Few ideas in economics are as enduring or as influential as poverty traps. For over a century, economists have described and, later, formally modeled, mechanisms that make poverty self-reinforcing for individuals and nations alike. This success can be attributed to two factors: one scholarly and one practical.

Scholars of economic development rely on poverty traps to explain persistent wealth disparities across individuals and nations that are too large to be explained by differences in fundamental traits or exposure to idiosyncratic shocks.

Practitioners rely on poverty traps to guide the design and the rationale of anti-poverty policies. If poverty is self-reinforcing, that is, arising from feedback mechanisms generated by low income, then one-off transfers that enable households to cross critical thresholds will have persistent effects on productivity. If so, poverty reduction causes economic growth because it releases the productive potential of those trapped in poverty. If, by contrast, poverty is driven

*We thank Jacopo Olivieri and Kate Banner for outstanding research assistance. We are grateful to Chris Udry and the editors for their thoughtful discussion and helpful comments. We also thank Vittorio Bassi, Chris Barrett, Michael Carter, Ed Jee, and Tommaso Porzio, for their detailed feedback.

by shocks or individual traits that do not generate feedback loops, then redistribution serves mainly to insure consumption against negative shocks and to ensure a minimally adequate level of consumption for those whose earnings potential cannot be increased.

This chapter reviews the empirical literature on poverty traps together with evidence on the mechanisms driving poverty and the effectiveness of alternative interventions aimed at poverty reduction. We discuss two types of traps: individual and societal. The first refers to mechanisms embedded in individual people or in individual nations, depending on the level of analysis. These explain why people (or nations) that are similar except for their initial level of wealth can end up with very different outcomes. The second refers to mechanisms embedded in the relationship between people or groups of people (networks, communities, firms), for instance complementarities that reduce joint costs. These explain why societies made of identical individuals can end up with very different outcomes.

The literature on poverty traps is, not surprisingly, very large and very diverse. Over the course of the last century, qualitative theories and direct observations have given way to formal models and cross-country estimates, and finally to microdata and the estimation of individual poverty traps. This chapter focuses on micro evidence and on the micro foundations of macro evidence. We do not cover representative agent macro models of poverty traps and we also leave out the large literature that tests for poverty traps using cross-country data.[1]

We start in section 2 by providing some descriptive statistics on the work of the poor and trajectories out of poverty. Section 3 looks back at the origins of poverty traps in the economic literature and links to modern theories. Here, we also provide a short overview on theories of individual and societal poverty traps. Section 4 reviews the evidence on individual poverty traps. Section 5 reviews the evidence on credit and labor markets, whose failures make poverty traps bind. This creates a link between individual and societal traps, which we then discuss in section 6. Sections 7 and 8 conclude with open questions for future research and policy implications.

Our reading of the literature suggests two main paths for future research in this area. The first begins with the recognition that the distinction between traits, shocks and traps as separate causes of poverty is useful for exposition, but in practice the three are likely to coexist. Searching for a single, or even dominant, determinant of poverty is unlikely to advance our understanding of these issues. Rather, we need to make progress in understanding how the

[1]These are covered in detail by Azariadis and Stachurski (2005) and Johnson and Papageorgiou (2020). We build on previous reviews and books on poverty traps: Bowles et al. (2011), Kraay and McKenzie (2014), Barrett et al. (2016), and Barrett et al. (2019)

three interact and how to identify which people are primarily affected by which channel. Such an understanding is essential for designing and targeting policies in a manner that reflects the heterogeneity of poverty's underlying causes.

The second path leads to the two-way link between individual and aggregate poverty traps. It clarifies how the wealth and opportunities available to individuals shape the productive capacity of the wider economy, and how aggregate conditions feed back into individual choices through prices and market power in labor markets. This interdependence means that micro-level decisions cannot be analyzed independently of the macro environment, just as macro outcomes reflect the coordination between individual choices. These connections increasingly extend beyond national borders. As trade, migration, and technology connect people across the globe, geographic boundaries that once segmented economies lose relevance, and externalities travel across borders. Recognizing these interactions is essential for understanding the aggregate consequences of individual poverty traps.

2 Poverty Traps at Work

2.1 Individual traps

People are poor because their earnings are low. To understand the determinants of poverty, and the mechanisms that may sustain poverty traps, we need to establish whether low earnings arise because the poor are less likely to be in paid employment, work in worse-paid occupations, or have lower productivity within the same jobs. The answers are likely to depend on the context, in particular on the organization of labor that determines which jobs are available and what is required to access them.

In this section, we draw evidence from two recent papers that assemble individual level data from different sources to describe the jobs of the poor and provide evidence on the link between poverty and occupational choice. Bandiera et al. (2022) harmonize IPUMS and DHS microdata to put together basic labor market indicators by wealth quintile for more than one hundred countries observed two or three times between 1990 and 2020.[2] Wealth is measured as the value of household assets, and because both sources are nationally representative, the quintiles span the full asset distribution within each country. The authors document two broad shifts that accompany development: a movement from subsistence production

[2]Data can be downloaded from [URL Placeholder]

to market engagement—the marketization of labor—and, to follow, a reallocation from self-employment toward salaried work—the rise of firms. Two patterns are noteworthy. First, both transitions begin from the top, in the sense that individuals in the highest wealth quintile move to self-employment first, followed by the second, third, etc., until nobody but the poorest are left at the margins of the market economy. The shift from self-employment to salaried employment also unfolds from the richest to the poorest. Similar differences also emerge by gender, but the wealth gradient is more pronounced: individuals in the top quintile are much more likely to hold salaried jobs than those in the bottom quintile, with gaps on the order of 20 to 30 percentage points for both men and women. By contrast, differences by gender within a given wealth quintile are comparatively modest.

Armentano et al. (2025) analyze repeated cross sections and household panels in five countries over a 10–15 year period. Taken together, the five countries (China, India, Indonesia, Mexico, and South Africa) account for 70% of global poverty decline, measured as the headcount below the International Poverty Line, since 1990. They show that the poverty decline occurs primarily through improvements in productivity within occupations over the life cycle and through occupational change. This entails entry into self-employment in the poorer countries (India, Indonesia, China) and shifting from self-employment to salaried work in the richer (South Africa, Mexico). In comparison, rural–urban migration and structural transformation from agriculture to industry and services account for only a negligible fraction of overall poverty reduction. Finally, there is a lot of churning, with households falling below and rising above the poverty line.

Comparing poor and non-poor individuals at a given level of development, or tracing the outcomes of the poor across time and rising national income, yields a consistent pattern: poverty is closely associated with occupations. As we will see, this correlation is a central assumption in models of poverty traps. Occupational upgrading may require fixed-cost investments that the poorest are unable to finance, creating a trap among households with very low initial resources. This is an investment trap in the sense that the poor are unable to shift resources from the future and hence finance investments that would yield positive net returns. It is poverty that keeps them poor. Finally, we note that individual traits that are not affected by poverty, such as gender, also matter for occupational choice. Traits, traps and shocks are likely to interact and coexist in the same setting. These interactions play a key role in the empirical tests of poverty traps as we will discuss in section 4.

2.2 Societal traps

At the aggregate level, the organization of labor in low-income countries differs markedly from that in richer economies. This is so for two reasons. The first is mechanical, as the aggregate employment statistics are means of the individual statistics; thus, a country with many self-employed will have few firms, for instance. There are however other consequences that only emerge because of the interaction between individuals. For instance, the presence of externalities in production might increase the returns to opening a firm when other firms have already opened. These mechanisms can produce two equilibria: one with few firms and widespread self-employment, and another with many firms and most workers in salaried jobs. If the second configuration is more efficient—because it allows economies of scale, specialization, or complementarities among workers—aggregate output will be higher in that equilibrium. Introducing a link between a country's initial wealth and the likelihood of coordinated firm entry, for example through the presence of entrepreneurs who can begin the process, creates the possibility of an aggregate poverty trap. Poor societies may not have the initial conditions needed to start firms and therefore remain in the low-firm equilibrium, whereas slightly richer societies may have enough potential entrepreneurs to initiate firm creation, encouraging others to do the same and placing the economy in the higher-productivity equilibrium. The shift from self-employment to salaried employment is accompanied by an expansion in the range and variety of jobs, and by a finer matching between workers' skills and the demands of individual roles (Bandiera et al., 2022). In low-income settings, tiny firm sizes require workers to perform a broad array of tasks. Specialization is limited, and the coarse nature of job-specific skill requirements reduces the scope for precise skill matching. The transition toward an economy in which more workers are employed in a smaller number of large firms is thus also a transition toward a different organization of labor within the firm. If these organizational forms are linked to higher productivity, the persistence of small-scale production can be a mechanism through which aggregate-level traps are sustained.

3 History of poverty traps in economics

3.1 Individual traps

The idea of poverty traps—and, more broadly, of multiple equilibria—has been central to development theory since the mid-twentieth century, though its origins stretch much further

back. In 1798, Malthus proposed that fertility responds to income: as countries become richer, fertility rises and mortality falls, expanding population and the dependency ratio. This demographic response slows income growth and ensures that productivity gains are dissipated through population expansion. Although Malthus's model yielded a single low-income steady state rather than genuine multiplicity, it introduced the foundational idea that income may influence its own determinants, establishing a feedback mechanism that later poverty trap theories would formalize.[3] In the paper that laid the foundations of neoclassical economic growth, Solow (1956) shows that feedback mechanisms from income to population growth or savings flip the core result of convergence to a single equilibrium to multiple equilibria with poverty traps.[4]

Although devised to explain variation across countries, the underlying logic does not rely on interactions among agents and therefore applies equally to individuals or households, or indeed any unit that makes economically relevant choices. The link between health status and income is the mechanism at the core of Dasgupta and Ray (1986) who argue that labor productivity depends on nutrition, and nutrition depends on consumption. At very low levels of income, individuals cannot consume enough to maintain the caloric intake needed for effective work. Their earning capacity is impaired, which keeps income low, perpetuating a feedback loop between inadequate consumption and low productivity. This mechanism creates individual-level traps rooted in biology that echo the ideas of Malthus and Solow. In general, biological constraints are lower bounds on inputs essential for human life, that is nutrition, healthcare, sleep and mild temperatures. These constraints can generate poverty traps because they require a minimum level of expenditure in each period, therefore limiting the amount that can be invested in the capacity to generate future income. The link between income and savings through aspirations has also been modeled at the individual level. Ray (2006) and Genicot and Ray (2017) argue that incentives to invest depend on the "aspiration gap", the distance between what an individual hopes for and what they can reasonably achieve. The relationship is non-monotonic: if the gap is small, aspirations are already fulfilled; if the gap is large, the effort required appears futile. Finally, individual poverty traps can also arise because productivity depends on investments in physical and human capital, and these are

[3] Malthus's pessimism failed to predict the effects of the industrial revolution. His account was later revised, most notably by Boserup (1975), who argued that population growth can spur technological progress and raise output per worker.

[4] Solow (1956) models the demographic transition by allowing the population growth rate to rise and then fall with income; while modeling savings behavior by combining a subsistence consumption constraint, which binds at low income and keeps savings near zero, with aspirations for social mobility, which create incentives to save at intermediate income levels.

"lumpy" so that wealth at birth determines who can afford to invest (A. Banerjee & Newman, 1993; Galor & Zeira, 1993).

3.2 Societal traps

Interactions among individuals are central to understanding poverty traps at the societal level, and to assessing how these traps relate to those faced by individuals. Complementarities between individual actions can generate multiple equilibria and require coordination for the economy to reach the most desirable one. This idea was first proposed in Rosenstein-Rodan (1943), one of the most influential contributions to the study of poverty traps and to the case for "Big Push" policies, even though neither term appears in the text. His central insight is that industrialization may be held back by complementarities: the return to one investment is low unless others undertake similar investments. A single industry may not survive in a poor economy because domestic demand would be too limited to justify large-scale production. Yet, if many industries expand together, each creates the market for the others, as wages earned in one sector support demand in another. The trap arises from a coordination failure: individual firms do not internalize the effect of their investment on the viability of others. This produces multiple equilibria, including a low-investment trap in which firms remain in traditional production, and a high-level equilibrium in which coordinated investment leads to industrialization and growth. The policy implications of Rosenstein-Rodan (1943) were the subject of intense debate between proponents of balanced growth models and Big Push policies, such as Nurkse (1953), on one side and supporters of unbalanced growth, most notably Hirschman (1958), on the other.

