Essays in Development Economics

by

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Abstract

This dissertation presents three essays in a variety of areas within development economics. In the first essay, Colonial Institutions and Public Education in India, I provide micro-evidence on the persistent adverse impacts of oppressive colonial institutions on present day education outcomes in India. Using rich primary survey data from nearly 1,000 villages, I find that villages that were endowed with landlord systems in the 1800s continue to have significantly worse primary school performance in present day. There are remarkable differences in school inputs as well, although these do not explain fully the variation in outcomes. In further analysis, I show that the lack of accountability and political representation at the local level is the main channel through with the landlord effect persists. Finally, I also show that the private sector steps in as an alternative to the poor quality of public education and offers significantly better inputs and produces much higher outputs in landlord areas.

The second essay, Aspirations and Financial Decisions: Experimental Evidence from the Philippines, is co-authored with Dean Yang and David McKenzie. In this paper, we present results from a randomized experiment among poor entrepreneurs testing the impact of exogenously inducing higher financial aspirations. In theory, raising aspirations could have positive effects by inducing higher effort, but could also reduce effort if unmet aspirations lead to frustration. We find that treatment resulted in more ambitious savings goals, but nearly all individuals fell far short of reaching these goals. Two years later, treated individuals had not saved more, and actually had lower borrowing and business investments. Treatment also reduced belief in the amount of control

over one's life. The results from the chapter suggest that setting aspirations too high can lead to frustration, leading individuals to reduce their economic investments.

In the third essay, Poverty and Well-Being of the Elderly in Latin America: The Role of Health, Pensions and Private Transfers, I leverage 44 existing household survey datasets from 17 countries in the Latin America and the Caribbean region to document patterns in poverty, well-being and living arrangements of the elderly in the region. I also examine elderly's access to health care services and the burden of out-of-pocket health expenditures. In most countries included in the study, I find that health insurance plays a significant role in increasing utilization of health services and reduction of financial burden. Finally, I also examine the availability of pensions and private transfers, and their role in improving the well-being of the elderly.

My dissertation contributes to the empiricial knowledge base in development economics in areas of economic history, education, health, household finance, demography, and poverty. The three essays aim to shed some light on key development issues facing countries in East Asia, South Asia and Latin America.

Chapter 1 Colonial Institutions and Public Education in India

1.1 Introduction

India has the largest public primary education system in the world, catering to nearly 200 million children. Over the last two decades, massive increases in education expenditures have led to near universal primary school enrollment, nevertheless, education outcomes remain poor. In 2018, only 44 percent of fifth grade students could read a second grade level text (ASER, 2019). This is partly because the education system is characterized by weak accountability and representation – teachers and students are frequently absent, poor performance is seldom penalized, and parents have little influence on local education policy decisions (Chaudhury et al., 2006; Muralidharan et al., 2017). As a response to poor public sector performance, private sector enrollment in primary education in India has increased steadily to 35.2 percent in 2017 from 16.5 percent in 2001 (Kingdon, 2020; Kremer & Muralidharan, 2008; UNESCO, 2020). Education outcomes also vary substantially across and within states as measured by international benchmarking tests, therefore it is not surprising that Indian students are represented both in the top and bottom of the test scores distribution worldwide (Das & Zajonc, 2010). To make sense of these patterns observed in the literature, it is necessary to understand why there is variation in public sector accountability and performance in the first place, and if improvements in school inputs or accountability alone can improve outcomes. Similarly, there is little direct understanding as to what extent the shift to private education reflects households' response to poor public sector performance as opposed to preferences.