A formalization of Big Push logic appears in Murphy et al. (1989), who develop a general equilibrium model with increasing returns under monopolistic competition. Their economy produces a continuum of manufactured goods alongside a traditional agricultural good with constant returns. Because manufacturing workers devote a larger share of income to manufactured goods than agricultural workers, industrialization in one sector expands demand for others. This spillover generates complementarities: the incentive to industrialize is greater when others do so. When fixed costs are high and domestic markets are small, the model supports multiple equilibria, including a low-industrialization state with small markets and low incomes, and a high-industrialization equilibrium in which markets are larger and manufacturing profitable.

The strength of these complementarities depends on market size and integration. In small

open economies, firms sell primarily abroad, so domestic demand plays a limited role in determining viability and the likelihood of a domestic poverty trap is reduced. In autarkic economies, by contrast, firms rely entirely on domestic demand; poverty traps are more likely, as domestic purchasing power constrains the expansion of industry.

Market size shapes not only the existence of firms but also their internal organization. Labor specialization is feasible only when demand is sufficient to support it (Smith, 1776). At the same time, improvements in the organization of labor can expand the market by raising productivity and incomes (Young, 1928). The link between market size and labor organization therefore runs in both directions. Limited specialization of local inputs, like labor, can thus generate a trap, even when the economy is open to selling outputs abroad (Rodriguez-Clare, 1996; Rodrik, 1996). Such mechanisms seem plausible given the aggregate statistics discussed in the previous section: in high-income economies, most workers are employed in large firms where productivity is high. In low-income economies, most people operate their own businesses; only a small fraction have a comparative advantage in entrepreneurship, yet wage jobs are scarce because so few firms are large enough to hire.

The logic behind coordination failures can also apply to knowledge spillovers and technology adoption. For example, experimenting with a new agricultural technology generates information about local suitability that benefits others beyond the initial adopter. Such knowledge spillovers can lead to tipping points in technology adoption.

4 Individual poverty traps

The defining feature of poverty traps is the self-reinforcing mechanism through which poverty begets poverty. In this section, we discuss mechanisms and evidence through which this can occur at the individual level. However, we consider a general notion of an "individual", which could be a person, household, region, or country. It is convenient to group these different levels of aggregation together since similar analytical tools and empirical methods apply, but most of the evidence will focus on individual persons or households. What differentiates the traps in this section from the societal traps in the next is that there is no interaction between actors.

The link between earnings in t and earnings in $t+1$, that can generate an individual poverty trap, is through some productive capacity. Individuals invest part of their earnings in t into their productive capacity, which they then use to produce earnings in $t+1$ (Figure 1). In

this general set-up, productive capacity can be any stock that links earnings across time. A classic example is physical capital linking income across time periods in the Solow model. But productive capacity can be anything that (i) can be bought from earnings, (ii) accumulated over time and (iii) affects earnings. Different theories of individual poverty traps can be classified by the type of productive capacity they focus on, ranging from physical assets, education, and nutrition, to physical and mental health. Time periods, t, can be days, weeks, months, years, or even generations—more on this below.

Neoclassical growth theory (the Solow model in particular) has demonstrated that the existence of a feedback loop, such as in Figure 1, does not imply that there is a poverty trap. The feedback loop might simply imply that the individual over time converges to a unique steady state level of earnings, determined by their immutable characteristics. Below this steady state, the feedback loop is positive, leading to increased earnings; above it, the feedback loop is negative, leading to reduced earnings. This steady state might be low and the individual poor, but this would not constitute a poverty trap. If the determinants of low productive capacity cannot be changed—given the time frame and available technologies—there is no trap from which to escape.[5]

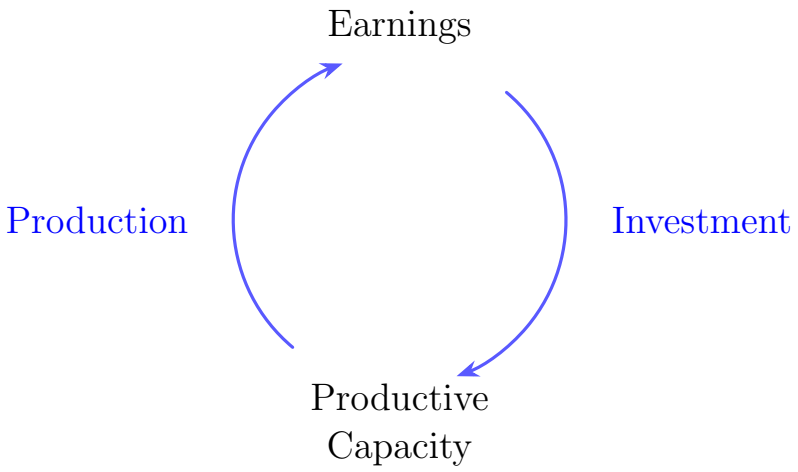


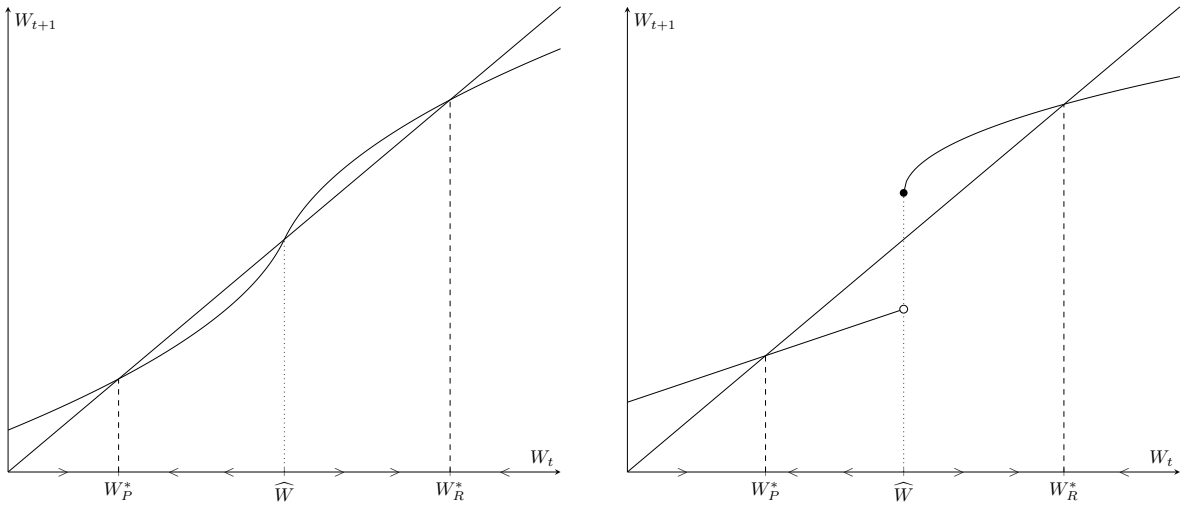
Figure 1: Feedback loop linking earnings and productive capacity

An individual poverty trap arises if either the investment function, which maps earnings into productive capacity, or the production function, which maps productive capacity into

[5]Note that some authors also refer to a single, low equilibrium as a trap (e.g. Barrett et al., 2016). Instead, we restrict the definition of a trap to situations with two or more equilibria where the low equilibrium constitutes absolute poverty. This definition seems most pertinent to policy design: multiple equilibria justify large, one-off transfers, while single-equilibrium poverty necessitates regular consumption support.

earnings, exhibits strong non-convexities. On the investment side, non-convexities could stem from a savings rate that rises with income due to subsistence consumption constraints, or indivisible investment opportunities. On the production side, non-convexity results from increasing returns to the productive capacity. Any such non-convexity can turn the feedback loop into a trap: at low earnings, feedback is negative, leading to even lower earnings, while at high earnings, feedback turns positive, allowing the individual to reach a high-earnings steady state.

Figure 2 illustrates the relationship between productive capacity, W, today and tomorrow under such a scenario. Panels a) and b) show two different types of poverty trap transition dynamics which are typical of different mechanisms. In panel a), the transition is smooth, reflecting a continuous underlying productive capacity, such as health or nutrition. In the second case, there is a discrete jump at the threshold value, which is typical of indivisible investments, such as chunky productive assets or occupational change. In both cases, the curve crosses the 45-degree line from above twice, indicating two stable equilibria. In between those is a threshold value at which the predicted change in productive capacity changes sign. Individuals who start to the left of this threshold enter a negative feedback loop and descend to a low-earnings equilibrium; individuals who start to the right enter a virtuous cycle that leads to the high equilibrium. Crucially, an individual with the same traits can end up in either a high or a low earnings equilibrium, depending solely on their initial endowment.



(a) Continuous capacity

(b) Indivisible investment

Figure 2: Poverty traps transition curves

Empirical research on individual poverty traps can be classified into three broad categories. The first estimates intertemporal transition equations in earnings or assets reported in Figure 2, using data on the same individual over two or more time periods.

The second type of evidence builds on the insight that consumption and investment choices made by forward-looking individuals will depend on whether they face a poverty-trap. For example, individuals close to a poverty threshold (such as point B in Figure 2) are expected to reduce consumption and increase investment in their productive capacity to reach the threshold and escape the trap.

These approaches are complementary in the type of data they require and the null hypothesis they test. Estimating the transition equation requires long panels where random shocks have mostly averaged out and households are compared once they have reached different steady states. The consumption–investment approach, by contrast, uses larger samples over shorter panels and looks at how households react immediately to a shock when a non-convexity might matter. Data permitting, the combination of the two can be quite useful both to rule out spurious factors that affect one alone and to estimate heterogeneity.

The third type of evidence explores specific mechanisms that could generate a negative feedback loop at low levels of earnings. Some mechanisms relate low earnings to low investment in productive capacity, for example through subsistence consumption. Others explore different forms of productive capacity, such as nutrition or aspirations, and test whether these have a causal (nonlinear) relationship with earnings. We now explore each of these in turn.

4.1 Transition Dynamics

The most direct testable implication of individual poverty-trap models is that individuals who start with low earnings or wealth should experience zero or negative growth, while those who start with a richer endowment grow quickly. This insight has motivated a rich literature analyzing countries' GDP trajectories.[6]

More recent research has used household survey data to estimate transition dynamics directly, relating households' earnings—or, more commonly, assets—across two time periods. Nonlinear or non-parametric models are used to accommodate the possible S-shaped dynamics or discontinuities shown in figure 2.

[6] See recent examples by Graham and Temple (2006) and Patel et al. (2021), and the detailed reviews by Azariadis and Stachurski (2005) and Johnson and Papageorgiou (2020).

The papers that pioneered the estimation of nonlinear transition dynamics used observational variation in earnings or assets in one period to predict earnings or assets in the next. Early examples include Jalan and Ravallion (2004) and Lokshin and Ravallion (2004). Using panel data from rural China, Russia, and Hungary, they estimate parametric transition equations for income and consumption with a cubic polynomial. They find some evidence of nonlinear transitions, but these are insufficient to generate the dynamics symptomatic of poverty traps, which is consistent with observations being far from the threshold should one exist. The authors do find, however, that poor households take longer to recover from a negative shock than the rich. The authors also note that income is volatile and may reflect village-level informal insurance rather than underlying productive capacity (see also Barrett et al., 2006). Similarly, consumption dynamics are difficult to interpret as forward-looking households engage in intertemporal optimization (Skiba, 1978). For these reasons, subsequent work has focused on the dynamics of wealth or physical assets as the main accumulable resource determining household long-run poverty (Carter & Barrett, 2013).

Several panel studies of pastoralist communities find evidence consistent with poverty-trap dynamics. Lybbert et al. (2004), for instance, analyze a long 17-year panel of 55 pastoralist households in rural Ethiopia, a setting in which cattle rearing is the only occupation and cattle therefore serve as the natural measure of productive capacity. Estimating the transition equation for herd size at time $t + k$ as a function of herd size at time t, for different values of k, they find results consistent with poverty traps and identify a threshold of 15–20 cattle—the minimum herd size that permits seasonal migration to better pastures. Barrett et al. (2006) document similar herd-size dynamics for pastoralist communities in northern Kenya. Janzen and Carter (2019) provide causal evidence of such threshold effects in the same Kenyan region using randomly distributed price discounts for index-based livestock insurance. They identify a threshold of approximately 10–15 tropical livestock units: above it, households primarily cope with shocks by selling livestock to smooth consumption; below it, households tend to protect herds by cutting food consumption. Studies of more general asset dynamics in South Africa (Adato et al., 2006) and in Western Kenya and Madagascar (Barrett et al., 2006) also report evidence of multiple equilibria. On the other hand, Naschold (2013) analyzes a household asset index using panel data from Ethiopia and Pakistan and finds no evidence of multiple equilibria.

Studies relying on observational panel data face two challenges in identifying poverty traps. First, baseline assets might be correlated with subsequent accumulation patterns, which can lead to biased estimates of the transition equation. Second, most individuals are likely

observed close to their stable equilibrium, with few observations at an unstable equilibrium, if there is one. For both of these reasons, recent research has focused on settings where large shocks (either positive or negative) provide exogenous variation and push households out of the stable equilibrium. If multiple equilibria exist, a sufficiently large shock can push households across the threshold onto a path toward the other stable equilibrium.