Recent literature in economics has established that the quality of historical institutions can shape current period economic, social and education outcomes. Informal and formal institutions provide the incentive structure of an economy, and the economy's growth (or decline) depends on the history of evolution of that structure (North, 1991). Across and within countries, research has shown that exploitative and extractive colonial institutions can affect current outcomes through

multiple channels, including, inequality and distribution of wealth, lack of political representation and power, weak property rights, and poor human capital (Acemoglu et al., 2001; Banerjee & Iyer, 2005; Bruhn & Gallego, 2012; Engerman & Sokoloff, 1997; Glaeser et al., 2004). Colonial institutions have also been shown to affect present day education outcomes, although evidence on the on the channels of impact is limited (Musacchio et al., 2014; Pandey, 2010). In India, Banerjee & Iyer (2005) argues that the type of land tenure systems (landlord vs. non-landlord) established during the British rule (1858-1947) continues to have persistent effects on current economic outcomes. The main channel in their analysis is political environment and representation. This chapter answers the question whether the same historical institution (land tenure system during the British era) affects current education outcomes, and if yes, if the effects persist through similar channels. It also examines the private sector response to the "landlord effect" and documents differential effects in landlord and non-landlord villages.

To provide micro-evidence on these questions, I use a rich nationwide survey data from 3,000 schools, 15,000 teachers and 25,000 households in rural India implemented in 2009-2010. The surveys were fielded as a follow-up to the 2004 World Development Report which, using surveys of schools and teachers in 1,900 villages, found that 23.6 percent of public-school teachers were absent on any given day (World Bank, 2003). The surveys included both public and private schools and the 2009-2010 round expanded the surveys to add modules for households, local leaders (chairperson of the *Gram Panchayat,*[1] GP) and heads of local education governance body (Village Education Committee, VEC). Households and local leaders were asked to enumerate their preferences about education and their participation in local governance, which form important inputs for this chapter. School finances and governance related data was collected from heads of VECs as well as GP leaders. Standardized tests for mathematics and language were also administered for fourth grade students. The results of these tests are the main measure of education outcomes used in this chapter. I combine these rich micro-data on education with colonial land tenure data from Banerjee & Iyer (2005). The land tenure data contain district-level (third level of

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[1] Gram Panchayat is the terminology used for village level local governance in India. It consists of a village or a group of villages or wards, where each ward elect or nominates a representative, or "Panch." The head of the Panchayat or "Sarpanch" is elected by the representatives for a period of five years.

public administration, following central and state level) information on the system of land revenue collection – landlord vs. non-landlord – as well as a range of other district level variables. During the colonial era, these systems were introduced to facilitate land revenue collection – in landlord areas, a single landlord was made responsible for the setting and collection of rents from individual cultivators, whereas in non-landlord areas the revenue liability was determined centrally and updated regularly, and the responsibility was with individual cultivators or with village bodies. Closely following Banerjee & Iyer (2005), my hypothesis is that landlord systems were oppressive and extractive, and areas with such systems continue to have worse education outcomes, even though reforms abolished landlord systems in the 1950s.

I find large and persistent effects of historical land tenure systems. After controlling for a range of district and village characteristics (and adding state fixed effects), villages that had landlord systems during the colonial era score 0.31 to 0.35 standard deviations lower in standardized tests of mathematics and language. This impact is economically meaningful, and is equivalent to almost 1.5 years of learning (Evans & Yuan, 2019). The chapter also reports large differences in teacher quality and school inputs including infrastructure and pupil-teacher ratios (PTRs), however, these gaps alone do not fully explain the observed differences in outcomes. I provide suggestive evidence that schools in landlord villages are unable to convert education production factors into outputs or outcomes. That is, in these villages, key school inputs such as quality of teachers, infrastructure, and low pupil-teacher ratios are uncorrelated with outcomes in landlord villages. In contrast, in non-landlord villages, as theory would suggest, outcomes are positively correlated with infrastructure and teacher quality, and negatively correlated with PTRs. I examine two potential channels for the persistence of the landlord effect – within village inequality and accountability at the local level – and find evidence in support of the latter but not the former. These findings are consistent with other research examining the impact of colonial institutions in India (Banerjee & Iyer, 2005; Iyer, 2010; Pandey, 2010). Finally, I show that private sector growth in primary education is correlated with the poor performance of the public sector. In landlord and non-landlord villages, private schools use similar or lower levels of inputs as public schools but produce much better outcomes. I also find that private schools face different entry barriers and decisions in landlord and non-landlord villages. In non-landlord villages, quality of public schools and village wealth are key predictors of private schools' availability. In landlord villages, private schools'