For example, Carter et al. (2007) follow households in Ethiopia and Honduras after severe natural disasters and document that the poorest are more severely affected. They also show suggestive evidence of very slow or no recovery for some households after the temporary disaster, suggesting that these households might have fallen into a trap.

Arunachalam and Shenoy (2017) develop this idea further and propose an ingenious test built on the following intuition. Suppose everyone is in the same steady state, or in multiple steady states, and what we observe is the steady state level plus idiosyncratic noise. If there is only one steady state, households with high observed income are more likely to have experienced a positive shock, since shocks are the only reason some appear richer than others. Under this scenario, high income today should predict a higher probability of negative growth tomorrow. Testing this requires panel data to calculate whether those observed with high income in one period are more likely to see a fall in income in the next. If there is a poverty trap, this relationship is no longer globally monotonic. A threshold emerges—whose location need not be known a priori—at which the pattern changes. Within each region to the left and right of the unstable equilibrium, the relationship remains monotonic: higher income predicts a higher probability of negative growth, reflecting reversion toward the relevant stable equilibrium. However, crossing the threshold from just below to just above causes a discrete drop in the probability of negative growth, as households shift from reverting toward the low equilibrium to converging toward the high one.

Arunachalam and Shenoy (2017) apply their semi-parametric test to the ARIS-REDS data, which track 7,500 Indian rural households across three survey waves spanning over 30 years. They find no evidence of a poverty trap, neither during the 1970s when India's economy stagnated, nor during 1982–1999 when it experienced growth. Instead, they find strong evidence of conditional convergence along caste lines, with upper caste households converging to a steady state level of wealth three times higher than disadvantaged castes. This points to a society where people who are born to low caste and poor parents stay poor for life, as it is their caste rather than lack of skills or unmet potential that determines their place in the income distribution.

While observed or inferred shocks can provide informative variation, a concern remains that the occurrence or severity of such shocks is itself correlated with baseline wealth or ability or other household characteristics that affect subsequent asset accumulation. Balboni et al. (2022) make progress on this by exploiting the randomized roll-out of BRAC's Targeting the Ultra-Poor (TUP) program, which provided large asset transfers—mainly livestock—to 6,732 extremely poor women in over 1,300 villages (Bandiera et al., 2017). The authors collect data on the universe of beneficiaries every 2–3 years between 2007 and 2018. Randomization was done by village cluster: all the villages served by the same BRAC officers were assigned to the same group. Treatment clusters received the asset transfer in 2007 while control clusters only became eligible after 2011. The control group plays a key role in the analysis because it shows the counterfactual transition equation that captures solely differences among households or the places they live and the pattern of shock they face.

The occupational structure in these villages is very simple: beneficiaries are exclusively engaged in casual labor (either in agriculture or as domestic maids), while wealthier women only work in livestock rearing, which yields higher and more stable returns. Men also choose between casual labor (agriculture and rickshaw pulling top the list) or land cultivation. Accordingly, the distribution of household productive assets is bimodal. The value of the transfer shifts a sizeable share of households from the low mode to the area with the lowest density. This is fortuitous because that is precisely where the unstable steady state will be if it exists. The authors exploit small differences in baseline wealth and in the value of the assets in local markets to estimate the transition equation for asset values between 2007 and 2011. They find that it is S-shaped and crosses the 45-degree line from below at BDT 9,309 (USD 504 PPP), in the region of low density identified above. By 2011, four years after the intervention, treated households whose baseline assets (including the transfer) exceed the threshold are more likely to accumulate; those below are more likely to lose assets. By 2018, the gap has widened further. Treated households above the threshold hold more assets, are more likely to own land, have shifted into more productive occupations, and report higher consumption.[7]

The key advantage of using randomized variation is the availability of a valid counterfactual: households in control villages, who are identical to the treated other than for the transfer. Consistent with earlier studies, the estimated transition equation in control villages crosses the 45-degree line from above at a single point, implying mean reversion toward a single low-level steady state that corresponds to the low mode of the village asset distribution.

[7] In line with the consumption response tests discussed below, households that will eventually escape poverty reduce consumption just after receiving the transfer to finance investment.

4.2 Consumption Behavior

Theoretical work has long highlighted that households facing a non-convex production technology will endogenously adjust their consumption and savings (Skiba, 1978; Buera, 2009; Ikegami et al., 2018; Jee, 2025). If an asset threshold exists at which investments become profitable and self-sustaining, households just below it may reduce consumption to save toward that threshold, while those just above may reduce consumption following an income shock to protect their assets. These behavioral responses provide testable predictions of poverty trap models beyond asset dynamics alone.

The canonical model of intertemporal decision-making with non-convex production technology (Buera, 2009; Ikegami et al., 2018; Jee, 2025) includes two ingredients crucial for studying poverty traps empirically: shocks and heterogeneous household ability. Households face the choice to invest in a high-return production technology that requires an upfront fixed cost. Because households are forward looking, they can save to undertake this investment in a future period. Households vary in their productivity, and this "ability" determines for whom the poverty trap binds. High-ability households always find it worthwhile to save and invest in the high-return technology. Low-ability households never invest and converge to a low-wealth, low-earnings equilibrium (a unique steady state determined by immutable characteristics). In between lies a mid-range of ability at which two equilibria exist, such that long-run outcomes depend on initial endowments, ability, and luck. For these households a poverty trap can exist even under optimal lifetime consumption planning because they might not find it worthwhile to save to invest in the high-return technology, or they may be unable to do so when subsistence consumption constraints bind. Random income shocks further complicate empirical identification. A wealthy household can fall below the threshold after a run of adverse shocks, and a poor household can cross it after an unexpected windfall. Such cases do not imply the absence of an underlying non-convexity, but they mask it in the realized outcome data.

Several studies provide evidence consistent with these predictions. In the vicinity of estimated asset thresholds—around the price of the fixed investment—households tend to reduce consumption (Balboni et al., 2022; Jee, 2025). The model also predicts that households facing negative shocks have a stnrong incentive to protect their assets. Instead of selling assets to smooth consumption—the prediction of a standard household model—these households engage in "asset smoothing". They accept large consumption reductions to preserve the chance of crossing the threshold, or to avoid falling back below it.

Such behavior has been documented in many contexts. Fafchamps et al. (1998) document that households in Burkina Faso do not sell livestock as a buffer stock in the face of severe weather shocks. Similarly, pastoralist communities in Kenya prioritize preserving livestock assets above threshold values over smoothing consumption (McPeak, 2004; Barrett et al., 2006; Lybbert & McPeak, 2012). Similarly, Carter and Lybbert (2012) use panel data from rural Burkina Faso, where rainfall shocks create exogenous variation in income. The dataset tracks assets and consumption over four years, including one year with a major drought. They show that households below an asset threshold offset only 2–4% of income shocks with livestock sales, whereas richer households offset 53–94% of shocks with livestock sales. In longitudinal data covering a severe drought in Zimbabwe, Hoddinott (2006) documents that households protect their livestock wealth at the direct expense of their human capital, resulting in a temporary decline in women's health and a permanent stunting of young children's growth. These consumption patterns are perhaps best explained by the presence of asset thresholds in settings where financial markets—which might otherwise provide alternative mechanisms for smoothing consumption or investment—are entirely absent. Where (informal) credit is available, households' borrowing behavior can provide further insights. For example, Santos and Barrett (2011) revisits the data on Ethiopian pastoralists to show that informal lending is provided as a safety net for households close to the asset threshold while those with too few or too much livestock do not take up loans.

The final behavioral implication of the poverty traps model concerns risk-taking. Given a chance of escaping poverty, otherwise risk-averse households may become risk-taking and undertake "desperate gambles". This behavior arises among those too poor to escape the trap via safe investment, yet wealthy enough that a lucky outcome could propel them over the critical threshold (Lybbert & Barrett, 2011). Kaboski et al. (2022) test this idea experimentally in Uganda, offering participants a choice between a safer, low-payoff lottery and a riskier, large-payoff lottery. They find that a large fraction of households (27%) chose the riskier lottery, even though it had a lower expected payoff. They also find that the larger payoff allows winners to make indivisible investments which winners of smaller grants cannot afford.

In recent work, Jee (2025) combines these insights into a comprehensive study of poverty traps. He constructs and estimates a unified model that incorporates the production function, households' intertemporal consumption choices, and the resulting asset transition equation. Building on the canonical model outlined above, the framework features a fixed cost that creates non-convexities in production, a threshold level of wealth, and heterogeneous,

forward-looking households who may reduce consumption to accumulate assets and cross this threshold. To estimate the model, Jee (2025) harmonizes microdata from 27 randomized cash and asset-transfer experiments covering nearly 75,000 households in 17 countries.

Jee (2025) finds widespread evidence of poverty traps. In roughly half of the studies, household production functions exhibit increasing returns to scale. This non-convexity leads to non-monotonic consumption—indicative of forward-looking optimization—and generates multiple steady states in the asset accumulation equation.

A further innovation of the paper is that it allows for differences in households' ability and endogenous consumption response, which allows Jee (2025) to distinguish households that are merely below the threshold from households that are trapped. The paper finds that although 59% of households hold assets below the site-specific poverty threshold implied by the estimated production function, just over 40% of these (25% of the total) are trapped in poverty. This discrepancy reflects two forces. First, heterogeneous ability implies different long-run outcomes: high (low) ability households face a unique, high (low) steady state. Second, consumption is endogenous, such that households below but close to the threshold can save in order to reach it. The author also provides descriptive evidence indicating that the mechanisms underlying poverty traps in the different studies are indivisible investments, such as cows or a metal roof.

In the presence of poverty traps, policy makers must trade off targeting transfers based on need against targeting on greatest impact. A transfer of a given size may be more cost effective when targeted at households that are close to, but below, the wealth threshold, than at the most vulnerable who are far below the threshold. However, based on a calibrated household growth model, that trades off long-run productivity effects of transfers with the higher marginal utility of additional wealth for the poorest, Jee (2025) argues that optimal transfer policies should target the most vulnerable households. Targeting transfers based on current consumption approximates the optimal transfer closely. This is because low consumption signals that a household is saving to escape poverty and thus has a high marginal return to additional wealth.

4.3 Evidence on Mechanisms

Another way to provide evidence on the relevance of poverty traps is by looking at individual mechanisms that can create or exacerbate a feedback loop between individuals' earnings and productive capacity.

The mechanisms focus either on the production or investment side of the feedback loop (Figure 1). On the production side, non-convexity is generated by large, increasing returns to investments in productive capacity, such as nutrition, mental resources and health. On the investment side, subsistence consumption constraints or low, endogenous aspirations prevent individuals from making profitable investments.

Empirical studies on production-side mechanisms typically show evidence of a causal link between a form of productive capacity and earnings. Investment-side studies typically provide increases in earnings (or their timing or uncertainty) and document a savings or investment response.

It is important to remember that a feedback loop as in Figure 1, does not necessarily create the multiple stable equilibria that define a trap as in Figure 2. This means that evidence of a causal link between earnings and productive capacity, or vice versa, while necessary, is not sufficient to conclude the existence of a poverty trap.

We discuss this in detail for the case of nutrition, where most empirical evidence is available. But the same caution applies to the other mechanisms discussed in this section: without tracing the long-run dynamics of capacity measures, we cannot determine conclusively whether individuals are trapped. Nevertheless, studying individual mechanisms remains valuable for understanding the barriers that poor individuals face in accumulating productive capacities. These mechanisms highlight where a trap might be most likely to occur, and even when they do not technically produce a trap, they slow individuals' growth out of poverty.

It is also important to bear in mind that often multiple barriers interact, as the poor face indivisible investments, seasonality, repeated health shocks, malnutrition, and anxiety about the future, all at the same time. Even if one individual feedback mechanism does not create an insurmountable trap, their combination might. This issue becomes particularly pertinent when different forms of productive capacity cannot easily be substituted or exchanged, for example when markets for healthcare, education, psychological care, productive assets, or transport are absent.

4.3.1 Nutrition

A nutrition trap arises from the two-way link between productivity and food consumption. For such a trap to exist, the relationship between income today and income tomorrow must cross the 45-degree line from below. In elasticity terms, this requires that the product of the

elasticity of nutrition with respect to income and the elasticity of income with respect to nutrition be greater than one.

The evidence to date suggests that the link from income to nutrition is real but modest (Subramanian & Deaton, 1996). As households become richer, they spend more on food; however, calorie intake increases only slowly because much of the additional spending goes toward variety, taste, or convenience rather than quantity (Behrman & Deolalikar, 1987; A. V. Banerjee & Duflo, 2007; R. T. Jensen & Miller, 2008). Indeed, the recent estimates of the income elasticity of food from unconditional cash transfer experiments range from 0.03 (Bellemare et al., 2024) to 0.78 (Almås et al., 2019). Even the higher estimates are insufficient to generate a trap unless the elasticity of income or productivity with respect to nutrition is very high.

What about this reverse link from nutrition to income? Here too, the empirical evidence is mixed, and when effects appear they seem concentrated among individuals consuming well below subsistence. Some studies find no effect of improved nutrition on earnings (e.g. Deolalikar, 1988), while others find positive effects, particularly among individuals consuming well below subsistence (Wolgemuth et al., 1982; Strauss, 1986; Schofield, 2014). Within this low-consumption range, small nutritional gains can translate into meaningful improvements in physical work capacity. Beyond it, the relationship flattens: additional calories may improve well-being without increasing productivity.

Perhaps the most important reason for why the nutrition–productivity link may be muted is that, for adults, it may come too late. A large body of evidence (Currie & Hyson, 1999; Maluccio et al., 2009; Cunha et al., 2010; Almond & Currie, 2011; Currie & Vogl, 2013) shows that human capital and labor market outcomes are shaped by conditions in early childhood. Once a critical window for cognitive and physical development has closed, improvements in nutrition during adulthood may raise welfare without meaningfully increasing productivity. The high return to nutritional investments during pregnancy or early childhood suggests the possibility of an inter-generational, nutritional poverty trap. If we take t to be a generation, higher earnings and nutrition for t result in better cognitive development of $t+1$ and thus higher earnings potential in $t+1$.

For adults, the modest income-to-nutrition elasticity above, even when combined with the largest calorie-to-income estimates, makes a nutrition-based poverty trap seem unlikely. The absence of a calorie-based poverty trap does not rule out a micronutrient trap. Evidence from Indonesia shows that iron supplementation significantly increased labor force participation

and earnings, especially among the deficient (Thomas et al., 2006). Because micronutrient deficiencies are widespread and do not map cleanly onto income—and may persist even as incomes rise—they could constrain productivity even when caloric needs are met. Whether this generates a true poverty trap remains unclear, but it suggests that focusing only on calories may miss an important nutrition–productivity channel.

4.3.2 Subsistence Consumption

At the very bottom of the income distribution, households live close to the subsistence level required for survival. The proximity to subsistence can itself generate poverty traps: when nearly all earnings must go toward food and water, little remains for saving or investment. Increases in earnings that raise individuals above subsistence allow an increasing savings rate, generating non-convexity in investment. This mechanism can be exacerbated by risk or seasonality. The vulnerability of households with close to subsistence consumption means that they cannot transfer resources across time or states of the world. Consequently, they cannot make investments at the time of highest return, or they forgo investments with high-expectation, but uncertain returns.

In the lean season, households may sell assets when prices are low or shift labor toward activities that pay immediately, even if doing so reduces total earnings and productivity. In rural India, Rosenzweig and Binswanger (1993) show that poorer households, unable to insure consumption against weather shocks, choose safer but less profitable investment portfolios. In rural Ethiopia, Dercon and Christiaensen (2011) similarly find that downside consumption risk discourages adoption of profitable but risky inputs such as fertilizer, even after accounting for credit constraints. Employment uncertainty can have similar effects. Brooks and Donovan (2020) show that seasonal flash floods in rural Nicaragua cut villages off from outside labor markets, reducing earnings and investment. When footbridges eliminated this uncertainty, farmers increased input expenditures by nearly 60 percent while reducing precautionary crop storage, which was previously being held as a buffer against shocks.

Subsistence constraints distort labor allocation as well as investment. Among smallholders in rural Zambia, Fink et al. (2020) show that during the agricultural lean season—when food stocks are low and credit is scarce—farmers often sell labor to wealthier neighbors through ganyu arrangements, even as they neglect their own plots. To test whether this behavior reflects the need to meet minimum consumption in every period the authors implement a randomized controlled trial offering seasonal loans—either in maize or cash—repayable after the harvest. Treated farmers reduce ganyu labor by 25 percentage points, increase

own-farm labor by 16 percentage points, and experience a 9 percent increase in maize output. Repayment rates exceed 95%, suggesting that neither risk nor moral hazard explains the absence of such loans in equilibrium. The study thus provides compelling evidence that subsistence constraints—not preferences or low returns—limit investment for the poorest.

These distortions can also operate through product markets. In western Kenya, Burke et al. (2019) show that credit market imperfections lead many smallholders to "sell low and buy high": lacking liquidity at harvest, farmers sell grain cheaply to meet pressing cash needs, only to repurchase maize at elevated lean-season prices. Providing harvest-time loans allowed farmers to store grain and capture higher prices.

The presence of subsistence consumption constraints also affects individuals' ability to make risky but high-return investments. Households that barely consume enough to survive suffer disproportionately if an investment yields no returns, and therefore prefer low-risk, low-return investments.[8] Consistent with this idea, Karlan et al. (2014) offer rainfall index insurance to farmers in Ghana and find large take-up and a significant increase in agricultural investment. They argue that uninsured risk is a binding constraint to investment as even poor farmers can find the resources to make investments, once they are insured against catastrophic outcomes. Similarly, G. Lane (2024) partners with BRAC, a large micro-finance institution, to provide emergency loans to households in flood-prone regions in Bangladesh. Treatment households become eligible for the loan if a flood occurs in their area. As households' eligibility was approved prior to the planting season, the loans act like an insurance. The paper finds that offering this loan increases households' investments, leading to a large increase in agricultural production (19%) and per capita consumption (8%). Strikingly, agricultural production rises by 35% in regions that don't experience a flood, indicating that a large part of the gains come from the ex-ante insurance mechanisms that lead to higher investment. Indeed, take-up of the emergency loan is low at around 3–5%. The paper confirms that insuring a small tail of catastrophic outcomes can free resources from ineffective adaptation strategies for more productive investments.

4.3.3 Migration

Migration decisions resemble other investment decisions in that they can be indivisible and have uncertain returns. Because of these features there can be a geographic poverty trap,

[8] A foundational contribution that makes this argument formally is Zimmerman and Carter (2003). See also Barrett and Schofield (2026) for an exposition of risk-based poverty traps. The authors raise the interesting hypothesis that the poor are hit twice: they are more exposed to risk while at the same time less able to insure and less resilient to negative outcomes.

where poverty prevents people from moving to a better earning location. This is especially true if it is something about the place of residence itself that contributes to poverty.[9] For example, Jalan and Ravallion (2002) show that in rural China, living in a poor village reduces the return to individuals' assets. In these cases, moving to a better area, sometimes temporarily, often a larger city, comes with trade-offs. On the one hand, potential migrants seek better employment opportunities and higher wages; on the other hand, they have to cover uncertain travel costs and risk unemployment and the loss of access to informal village institutions. On the benefits side, Beegle et al. (2011) use longitudinal data of individuals over 13 years to document large gains from internal migration. But risks and barriers often prevent internal migration despite large rural–urban wage gaps and large potential gains from seasonal migration. For example, Munshi and Rosenzweig (2016) show that in India households with a migrant are less able to participate in caste-based, informal insurance networks. This is because once a family member migrates, they can no longer be sanctioned or monitored by others in the village.

Another reason for low internal migration is that it comes with great uncertainty for migrants and their family. This is revealed in an experimental study in Bangladesh (Bryan et al., 2014), which offered small cash grants or loans to households to incentivize seasonal migration. The value of the incentive payments was around the price of a bus ticket. Nevertheless, they induced many households to try out seasonal migration, leading to large welfare gains in most cases. Treated households are more likely to migrate again in the following seasons, when no further incentives were offered. This suggests that the one-off treatment had long-lasting effects. Like other investment decisions, migration can create a trap if the poorest cannot afford to undertake the investment or are too vulnerable to take the risk associated with it. In the case of migration, the uncertainty is a particularly strong barrier. In Bangladesh, Bryan et al. (2014) argue that while most migration experiences are successful and the average returns are large and positive, there is a share of migrants who do not find a job in the city. For the poorest households, the cost of such a failed migration attempt can be catastrophic, which means they won't try seasonal migration in the first place. The same mechanism by which the poorest forego profitable but risky investments because a bad outcome would cut their consumption below subsistence level, likely generalizes to other types of uncertain investments, such as agricultural technologies or education.

As mentioned above, vulnerabilities can interact in a pernicious way. One example of this, from De Janvry et al. (2015), is that the risk of losing land rights can prevent households from

[9] Dupas (forthcoming, Chapter 1) provides a detailed discussion of geographic determinants of poverty in this Handbook.

engaging in otherwise profitable migration. The authors show that the roll-out of a land certification program in Mexico increased households' probability to migrate by 28%.

4.3.4 Aspirations

The second set of mechanisms that has received much attention in the literature can be broadly classified as psychological mechanisms, specifically relating to aspiration, mental resources and mental health. These mechanisms are discussed in detail in this handbook by Breza and Kaur (forthcoming, chapter 15). Aspirations matter for poverty traps, because they affect individuals' savings behavior. If low aspirations depress savings at low income levels, they prevent individuals from saving their way out of poverty and thus become self-fulfilling. La Ferrara (2019) provides a detailed review of theoretical mechanisms and empirical evidence on the effect of poverty on aspirations and vice versa. Two findings stand out. First, people who believe they can achieve more tend to invest more in their future. For example, Bernard et al. (2026) evaluate an intervention aimed at raising expectations by exposure to successful role models in rural Ethiopia. Six months later, those exposed exhibited significantly higher aspirations, increased savings and use of credit, greater school enrollment for their children, and more educational spending compared with control groups. The intervention also shifted psychological measures like locus of control, indicating that changing aspirations can translate into observable forward-looking behavior. This suggests that policies aimed at raising aspirations can contribute to poverty reduction. Such policies, however, should complement rather than substitute programs that improve skills or resources. Without real opportunities, higher aspirations may not lead to better outcomes (Genicot & Ray, 2017). Evidence also warns that aspirations can overshoot (Dalton et al., 2016). When goals are set too high relative to what people see as feasible, disappointment and frustration may follow, reducing effort instead of increasing it. The effect of aspirations on development is therefore not linear. Moderate increases in aspirations, matched with pathways to act on them, encourage investment, while unrealistic goals can harm progress. To avoid discouragement, interventions targeting aspirations must simultaneously expand the means to achieve them. On the other hand, improving economic conditions might by itself raise aspirations. Using a cross-randomization design in Kenya, Orkin et al. (2023) show that a workshop designed to raise aspirations also leads to increases in investment and living standards, if implemented by itself, but doesn't generate any additional effects when offered on top of a large, unconditional cash transfer.

The second main insight from the review by La Ferrara (2019) is that it is not only an

individual's own aspirations that shape outcomes, but also the aspirations held by those who influence their trajectory—teachers in the case of students, or employers in the case of workers. Carlana et al. (2022) show that immigrant boys in Italy are substantially more likely than natives to enter vocational tracks despite similar prior achievement, and are more likely to repeat grades. A randomized tutoring and counseling intervention raises academic-track enrollment among high-ability immigrant boys by 11 percentage points, closing the native–immigrant gap, and reduces grade retention. The effects operate through increased motivation and more favorable teacher recommendations, with positive spillovers to immigrant peers but no effects for girls.

4.3.5 Scarce Mental Resources

The second broad class of psychological mechanisms that can generate poverty traps underscores the link between poverty and cognitive function. The "Scarcity" framework, from Mullainathan and Shafir (2013), argues that urgent financial worries absorb mental bandwidth, reducing capacity for decision-making and self-control. Thus scarcity may alter economic decision-making by tilting choices toward the present and "urgent", potentially creating self-reinforcing poverty traps. Mani et al. (2013) provide early empirical evidence through laboratory and field experiments. In a U.S. mall experiment, low-income participants presented with challenging hypothetical financial problems performed significantly worse on cognitive tests than their wealthier counterparts. Similarly, a field study involving 464 Indian sugarcane farmers showed substantially lower cognitive scores pre-harvest—when liquidity was constrained—compared to post-harvest. This within-subject comparison ruled out explanations such as nutrition or stress, confirming that financial scarcity itself impaired cognition, equivalent to losing a full night's sleep.