presence is correlated with within village inequality and village wealth, but not public schools' quality. These patterns suggest that private schools may need to compete with the public sector in non-landlord areas where public school quality is better. In landlord areas with dismal state of the public sector, they can gain market share with far lesser effort.

The findings of this chapter make three main contributions to the literature. First, it adds *micro*-evidence to the literature on the persistent effects of historical institutions, which is primarily *macro*-focused and much of the evidence comes from cross-country or cross-region effects.[2] For example, both Engerman & Sokoloff (1997) and Acemoglu et al. (2001) report cross country differences in productivity, although through different channels. The argument in the former is that differences in factor endowments led countries to engage in different economic activities (exploitative or non-exploitative) and in turn different growth paths, while the latter argues that property rights are correlated with economic outcomes, and differences in property rights at colonization predict differences in property rights today. Within countries studies have tended to focus on a specific institution. This means that the set of confounders and concerns about omitted variables is relatively smaller than that in cross-country studies. Still, many of these studies exploit and explain regional variations and outcomes, and the focus is typically on a broad set of economic outcomes (rather than education specifically). Banerjee & Iyer (2005) is mainly concerned with agricultural productivity at the district level in India.[3] Similarly, in Bruhn et al., (2012) the main result is that GDP per capita is 20.3 to 26.3 percent lower in regions with worse colonial institutions in 17 countries in the Americas. One exception[4] is Pandey (2010), who examines education outcomes in just one state of India (Uttar Pradesh). The paper finds similar effects as those reported in this chapter but has limited analysis on the possible channels of impact. This chapter adds to the literature by providing *micro*-evidence to the overall literature, extending previous education results to the national level for India, and generating evidence on the channels of impact.

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[2] See Nunn (2009) and Sokoloff & Engerman (2000) for reviews of the literature.
[3] They do report on number of schools and health facilities at the district level.
[4] Another related paper in education is Musacchio et al. (2014). Their focus is somewhat different and shows that policies to break persistent long-run effects of colonial institutions have heterogenous impacts.

Second, this chapter contributes to our understanding of the organization and performance of the private system of education in India. Private schools are ubiquitous in rural and urban India, nevertheless, the growth of the private sector in education is often vilified as a "neo-liberal" agenda (Mehrotra & Panchamukhi, 2007). The argument usually rests on comparing the quality of high-end private schools in states' capitals and cities to poor states of "low-cost" private schools in villages. However, there is little direct evidence on the quality of outcomes in private schools. Due to the lack of test scores data for private sector, research has been limited to documenting private schools' growth in areas with inputs-based measures of public schools performance (Kingdon, 2020; Kremer & Muralidharan, 2008). Previous research has also argued that private schools can operate at low cost partly because of the high availability of talented graduates willing to work as teachers as market clearing wages, rather than administratively determined bureaucrats' wages. Thus, private school growth in India and other countries has been shown to coincide with public school growth precisely because of the production of a pool of teachers in the public sector (Andrabi et al., 2013; Khanna, 2020). This chapter adds to the literature on private education in India by providing direct evidence on the quality of outcomes in private schools, and by showing that in addition to increased supply and affordability of private schools, households' response to poor quality of public schools is also a key reason behind increased private schools' enrollment share.