However, later research offered mixed findings both in the field and in the lab. Carvalho et al. (2016), studying low-income U.S. workers around payday cycles, found no significant impact of short-term financial scarcity on cognition, though individuals did display greater present bias regarding monetary choices. Field experiments elsewhere have supported the cognitive burden hypothesis. Kaur et al. (2025) randomized the timing of wage payments for Indian factory workers, demonstrating that earlier payments reduced financial stress and significantly improved workers' productivity by around 5%, with a larger effect (over 10%) among the poorest workers. Similarly, Ong et al. (2019) studied debt relief in Singapore and found cognitive performance significantly improved after multiple small debts were eliminated. Error rates on cognitive control tasks dropped substantially from 17% to 4%,

emphasizing how mental accounting burdens, rather than total debt amount, significantly constrained cognitive resources.

Yet laboratory attempts to replicate Mani et al. (2013)'s original scarcity priming experiments produced weaker or null effects. A meta-analysis by Szecsi and Szaszi (2024) found only minimal evidence of cognitive impairment from scarcity primes, suggesting context-specific conditions might determine the presence and strength of the effect. Furthermore, a rigorous randomized controlled trial by Szaszi et al. (2023) involving cash transfers to low-income adults in Liberia showed negligible short- and long-term improvements in cognitive outcomes. This result implies any cognitive benefits of alleviating poverty might be smaller and less consistent than initially proposed.

Overall, the literature indicates that poverty's impact on adult cognition exists but is modest, context-dependent, and primarily transient. Short-term financial relief can temporarily improve cognitive function, particularly under acute scarcity, but these effects typically fade without sustained improvement in economic circumstances. Chronic poverty may impair cognition through long-term structural factors, but the acute cognitive load mechanism studied in these experiments is largely reversible. The findings echo those of the nutrition trap—which is reasonable in light of the fact that the bulk of physical and cognitive development happens in childhood, so that one generation is the time span for change.

4.3.6 Mental Health

Sustained exposure to poverty not only exhausts people's mental resources, but is also a risk factor for mental illness. A comprehensive literature review (Ridley et al., 2020) reveals that the poorest in any community are more likely to suffer from anxiety and depression and that negative income shocks and volatility worsen the risk of these diseases. Again, inter-generational effects are likely particularly large. For example, Adhvaryu et al. (2019) use exogenous fluctuations in the price of cocoa to study how the early life experience of poverty affected children's mental health later in life. They find that a rise in the cocoa price in early life decreases the likelihood of severe mental distress in adulthood by nearly half. The effect is absent in regions that do not produce cocoa. Conversely, mental illness negatively affects individuals' economic prospects. Lund et al. (2024) conduct a meta-study of all RCTs on the effect of mental health interventions on labor market outcomes in low- and middle-income countries and find that treating mental health conditions substantially improves participants' capacity to work.

4.4 Summary

Over the past twenty-five years, improvements in the collection of household level data, and in the techniques to analyze them have produced a wealth of knowledge on poverty traps. The picture, however, is far from complete. We have evidence that poverty traps exist in some settings—typically simple rural economies—where access to a single productive asset, such as livestock, sharply separates rich from poor. Evidence from more economically advanced settings is inconclusive. There are two nonexclusive explanations for this. First, poverty traps might be less prevalent in these settings. Diversity of economic activities plausibly creates many small investment opportunities making it less likely that a single fixed investment locks individuals in poverty. Second, poverty traps might be easier to detect in simpler economic environments. In single-asset or single occupation settings, transition dynamics can be estimated more easily because poverty thresholds map to technological thresholds (e.g. 15–20 cattle needed to cover the fixed cost of seasonal migration). Moreover, the fact that everybody uses the same technology implies that the time horizon at which poverty trap dynamics operate is the same for everyone, thus reducing noise and improving precision.

More generally, recent contributions, including Alloush and Carter (2024) and Karlan et al. (2026), underscore how difficult it is not only to detect poverty traps empirically, but also to identify the mechanisms through which they might operate. Two related challenges recur throughout this literature. The first is identification. Observed asset dynamics conflate genuine nonlinearities with heterogeneity in household characteristics and local economic conditions. When households differ in productive ability, preferences, or opportunities, the relationship between current and future assets reflects both behavior and composition. As a result, what appears to be a nonlinear transition function may arise mechanically from unobserved heterogeneity rather than from the presence of a poverty trap.

The second is that poverty traps, innate traits, and shocks are likely to coexist in the same setting, so that the cause of poverty might differ across households. If so, estimates of transition dynamics or consumption responses average across these different households. Santos and Barrett (2018) make this point by revisiting the data of Lybbert et al. (2004). Exploiting the panel structure of the data, they estimate household-specific productivity and show that poverty traps arise only for households with above-median ability. Households below the median converge to a low steady state regardless of their initial asset position. Similarly, in a recent working paper Zheng et al. (2023) document heterogeneity in the effects of a graduation program in northern Kenya by baseline mental health. Healthy individuals experience persistent, positive effects, consistent with an escape from an underlying poverty

trap. However, households with severe depressive symptoms at baseline gained little from the program, suggesting a unique, low steady state. In such settings, aggregate transition dynamics may fail to reveal a trap even when one exists for a subset of the population.

The potential of a heterogeneous population where only some are trapped is central to interpreting the empirical literature. Evidence of a poverty trap indicates that some households face a threshold; it does not imply that all poor households do, nor does it rule out the importance of fixed traits in explaining persistent poverty. Conversely, failure to detect a trap for an average household does not imply its absence for everyone. It rules out only the special case in which all households are subject to the same nonlinear dynamics. More generally, the transition function estimated in the data is a conditional mean, averaging over heterogeneous households. It may therefore display an S-shape even if only a subset of households follows such a process, and it may appear smooth even when traps exist for some.

This perspective also clarifies why results often vary across samples within the same study. Subsamples may differ in the share of households for whom a trap is relevant, leading to different estimated dynamics. The transition equation estimated on the full sample is therefore best understood as a mixture of distinct underlying processes rather than a structural law governing all households. Just as important as individual heterogeneity is the heterogeneity of the economic environment in which individuals operate. For instance, Karlan et al. (2026) use the data collected by Bandiera et al. (2017) to show that cow prices vary at the village level and this variation is correlated with the existence of a poverty trap. Because the intervention they study transfers livestock in kind, its effective value depends on local prices. If the threshold separating low- and high-level equilibria is fixed, higher prices mechanically push more households above it, eliminating any observable trap. In this sense, the absence of a trap in high-price villages is exactly what a poverty-trap model would predict. An alternative interpretation, however, is that no meaningful threshold exists in such locations at all. This raises a deeper question: why do poor households remain in low-return areas when more productive ones lie nearby? One possibility is the presence of migration frictions that prevent the poorest from relocating even over short distances. Distinguishing between these explanations remains an open empirical challenge. These issues highlight the demanding data requirements inherent in testing for poverty traps. Identifying nonlinear dynamics requires long panels, substantial variation, and credible sources of exogenous change. While these conditions have historically been rare, the growing availability of long-run data and randomized interventions has begun to make sharper tests possible.

The most promising avenue for future research seems to lie in moving beyond the binary

question of whether poverty traps exist, and instead embrace the idea of substantial heterogeneity among the poor. In any given setting, some households are trapped, some face persistent poverty at a unique low equilibrium, and some have suffered a temporary shock from which they will escape poverty by their own means. Being able to identify the subset of the population in each of these groups based on simple observables would allow targeting the right policy for each: large one-off transfers for those trapped in poverty and regular support for those in persistent single-equilibrium poverty.

5 Individual Traps and Market Structure

The evidence suggests that poverty traps lead to a misallocation of labor. When individuals are trapped in a low-productivity equilibrium, their time is not used as productively as it could be, imposing costs both on those individuals and on society at large. This naturally raises a further question: if such gains are left unexploited, why do markets not arise to eliminate what appears to be money left on the table? In what follows, we review the evidence on markets central to this persistence: credit, insurance, labor and land.

5.1 Credit and Insurance Markets

Credit offers a straightforward solution to most poverty traps: the trapped person can borrow today, invest in their productive capacity, reach a high-earning equilibrium and pay back the loan. In the presence of well-functioning credit markets individual poverty traps are thus not binding (e.g. Ghatak, 2015). But providing credit to the poorest is difficult because of their lack of collateral.

Microfinance has emerged to address this problem and is often invoked as evidence that the poor can borrow freely. Its original purpose was to enable investment among the poor. Yet recent evaluations show that microfinance does little to increase investment or income. Meager (2019), in a Bayesian hierarchical meta-analysis of seven randomized expansions published between 2011 and 2015, finds that microcredit has small and statistically insignificant average effects on business profits, consumption, and income. Two features help explain this. First, loan sizes are generally too small to finance meaningful capital accumulation. Second, standard contracts require immediate, high-frequency repayment, which is ill-suited to borrowers with seasonal income. When this rigidity is relaxed, impacts increase. Field et al. (2013) show that offering a two-month grace period before the first installment leads to higher

business investment and significantly higher profits, with no increase in default. Standard contracts therefore induce premature repayment rather than productive investment.

Another explanation for microfinance's muted average impact is that most small businesses have little scope for growth. A six-year follow-up of a Hyderabad microfinance intervention in A. Banerjee et al. (2019) makes this clear. While short-run average effects were minimal, established entrepreneurs—those already operating a business—experienced substantial and increasing gains: 35 percent more assets, twice the revenues of controls, and higher borrowing from non-microfinance sources. Entrepreneurial heterogeneity is thus both large and persistent; those with high potential wished to expand but could not, suggesting they were trapped by credit constraints. The results also underscore the importance of long time horizons in studying poverty traps.

Why are microloans so small? One possibility is that there is not enough liquidity in the local economy to start with, as investment opportunities are limited. Broader credit expansions lend support to this argument. Burgess and Pande (2005) study India's social banking policy, which required banks between 1977 and 1990 to open four rural branches for every urban branch. The policy triggered large increases in rural deposits and lending, especially in states with low initial financial development. Instrumenting rural branch openings with the licensing rule, the authors show that one additional rural branch per 100,000 people reduced rural poverty by 4.74 percentage points—a 17 percent decline in the headcount ratio. Taken together, the evidence shows that credit market imperfections in many settings rule out credit as a route out of the poverty trap. The forms of credit available to the poor—small, rigid microloans—are simply not a big enough push.

Another market that would benefit households in (or at risk of) poverty is the insurance market. We discussed the benefits of insurance for the poorest in section 4.3.2. Why are the poor often unable to insure against catastrophic risks? Casaburi and Willis (2018) argue that low demand for crop insurance is driven by liquidity rather than price: standard policies require premiums at planting, when farmers are most constrained. A pay-at-harvest insurance product they design increases take-up from 5 to 72 percent, with the largest gains among the poorest farmers. Similarly, Janzen et al. (2021) show in a structural model with forward-looking households, that with a poverty trap the value of liquidity is extremely high just above the threshold, making it difficult to sell insurance to these households. Every dollar spent on insurance means a dollar not spent on assets and getting away as quickly as possible from the threshold. This can help explain why private insurance markets, if they exist, might exclude this population. The paper also shows that the return to insurance is highest for

this same group and because the problem is lack of liquidity, they would benefit most from subsidized or public insurance.

5.2 Labor and Land Markets

Many of the world's poor engage in casual labor in agriculture. There, the distribution of land matters for poverty traps because it determines the bargaining power of employers, most commonly landowners, vis-à-vis workers, most commonly landless farmers. This determines the wage in the unskilled sector, which for many of the world's poor is casual labor in agriculture. We expect the wage to be lower and to be more sensitive to shocks when a small number of landlords hire from a pool of landless workers.

In a stochastic world, the wage elasticity to shocks determines whether the poor get chances to escape poverty. In other words, if inequality is associated with stronger bargaining power for the landowners vis-à-vis landless workers, it will reduce their wages and make them more sensitive to negative shocks. Does this happen in practice? Jayachandran (2006) estimates the elasticity of the agricultural wage to productivity shocks for 257 districts in India for 1956–87. This elasticity is higher, that is workers' wages fall more, in case of a negative shock when workers have fewer alternatives to working for the lower wage, either by borrowing to smooth consumption or by migrating to nearby areas not affected by the shock. These results echo those of Burgess and Pande (2005), who find that rural agricultural wages in India grew faster in less developed states between 1969 and 1990—precisely during the branch-expansion period. Non-agricultural, rural output also rose significantly. The expansion appears to have increased access to credit and savings for the households with the lowest bargaining power vis-à-vis the landowners, particularly the poorest members of low-caste and tribal groups.