Finally, this chapter also contributes to the overall research and policy debate on education in India. In the past two decades, several empirical studies have focused on identifying the causes of poor learning outcomes, and carefully conducted randomized evaluations have identified effective policy interventions that causally improve school inputs and outcomes. In the context of poor accountability and outcomes, researchers have evaluated impacts of camera-based teacher attendance and performance monitoring and teacher performance pay on education inputs and outcomes (Duflo et al., 2012; Muralidharan & Sundararaman, 2011), and remedial education and technology-aided instruction on learning (Banerjee et al., 2007; Muralidharan et al., 2019). However, large-scale of adoption and scale-ups of these tested interventions has been rather limited. As argued in Banerjee, et al. (2017), market equilibrium effects, context dependence, political reactions, corruption, and changing costs of implementation are some of the main challenges to scale-up. In India and other developing countries, low levels of accountability has

been argued as a key bottleneck to improving learning outcomes (Mbiti, 2016). In the same vein, an earlier paper using the same data as that in this chapter found that teacher absence alone costs the Indian system $1.5 billion per year, and that frequent monitoring of schools is strongly correlated with lower teacher absence (Muralidharan et al., 2017). Nevertheless, the paper provided little evidence on why there is variation in monitoring in the first place. This chapter contributes to the literature by generating evidence on one source of accountability differences – historical persistence of oppressive institutions. It identifies the causes and consequences of accountability, highlighting the need for future research in the education space to design and test interventions to improve accountability. The findings from this chapter could also be used to adapt and contextualize effective policy interventions to overcome complex political economy challenges of scaling-up.

The remainder of the chapter proceeds as follows. Section 1.2 provides a brief background of the education sector in India. In Section 1.3, I present the historical institution of interest – land tenure system – and describe why it matters. This section also discusses exogeneity of this main explanatory variable. Section 1.4 describes the data and key summary statistics, and Section 1.5 the empirical strategy. Section 1.6 presents the main empirical results on the landlord effect. In Section 1.7, I explore some of the underlying mechanisms explaining the results, and in Section 1.8, I present results on the private sector's response. Section 1.9 concludes with a discussion of policy implications.

1.2 Education in India

India has made substantial progress in increasing the access to primary education to its population. Through series of reforms starting from the 1990s, net primary school enrollment (grades 1 to 5, or ages 6 to 10)[5] increased from 92.3 percent in 2013 from 77.1 percent in 1990. Politically, the concept of compulsory and free education was largely ignored and even opposed during the

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[5] The school system in India is divided into four levels – lower primary (ages 6 to 10), upper primary (ages 11 and 12), high (ages 13 to 15) and higher secondary (ages 17 and 18). In most states, these correspond to grades 1st to 5th for primary level, 6th, and 7th for upper primary, 8th to 10th for high and 11th and 12th for higher secondary. In some states like Gujarat, ages 10 to 12 (grades 5th to 7th) are considered upper primary years.

colonial era, although sometimes attempts were made to expand access to education (Mondal, 2017). Free and compulsory primary education became a reality only in the last two decades. At the time of the passage of the of Constitution of India (1950), Article 45 stated, "the state shall *endeavor* to provide, within a period of ten years from the commencement of this constitution, for free and compulsory education for all children until they complete the age of fourteen years" (own emphasis). It was not until 2002, when the 86th amendment to the Constitution introduced Article 21(a) which stated that "the State *shall provide* free and compulsory education to all children of the age six to fourteen years in such a manner as the State may, by law, determine" (own emphasis). Following this amendment and after some delays, a Right to Education (RtE) was enacted at the central level in 2006 and it was adopted by all states' legislatures by 2012.