Recent evidence from randomized evaluations points in the same direction. Merging satellite data with the household panel that Bandiera et al. (2017) collected for the evaluation of the TUP program, Balboni et al. (2025) analyze the effect of floods and droughts on wages and labor supply. The baseline correlations between the share of land owned by the top 10% and the casual wage are negative, and so is the correlation with the share of landless workers. This matches the theoretical intuition because when landownership is concentrated in the hands of a few and the number of landless workers is large, landowners have more bargaining power relative to workers. Balboni et al. (2025) find a sharp drop in the wage for casual labor after unexpected floods and droughts only in control villages (where the poor have no choice but to work in casual jobs); there the wage drops by 4% for an additional unexpected day of

floods. This effect is driven by villages with high land inequality, that is, villages where the share of land belonging to the top 10% of landowners or the share of landless workers is above the median. In these villages, labor hours increase after an unexpected shock, indicating that the labor supply curve is backward bending.

A related literature examines how policy shapes the bargaining power of the poor and how this affects efficiency. A. Banerjee et al. (2002) and Muralidharan et al. (2023) evaluate two major policies in rural India, namely tenancy reforms and public works. A. Banerjee et al. (2002) show that strengthening tenants' rights vis-à-vis landlords increased productivity, drawing on a major tenancy reform in West Bengal that improved tenure security and mandated a minimum output share for sharecroppers. Muralidharan et al. (2023) exploit a reform of India's National Rural Employment Guarantee Scheme (NREGS), which raised beneficiary households' earnings by 14 percent and reduced poverty by 26 percent. Strikingly, 86 percent of the income gains arose from non-program earnings, driven by higher private-sector wages and employment, particularly in villages with more concentrated landholdings. Anticipating themes of the next sections, non-agricultural enterprises and employment also expanded rapidly, plausibly in response to the increase in rural demand.

A third strand highlights self-employment as the most common alternative to wage work with private employers. Amodio et al. (forthcoming) develop a general equilibrium model of Peruvian manufacturing labor markets to evaluate policy counterfactuals. In their model, employer concentration, self-employment rates, and labor market power are jointly determined. Their estimates indicate that removing the employers' market power would increase wages by 30% and the share employed in wage labor from 66% to 77%. Their estimates also show that market power neutralizes many types of industrial policy meant to increase wage employment.

6 Societal Poverty Traps

A different form of poverty traps can arise once we move beyond the individual as a unit of analysis to units such as communities, subnational entities and countries where individuals interact. We define traps that are generated by interactions as "societal" traps. This includes all instances of multiple equilibria arising because of the interdependence between individuals. It does not include aggregate traps that arise from the aggregation of individuals who are each trapped in poverty, nor do we mean macroeconomic models that treat an entire country as if it was one representative agent.

The unifying concept is that of (strategic) complementarities, a type of externality that makes the return to an action increase with the number of others undertaking it. This implies that there can be both a high-adoption equilibrium, in which all take the action, and a low-adoption equilibrium, in which none do—foreclosing potential gains from widespread adoption. Complementarities can arise for several reasons. On the demand side, firm entry creates direct demand for intermediary inputs and also leads to higher wages, thus increasing demand for the output of other firms. On the supply side, firms can learn new technologies from each other or make infrastructure projects viable. Similarly, highly skilled workers are more productive when working with other skilled workers, creating complementarities in human capital investments.

Complementarities in the interaction of individuals are related to the individual poverty traps discussed in the previous sections, because they can give rise to increasing returns at an aggregate level. For example, if worker skills are complementary—the return to one worker's skill increases in the average skill of her co-workers—then at the aggregate level, the average skill of the population can display increasing returns, and indeed generate multiple equilibria (Kremer, 1993). In theory, we would then expect and be able to detect s-shaped transition dynamics in the aggregate skill, but these are micro-founded by complementarities between individual workers.

Poverty traps arising from strategic complementarities are sometimes cast as coordination failures—in order to reach the high equilibrium, several actors have to move simultaneously. Since moving is not individually rational, such coordination often fails. While coordination (or lack thereof) can be the decisive factor in reaching a desirable equilibrium under strategic complementarities, the notion of coordination is also misleading. It may suggest that poor societies can "jump" into a richer equilibrium simply by changing expectations about the future—a self-fulfilling prophecy. When there is a dynamic adjustment process, "history" in terms of initial endowments may play as much or more of a role than expectations in equilibrium selection (Krugman, 1991).

Not all cases of multiple equilibria due to complementarities are poverty traps. In traffic, it pays off to drive on the same side as everyone else, creating two equilibria neither of which traps drivers into poverty. We distinguish two cases that are relevant for the study of poverty. First, cases of multiple equilibria where one is a "poor" equilibrium, but it is not poverty that is making a coordinated move out of the low equilibrium difficult. Some problems of technology adoption fall in this category: the possibility of learning about a new technology from early adopters creates strong complementarities in adoption. Although the mechanism operates

irrespective of poverty, it creates a status quo bias that can lock the poor into continued use of unproductive technologies. The second category is cases where widespread poverty is itself hampering coordination. In these cases, industrialization or specialization do not happen because (a large part of) society is too poor to make it worthwhile. If enough people were richer, coordination would occur more easily. We include both cases in our discussion below, even though the second more closely captures an intuitive notion of a poverty trap.

The section is structured as follows. We first discuss direct evidence for multiple equilibria at an aggregate level, that is plausibly generated by underlying complementarities. Empirical work on this requires large and exogenous shocks to an entire system. Therefore, this direct evidence stems from large place-based policies or industrial policies, which can plausibly shift a regional economy to a new equilibrium. In the second part of this section, we discuss individual mechanisms that generate complementarities and could give rise to multiple equilibria: technology adoption, aggregate and intermediary demand, human capital investment and specialization, and finally labor market matching.

6.1 Evidence from Big-Push Policies

Direct empirical evidence on coordination failures or multiple equilibria generated by strong complementarities is limited. There are at least three reasons for this. The first is that these traps operate at the level of population aggregates (regions, countries), which, compared to individuals, are low in number. Second, most large interventions simultaneously shift fundamentals and potentially equilibrium selection. Economic theory and econometric tools are well suited to deal with the former, but little is known on how to identify and distinguish the latter. Finally, large policies might permanently affect the location of economic activity, a shift from one spatial equilibrium to another, without affecting aggregate output. The literature has started to tackle these challenges by studying the effects of place-based policy and industrial policies.

Large place-based policies have the potential to push a regional economy into a new equilibrium through strong agglomeration effects. Such policies have shown large effects that persist long after the policy ends. For example, Kline and Moretti (2014) examine the Tennessee Valley Authority (TVA), a U.S. New Deal program combining large-scale infrastructure and industrial investments, a “big push” to the Tennessee Valley starting in 1933. They find that TVA counties experienced lasting gains in manufacturing employment, wages, and productivity. While the increase in agricultural employment reversed once the program ended,

manufacturing employment continued to rise, consistent with agglomeration economies in manufacturing. Similarly, Cerrato and Filippucci (2024) study the effects of the Italian Cassa per il Mezzogiorno (CasMez), a large regional policy that transferred substantial resources to municipalities in southern Italy between 1950 and 1992. The authors also find large and persistent employment effects: manufacturing and services employment remained 28% higher even 20 years after the program ended. Crucially, both the TVA and CasMez studies embed their findings in a general equilibrium framework to account for potential negative spillovers on regions outside of the big push program. The concern is that rather than creating local growth, the big push policy simply relocates economic activity from elsewhere to the program region. Both papers find evidence of this. Kline and Moretti (2014) argue that the TVA increased aggregate output through infrastructure investments, but that the agglomeration gains from TVA are completely offset by losses elsewhere. Similarly, Cerrato and Filippucci (2024) find that CasMez generated substantial crowding out of production factors from non-program regions. While the estimated aggregate gains still surpassed program costs, the negative spillovers reduced the direct gains from the program by half.

Overall, this literature provides a cautionary tale, highlighting that the big push might simply relocate economic activity, leading to a new spatial equilibrium with moderate aggregate gains. For empirical work, this means that careful measurement and modeling of spillover effects is crucial to capture the true aggregate effects.

Industrial policies provide another set of case studies to investigate multiple equilibria.[10] South Korea's Heavy and Chemical Industry (HCI) drive is one such example. It provided a large, temporary package of credit subsidies, tax incentives, and trade protection targeted at upstream heavy and chemical sectors between 1973–1979. With newly assembled industry- and plant-level data, and using the staggered introduction and removal of support for identification, N. Lane (2025) shows that targeted sectors experienced large and persistent increases in output, productivity, and export performance. Downstream industries also benefited via input–output spillovers. The persistence of these effects after the policies ended suggests that the temporary push durably changed the structure of production. N. Lane (2025) finds little evidence of crowding out in non-targeted sectors within South Korea.

In follow-up work, Sturm (2023) develops a theory of price-based (Pigouvian) policies in the presence of multiplicity. The author develops a dynamic model with sector-specific external economies of scale in which standard Pigouvian subsidies can leave the economy trapped

[10]For a recent, comprehensive review of the effects of industrial policy, see Juhász et al. (2024)

in an inefficient low-activity equilibrium; he proposes a "super-Pigouvian" price correction that both internalizes externalities and selects the efficient equilibrium. The calibration of optimal taxes using data from South Korea's HCI drive from N. Lane (2025) reveals a role for price-based policy to shift equilibria, rather than merely a marginal movement along a unique equilibrium path.

One difficulty in empirical work on multiple equilibria is that industrial policies typically change fundamentals—such as a region's market access—in addition to their potential coordinating effect of moving the economy into a new, self-sustained equilibrium. Garg (2025) makes several important theoretical and empirical contributions toward measuring and disentangling these two effects. The paper provides a general method for studying equilibrium selection in settings with complementarities without making strong assumptions on the distribution or responsiveness of fundamentals. The method posits a general environment in which firms' entry decisions display strategic complementarities, and proceeds in three steps. The first is to estimate the strength of complementarities using cross-sectional and policy variation and, based on these estimates, to invert the model and recover unobserved location fundamentals. The second step is to enumerate all possible equilibria for each local market, including both the observed and any counterfactual ones. This step relies on continuation methods from algebraic geometry to enable the enumeration of all equilibria in the nonlinear system generated by strong complementarities. The final step assigns equilibria to types to distinguish policy-induced moves across equilibria from changes in fundamentals that affect any given equilibrium. Two equilibria are assigned to the same type if one can be reached from the other through a continuous change of fundamentals, i.e. without a "jump" that would require a coordinated big push. For example, an industrial policy might marginally improve outcomes in a low-industrialization equilibrium through improved market access, but the resulting, new equilibrium would be classified as the same, low-industrialization type. The type of the observed equilibrium can then be regressed on policy variables, yielding an estimate of how policy affects equilibrium selection. Further, researchers can use the full set of classified, counterfactual equilibria to decompose the effect of a policy shock into a fundamentals effect and an equilibrium selection effect.

Garg (2025) applies this method to the study of industrial zones in India. The method is suited to disentangling the coordinating effect of announcing an industrial zone, for example on investment, from the policy's direct effects on fundamentals such as land subsidies and infrastructure improvements. The author combines novel data on non-agricultural employment across municipalities and sectors over 15 years with the staggered entry of over 4,000

industrial zones. Reduced form event study estimates show that the entry of a zone increases industrial employment by 60% within 15 years. There are significant positive spatial spillovers within 10–15 km of the zone and sectoral spillovers on non-targeted industries in the same municipality. Combining the event-study design with the above type assignment method, the author finds that industrial zones increased the probability of escaping a low-industrialization equilibrium by 38%. This coordination effect can explain a third of the employment gains from the policy, with the rest accounted for by improvements in fundamentals.

6.2 Evidence on Mechanisms

In this section we discuss pieces of evidence that speak to individual mechanisms, or complementarities, that could possibly give rise to aggregate multiplicity. Analogous to the discussion of mechanisms in the previous section, evidence on complementarities or positive spillovers is not sufficient to claim the existence of a poverty trap. Multiple equilibria only emerge when complementarities are sufficiently strong. We nevertheless discuss them, because they are necessary for multiplicity and direct evidence is scarce. Moreover, even when they are insufficiently strong to generate multiplicity, complementarities can amplify misallocation and other frictions, leading to disproportionate productivity losses (Buera et al., 2021).

A large class of coordination failures arises in closed economies, or economies with high trade frictions, because of limited local demand. The classic argument due to Rosenstein-Rodan (1943), and formalized in Murphy et al. (1989), is that the profits and wages earned in one industry generate demand for the products of another. In a low-industrialization equilibrium, there is no demand, and hence entry or growth of new industries is not profitable.

Multiplicity arises when low local demand restricts the exploitation of firm- or industry-level economies of scale. These can arise due to indivisible fixed costs at the firm level, or agglomeration economies at the industry or market level. As discussed above, individual- or firm-level increasing returns, for example from indivisible investments can lead to individuals (or firms) being trapped, and some of the evidence for this is discussed in section 4.3 above. Under aggregate demand constraints, these internal returns to scale can also give rise to societal traps (e.g. A. Banerjee & Newman, 1993). In this section we discuss additional mechanisms that generate economies of scale external to the firm, which give rise to increasing returns at the industry or market level. These can arise, even if no individual is trapped, through complementarities in input-output networks, knowledge and technology spillovers,

or labor market externalities.[11] We first discuss evidence on aggregate demand externalities and then turn to the different sources of external economies of scale.

6.2.1 Aggregate Demand Spillovers

A necessary condition for a societal trap due to aggregate demand constraints is strong demand spillovers. If a large fraction of local consumers received an exogenous increase in purchasing power, would the real local economy benefit in terms of higher profits and wages? This is exactly the question addressed in a monumental experiment on the general equilibrium effects of cash transfers by Egger et al. (2022). The authors study a large-scale unconditional cash transfer program implemented by GiveDirectly in rural western Kenya, where treated households received transfers of roughly USD 1,000—about 75% of annual consumption—amounting to an aggregate shock of more than 15% of local GDP. Through multi-level randomization, the authors assign regions to high- and low-transfer intensity, and treated and control individuals within treatment villages. This allows them to separately identify direct effects on recipients and general-equilibrium spillovers on non-recipients, firms, wages, and prices.

They find that the cash transfers generate large, positive general-equilibrium spillovers: non-recipient households in treated areas experience substantial gains in consumption and income, almost as large as those of recipients. Local firms see higher sales, profits, and investment, indicating that the transfers stimulate business activity rather than just reshuffling demand. Despite the shock being $> 15\%$ of local GDP, prices and wages rise very little, so most of the impact shows up as real increases in output and welfare, not inflation. Combining these pieces, they estimate a local income multiplier of 2.5 to 2.8.

In follow-up work, Walker et al. (2024) argue that this combination of findings is explained by the presence of slack in the small businesses that make up the rural Kenyan economy. The combination of low demand and indivisibilities in labor and capital input (most businesses consist of a single owner) means that these factors remain idle a lot of the time. The authors provide descriptive statistics showing that under-utilization of labor and capital is prevalent in this and other low-income settings, but declines with development, firm size, and market access. They then write a structural model, which captures these descriptives, and calibrate it using the experimental estimates from Egger et al. (2022). Together the descriptive and

[11] A long tradition in economics argues that specialization is restricted by the size of the market (Smith, 1776; Young, 1928; Stigler, 1951; Ciccone & Matsuyama, 1996; Rodriguez-Clare, 1996; Chaney & Ossa, 2013), if productivity gains from specialization are large enough, this can lead to increasing returns and multiplicity.

structural evidence paint a coherent picture: the presence of slack means that firms could increase production at little or no additional cost, therefore the cash transfer generated large demand spillovers without creating inflation.

Absent large experimental shocks, researchers have attempted to link the structure of demand directly to the organization of firms, thus providing micro-founded evidence for aggregate demand spillovers. For example, Bassi et al. (2025) collect time-use data from 1,115 Ugandan manufacturing firms in carpentry, welding, and grain milling, to examine how labor is organized within small firms. Their evidence shows limited horizontal specialization: in carpentry and welding, about 85 percent of workers perform every production step, with little variation by firm size. Vertical specialization is more common—entrepreneurs spend more time on non-production tasks than employees—but remains incomplete. The contrast with grain milling, which produces a standardized good, suggests that customization raises coordination costs and constrains specialization. Customers demand unique specifications of carpentry or welding products which necessitate that one worker conduct all the tasks. This fractionalizes already low demand and thus undermines potential gains from specialization.[12]

To assess the implications, the authors build and estimate an occupational choice model with task assignment, firm size choice, and barriers to specialization ("unbundling costs") alongside hiring costs. In the data, firms pass through only 25 percent of entrepreneurial ability to workers. Raising this to full specialization would triple aggregate output; reducing it to zero would cut output by just 20 percent. The current economy, with average firm size 5.7 workers, produces the same output as one with fully specialized firms averaging 1.6 workers, implying that fixed cost savings from scale are small. Counterfactual analyses show that lowering unbundling costs to match grain milling raises output by 10 percent, compared to 3 percent from equally sized reductions in hiring costs, and that the two are complementary.

We can also study the role of demand on firms' structure and productivity from market size expansions, typically due to trade. R. Jensen and Miller (2018) use a natural experiment with fishermen in Kerala, India, who benefited from the staggered introduction of the mobile phone network and, through this, find out prices in different markets along the coast. This effectively integrated many segmented markets into one common market. Before integration,

[12] In contrast to Walker et al. (2024), the inefficient organization in this context is not driven by indivisible capital investments. In a related paper Bassi et al. (2022) show that there exists a functioning rental market for machines among these firms, which allows them to use industrial technologies and operate at an efficient scale, given other constraints on firm size. The difference from the small firms in rural Kenya studied by Walker et al. (2024) is likely that the Ugandan sample consists of urban firms that can form spatially concentrated informal clusters.

boat builders were located in each market, they charged similar prices and produced boats that appeared alike, yet quality differences were large. The best builder produced boats with more than twice the average lifespan of those from the worst builder, making the cost per boat-year roughly half as high. Initially, fishermen had little information about these differences and almost always bought from the nearest builder, usually in the same village. As fishermen started to sell their catch outside local markets, they learned about the quality of non-local builders and began purchasing boats from outside their own villages. Effectively, as the fish market became more integrated, a market linked to it (the boat market) also became more integrated, and potentially larger and more competitive.

Better boat suppliers gained a higher market share and increased production, while worse suppliers lost customers and many exited. The number of firms fell by nearly 60 percent, and average firm size grew. Surviving firms improved efficiency, as the same number of boats were produced with 25 percent fewer labor hours and 37 percent less capital. The organization of labor changed toward greater labor specialization. Consumers benefited as boat lifespans rose by 1.35 years on average, reducing the cost per year of boat use by about 23 percent despite a slight increase in nominal prices.

6.2.2 External Economies of Scale

Technology Adoption A rich line of evidence on strategic complementarities, and potential resulting coordination failures, comes from the adoption of new technologies, especially in agriculture and especially in low-income settings. New technologies are key to sustained productivity improvements, and nowhere is this more important than in low-income countries where the agricultural sector accounts for a high share of employment, especially among the poorest.

While there can be direct technology spillovers, information frictions typically underpin the complementarity at the heart of the adoption problem.[13] There are two ways in which information spillovers can create a situation in which expected returns to adoption are increasing in the number of adopters. The first is that when a new technology's returns are uncertain, early adopters generate valuable information for others by revealing realized profits under local conditions. The coordination failure arises because adoption is profitable only if a farmer's posterior belief about returns exceeds a threshold, and that belief depends on the number of adopters in their information network. If each farmer expects few others

[13] See Magruder (2018) for a detailed literature review on agricultural technology adoption in developing countries, which also highlights the pervasiveness of information frictions.

to adopt, the expected information gain is low, posterior beliefs remain below the threshold, and no one adopts. A high-adoption equilibrium exists if enough farmers expect others to adopt, pushing beliefs above the threshold for all. Both equilibria are self-consistent, but only the high-adoption one is socially efficient. The second reason is that farmers do not know how to adapt the new technology to their context, and that they could learn by trial and error but given the size of their plots they can only run a few trials per season. If many farmers are running trials, however, learning is faster and adoption is profitable for most farmers.

Foster and Rosenzweig (1995) analyze India's Green Revolution and embed this process in a structural model, showing that neighbors' yields shift farmers' beliefs and input choices in ways distinct from their own learning-by-doing. Conley and Udry (2010) work with Ghanaian pineapple growers to trace these effects along actual information networks, finding that farmers adjust practices toward those of contacts whose recent profits were unexpectedly high—evidence of Bayesian learning from peers. Bandiera and Rasul (2006) study sunflower adoption in Mozambique and document an inverted-U relationship between the share of peers adopting and individual adoption: at low penetration, additional adopters raise incentives through improved information; beyond a point, the marginal informational benefit declines and strategic substitution or input congestion can set in.

Randomized interventions engineer exogenous variation in information provision and quantify the gap between private and social returns. BenYishay and Mobarak (2019), in Malawi, train selected "lead farmers" and vary their social proximity and incentives to share information. Adoption spreads more when demonstrators are socially close to potential adopters and when their communication is rewarded. Beaman et al. (2021), combining network mapping with experimental seeding, show that targeting information to socially central farmers generates far more diffusion than untargeted roll-outs. Such findings imply that the value of a marginal adoption to the community—through information it creates—can be substantially larger than the value to the adopter.

The evidence on the diffusion of new agricultural technologies suggests that complementarities arising from information sharing play a central role in determining both the extent of adoption and its success. Yet the findings appear more consistent with Hirschman's linkages model than with the classic big push framework. What matters is not the simultaneous targeting of many sectors—or, in this case, many farmers—but rather the strategic selection of those with the greatest capacity to transmit knowledge. Studies show that farmers learn disproportionately from particular peers, that adoption rises when interventions focus on

central individuals within the network, and that an overly broad targeting strategy can even prove counterproductive.

Choi and Shim (2024) study firm-level technology adoption in South Korea's heavy manufacturing during the 1970s, combining archival data on adoption contracts with balance-sheet information and rich policy records. Empirically, they show that subsidies for technology adoption substantially raised adopters' sales and productivity and generated sizable local spillovers, with firms more likely to adopt when neighboring firms had already adopted. Embedding these estimates in a quantitative model with adoption spillovers and dynamic complementarities, they demonstrate the existence of multiple steady states and show that the temporary subsidies plausibly shifted Korea from a low-adoption, pre-industrial steady state to a more industrialized steady state.

Labor market externalities Larger, richer and more diverse labor markets bear the possibility of better matching of workers to jobs and create incentives for human capital accumulation and specialization. The idea that such labor market externalities can give rise to poverty traps is old. For example, Kremer (1993) shows that strong complementarities of worker skill give rise to strategic complementarities in education. Acemoglu (1996) extends this idea to a market where firms' return to investing in a modern technology increases in the average skill level, and the return to workers' skill increases in the share of firms that have invested in the technology. One can easily see how this situation can give rise to a low-investment, low-education equilibrium.

Testing for human capital complementarities empirically is difficult, because skilled workers move selectively and match assortatively. Accordingly, the available evidence from high-income countries is mixed with some studies finding positive but moderate social returns to education (Moretti, 2004a, 2004b) while others find little or no such evidence (Acemoglu & Angrist, 2000; Ciccone & Peri, 2006). Overall, these studies seem to rule out large human capital externalities at the city or region level.

However, the differences in human capital across U.S. cities are arguably small relative to the variation across societies at different levels of economic development. The social increasing returns to human capital might be much larger at lower levels of human capital. The few available studies from emerging countries suggest that this is indeed the case. Glaeser and Lu (2018) exploit a natural experiment in China, where the government relocated university departments across cities in the 1950s. This policy created long-term variation in

the presence of higher education institutions and, by extension, the educational attainment of local populations. The variation is plausibly exogenous to local economic conditions since the relocations were driven by political factors, not by the economic potential of the cities. Using this historical shock as an instrument, Glaeser and Lu (2018) find that an additional year of average schooling in a city raises urban workers' hourly wages by roughly 22% on average—a large effect that might be partly mediated by induced technology adoption and agglomeration through in-migration. The effect is larger than simple OLS estimates, since more educated cities attracted more low-skilled workers. But the IV estimates confirm that the positive externalities accrue to both high- and low-skilled workers. Another piece of evidence is provided by Wantchekon et al. (2015) who study the long-run effects of French colonial schools on human capital accumulation in Benin. Initial school placement was plausibly exogenous, allowing the authors to compare education outcomes to nearby villages without a school over several generations. The results suggest large direct benefits for those who attended colonial schools in terms of education, living standards and political participation. More importantly, the authors document large spillovers on inhabitants in villages with a school who did not themselves attend. More strikingly, these spillovers increase with the next generation: Decades later, when schools are ubiquitous, children whose parents grew up in a village with a colonial school are more educated. These studies, although they are few and context-specific, point to the possibility that human capital spillovers might be large in low-income settings and over longer time horizons.

When matching frictions are endogenous, a larger labor market can increase the job finding rate and the quality of the resulting matches. This creates a classic agglomeration externality from labor pooling (Marshall, 1890), which can generate multiple equilibria (Diamond, 1982). Empirical evidence from high-income countries suggests that market size plays an important role—especially for the quality of resulting matches (Petrongolo & Pissarides, 2006). For example, Moretti and Yi (2024) use longitudinal data on workers in the U.S. and exploit exogenous job losses due to firm closures. They show that thicker labor markets—defined as a commuting zone-industry cell—improve the match rate and quality after job loss.

The potential improvement in productivity stemming from better matches between workers' skills and preferences and the jobs' own skill requirements requires that the assignment process is meritocratic, that is, workers match to jobs exclusively on the basis of productive traits. Does this happen in practice? And is meritocracy correlated with development? Bandiera et al. (2024) propose a measure of match quality and quantify its contribution to explaining the cross-country variation in income compared to the standard factors, that

is, technology and endowments. Using the internationally comparable microdata from the OECD's Program for the International Assessment of Adult Competencies (PIAAC), they document that richer countries exhibit closer alignment between workers' skills and their jobs' skill requirements. However, model-based counterfactuals reveal that the productivity gains from such alignment depend crucially on technology and endowments. In countries operating with frontier technology—whether in the form of advanced production processes or good management practices—complementarities between specific skills and job requirements are strong, and the value of assortative matching is correspondingly high. In contrast, in countries far from the frontier, even perfect matching yields only modest improvements in output, because the production technology itself places low returns on skill complementarity. Development accounting exercises show that equalizing technology to frontier levels explains a large share of cross-country income differences, while eliminating frictions alone explains relatively little. Crucially, good matching acts as an amplification channel for technology and endowments: adopting frontier technology not only raises productivity directly but also increases the returns to skill-based sorting, thereby magnifying its benefits. This closely aligns with theories in which technology leverages complementarities between agents through the jobs they match to (Kremer, 1993; Acemoglu, 1996).

Human capital might also create strong complementarities through its interaction with the organization of firms. Engbom et al. (2025) construct a model in which firms choose how much specialized, white collar labor they hire, thereby endogenously determining their returns to scale. The organization and size of firms are determined by the availability of skilled labor. A one-time increase in the supply of skilled workers can trigger a reorganization of the economy toward more skill-intensive production, which in turn raises the returns to investing in skills. The predictions of this model are consistent with evidence showing that plausibly exogenous increases in education lead to a reorganization of the economy through the entry of more firms in high-skill sectors and the expansion of more skill-intensive firms (Cox, 2024; Vu, 2024; Cirera et al., 2025).

Better matching of workers to specific tasks is only possible if those tasks are performed in the economy, pointing to a crucial role of the diversity of economic activities, which again depends on the presence and organization of firms. Theoretical work has pointed to the possibility of a low-specialization trap, when intermediary inputs are non-tradable (Rodriguez-Clare, 1996; Rodrik, 1996). These theories extend naturally to specialized labor inputs when workers are immobile. Heil and Leite-Mariante (2025) develop a model in which a larger variety of specialized occupations enables horizontally heterogeneous workers to exploit comparative

advantage across tasks. A richer occupational menu improves the match between a worker's task-specific productivity and the set of tasks provided by the chosen occupation, raising labor productivity. If occupational variety is constrained by firm size or new industry entry, the economy can be trapped in a low-specialization, low-entry, and low-productivity equilibrium. Descriptive statistics show that specialization, as measured by occupational variety, increases steeply with economic development across and within countries and historically over time (Bandiera et al., 2022; Autor et al., 2024; Heil & Leite-Mariante, 2025). And studies of U.S. and Brazilian cities show that occupational variety is a quantitatively important source of agglomeration economies (Tian, 2021; Papageorgiou, 2022).

If human capital complementarities play an important role in low-income contexts, as some of the reviewed studies suggest, they might interact with capital investment and technology adoption decisions to make the move out of a low-industrialization equilibrium more difficult. For industrial policy, this means that labor market and education policies should be considered as complementary to traditional supply-side policies such as credit subsidies.

7 Questions for Future Research

Bridging traps Over the last twenty-five years, the literature has made progress in establishing empirical support for poverty traps, for both individuals and society. What we do not have, however, is evidence on how these two phenomena are linked. In a recent paper, Ghatak and Newman (2025) argue that individual poverty traps are neither necessary nor sufficient for the existence of social poverty traps. This point is well taken: in principle, an economy may be stuck in a low-level equilibrium even when individuals face smooth production functions, and conversely, individuals may face sharp non-convexities without these aggregating into an economy-wide trap.

Yet there are strong reasons to believe that individual and social poverty traps are nonetheless intertwined in practice. One channel operates through aggregate demand. When a large share of the population is stuck in individual poverty traps, consumption remains at subsistence levels, compressing the size of the market. Low aggregate demand, in turn, reduces the profitability of entry and the likelihood that firms will start up or expand, not because technologies are unavailable, but because there is no effective demand to sustain them. In this way, individual-level traps feed directly into a social equilibrium characterized by missing markets and limited productive activity.

A second channel runs through the allocation of talent. When individuals are trapped in poverty, their skills and abilities cannot be deployed where they are most productive, whether because they lack access to education, cannot finance migration, or are forced into low-return activities by risk and liquidity constraints. The resulting misallocation lowers aggregate productivity and undermines the viability of firms that would otherwise benefit from a broader and deeper pool of capable workers. In equilibrium, talented but poor individuals are replaced by less talented but wealthier ones who can afford entry into skilled occupations, generating an efficiency loss that is social in nature even though its roots lie in individual constraints.

A final mechanism operates through labor market power. When wealth is tied to position rents—such as landownership or inherited access to productive assets—elites may retain their status regardless of effort, supported by an abundant supply of labor with weak outside options. Under these conditions, there is little incentive for asset-holders to invest or innovate, as they can rely on cheap labor to sustain existing production arrangements. Policies or shocks that lift workers out of individual poverty traps, by improving their outside options, alter this balance of power. As labor becomes scarcer and more mobile, incumbent elites face stronger competition from those who were previously destined to remain workers, potentially inducing greater effort and investment. Here again, changes at the individual level reshape incentives and equilibria at the social level, suggesting that while individual poverty traps may not be logically necessary or sufficient for social poverty traps, they are plausibly central to how such traps emerge and persist.

Bridging sectors The interdependence between firms that drives societal traps might extend to the public sector, creating another feedback mechanism that might sustain a trap. The logic is as follows. The State is a key player in the process of development because it provides the infrastructure needed to sustain production, markets and trade. However, States have low revenues precisely in those countries that need the most investment in infrastructure. This is so because income tax is the main source of revenue and firms enable the collection of income tax by collecting it from their employees on behalf of the State. When there are few firms and most people are self-employed, the State's capacity to enforce income tax is low and, as shown in A. Jensen (2022), most people are exempt from paying it. The exemption threshold falls and the tax base grows as the share of wage employees rises. In other words, firms rely on state-provided infrastructure to operate, but the state can only afford this infrastructure if firms exist to facilitate tax collection.

Time A central unresolved question is whether the presence of a trap matters for those who are not currently living in poverty. This question is critical for evaluating the consequences of large adverse shocks, such as natural disasters or catastrophic health expenditure, that may push many households below a level of assets from which escape is difficult. If crossing that threshold induces long-term stagnation, the cost of assisting affected households ex post may be far greater than the cost of preventing the fall in the first place. Even when households eventually recover, the self-reinforcing dynamics characteristic of poverty traps can generate substantial welfare losses by slowing their return to viability.

Timing is therefore central to any assessment of poverty traps, yet it remains one of the least studied dimensions. It is challenging—though increasingly common—for experimental studies to follow participants over many years. The typical follow-up period may not be sufficient to capture payoffs that potentially unfold over decades or across generations. For example, investments in early childhood may have large payoffs and generate inter-generational poverty traps, which can only be studied at the corresponding time horizon.

As one promising avenue of future research, researchers can, in principle, return to the original participants of experimental studies at later points in time. Because large-scale experimentation began in the mid-2000s, the first cohorts exposed in utero or in early childhood are only now entering the labor market. This presents a unique opportunity to study poverty traps precisely at the moment when they are most likely to manifest.

Development and Traps The fundamental reason to study poverty traps is to understand their effect on economic development, but does the level of development in a country affect the prevalence of individual traps or the policies suited to address them? This is a difficult question because most of the existing evidence on poverty traps comes from rural areas in low-income countries, where the world's poorest households reside. These village economies have relatively simple occupational structures and few forms of capital, which simplifies empirical tests but may also increase the likelihood of detecting traps. In contrast, richer or urban economies feature numerous occupations and multiple forms of capital with different return profiles over time. This complexity makes it harder to identify the correct measures of productive capacity and the relevant time lags. Moreover, the diversity of career paths implies that thresholds may vary widely across individuals, making it difficult to detect a common threshold at the population level.

This raises the question of whether poverty traps arise only in comparatively simple rural

economies, where access to key occupations requires discrete, easily measurable assets. Aggregating data from a broad set of experiments, as in Jee (2025), offers a promising strategy for addressing this question. The diversity of contexts can be exploited to study how the relevance of poverty traps varies across environments with different occupational and capital structures. Understanding which are the contexts most likely to give rise to traps and which subsets of the population most likely end up trapped seems among the most important questions for future research.

At an aggregate scale, the effectiveness of "big push"-type policies is likely to depend on the level of development, operating in part through the opportunity cost of labor. Such policies seek to exploit agglomeration economies in order to jump-start industrialization within a region. Whether they generate genuinely new economic activity or instead displace activity from elsewhere hinges, first and foremost, on the presence of pre-existing activities that can be displaced. Viewed through this lens, the evidence from India, Korea, and the United States reviewed in Section 6 (Kline & Moretti, 2014; Sturm, 2023; Garg, 2025; N. Lane, 2025) is consistent with the idea that big-push policies draw resources away from neighboring regions, and that their net effects depend critically on how efficiently those resources were initially employed. Understanding how the impacts of such policies vary with the economic context in which they are implemented remains an important priority for future research.

8 Conclusion

Poverty traps have fundamental implications for policy design. At the individual level, anti-poverty programs must differentiate between individuals who are poor because of traits that, given current technology, prevent participation in productive activities—and those who could potentially participate but poverty stops them from doing so. The former calls for redistributive transfers to sustain consumption, while the latter demands interventions that break the trap and enable production. The essential difference is temporal: those who are poor by traits require a continuous flow of transfers across their lifetime, whereas poverty traps require a concentrated transfer at the outset, an investment in latent potential that allows individuals to choose the occupations they are most productive in.

The fact that individual traps can be sustained by imbalances of power in the labor market calls for another set of policy instruments. These may take the form of minimum wage legislation, unionization, or other mechanisms that countervail employers' monopsony power. By redressing this asymmetry, the poor are better able to capture the gains from positive

shocks and to insure against negative ones, thereby creating the conditions under which they can save and invest in their own productive capacity. Similarly, interventions in the markets for credit and insurance may have large benefits in the presence of poverty traps.

The interdependence between wage-labor outcomes and the availability of self-employment opportunities must be central in the design of industrial policies. Restricting access to self-employment—for instance, by imposing regulation and formalization—risks weakening the position of the poor by reducing their bargaining power vis-à-vis employers. Where aggregate poverty is sustained by inequality, self-employment is the foundation of workers' bargaining strength. Policies that neglect this channel risk consolidating employer power and increasing poverty rather than reducing it.

At a societal level, planning and industrial policy may be required to generate the coordination that allows individuals, firms, and industries to move into new productive activities. The evidence on this remains sparse but is overall consistent with the core premise of coordination failure models: people's investment choices in physical and human capital are highly complementary. Yet a national, simultaneous "Big Push" might not be necessary. Coordination mechanisms often appear to operate at a smaller level such as a set of industries or regions. Even when complementarities are not sufficiently strong to generate multiple equilibria, they exacerbate existing frictions, supporting the case for industrial policy.

Poverty traps prevent people from moving to where their work is most valuable, whether it is across occupations or space. As such they hamper adjustment processes that are crucial to address current global challenges such as climate change and inequality. Wealth is increasingly concentrated in aging, richer countries. Meanwhile, an increasing share of young people resides in countries where their ideas have limited access to scalable markets. Connecting wealth to talent is the central challenge for development policy. Poverty traps undermine this effort by preventing movement of labor and the investment in physical and human capital.

Our central conclusion is that poverty traps are a link between the wealth of people and the wealth of nations. The existence of poverty traps flips the relationship between growth and poverty reduction because policies that unlock the talent of large segments of the population will lead to economic growth. This creates a link between social protection and industrial policy. As individual poverty traps are addressed and more and more people achieve their potential, then by simple aggregation, the wealth of a nation will rise. But the link is more potent than that because as individuals become more productive and escape poverty, this, in turn, relaxes the constraints that underpin societal poverty traps. Their bargaining power

vis-à-vis employers and lenders improves. Their opportunities to invest in technology and integrate into domestic and world markets improve. It also improves their ability to form large, productive organizations with fine occupational divisions, allowing people's abilities to be better matched to specific jobs. In these various ways, unlocking individual poverty traps helps to unlock societal poverty traps. This relationship between the wealth of people and the wealth of nations largely determines how development unfolds.

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