Since independence from the British in 1947, the Indian government has implemented several reforms and undertaken large investments to universalize education. In 1968, the Government of India (GoI) announced the first National Policy on Education, which called for a radical restructuring of the education sector and proposed equal education opportunities for all population. In 1986, a new National Policy on Education called for special emphasis to remove the disparities in access especially for scheduled caste (SC) and scheduled tribes (ST) communities, and women.[6] To expand access to education among marginalized populations, in 1994, the District Primary Education Project (DPEP) was introduced in 271 of 600 districts with low literacy rates. It created 160,000 new schools and trained about 1 million teachers (Azam & Saing, 2016; Khanna, 2020). In 2003, the GoI launched the *Sarva Shiksha Abhiyan* (Education for All, SSA) with the goal of achieving universal enrollment through upper primary ages by 2010. SSA was financed by a special education tax, equivalent to 2-3 percent of all taxes and increased education funding by three-folds (Kingdon, 2007; Muralidharan et al., 2017). The goals were to improve school enrollment to reduce out-of-school share of children, fund civil works and additional teachers to improve school inputs. On the demand side, the SSA sought to reverse historical caste and gender-based inequities by including free textbooks and grants for low-caste and female students. Finally,

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[6] Scheduled castes (SC) and scheduled tribes (ST) are among the most disadvantaged groups in India. The terms are officially recognized in the Constitution of India, and these groups have far worse social and economic outcomes compared to other groups. In the 2011 Census, SC and ST groups accounted for 16.6 percent and 8.6 percent of the population respectively.

another notable reform is the mid-day meal program. In 2001, the Supreme Court mandated the national and state governments to provide mid-day meals with a minimum content of 300 calories to every child in government schools and government-assisted schools. Under this program, the central government covers the costs of food, transportation, and preparation, while the state government is responsible for providing the physical infrastructure for cooking the meals. Although there has been documented evidence of corruption, lack of quality and discrimination in mid-day meals supply, the program is overall considered successful and reached near universal coverage in 2006 (Farzana, 2005; Khera, 2006; PRS, 2013).

These reforms were also accompanied with greater devolution of power and responsibilities to local governments. Education policy implementation in India is a complex process with frequent decentralization and recentralization of responsibilities between central and state governments, but the fundamental role of local governments is undisputed (Dyer, 1994). To promote local participation and mobilize and involve people in educational development, the National Policy on Education (1986) proposed the formation of "Village Education Committees (VECs)" at the GP level (Wankhede & Sengupta, 2005). VECs are headed by GP chairperson and consists of 14 categories of members, including headmasters, teachers, two women, representatives of SC and ST populations, parents, and guardians of children in school. The roles of the VECs as well as the GPs have been strengthened through the reforms. The DPEP assigned several functions to the VEC including school-community networking and monitoring educational standards at school. Similarly, the SSA devolved the responsibility of utilization of funds to VECs and GPs (SSA, 1999). Finally, the preparation of mid-day meals and its monitoring also lays with the GP. Thus, it is evident that local governments in India have a significant role to play in the delivery of education services to the population.

1.3 The role of colonial institutions

In this section, I provide a brief history of the land revenue collection process in India and describe the origins and reasons behind prevalence of different types of landlord systems. I also discuss why this particular system matters for present day intra-village socio-political dynamics. To establish causality between land tenure system and education outcomes, we also need the

assignment of land tenure system to be exogenous. In the final part of this section, I argue for the exogeneity of land tenure systems based on historical evidence and previous literature.

1.3.1 Land revenue collection in India

The British came to India in 1613 as the "East India Trading Company." They started gaining political control of India after the battles of Plassey and Buxar in 1757 and 1764 respectively, and by 1818 they were a major political power in India. By the year 1860, they had conquered a large part of modern-day India, Bangladesh, and Pakistan. Eastern states such as West Bengal were conquered in 1765 while parts of Mughal states like Uttar Pradesh were not conquered until 1856. In 1841, land revenue alone accounted for 60 percent of all British revenues, so it is not surprising that land revenue collection was a major policy debate for the British empire in India. Banerjee & Iyer (2005) describe four reasons for variation in land revenue collection system. First, in areas with a pre-existing landlord class, it was easier for the British to install a landlord-based revenue collection system. The second reason is the influence of individual administrators who lobbied London in favor of either systems. The third reason is the date on conquest, with the argument being that starting from 1820 onwards it was easier to put non-landlord systems in place because there were existing precedents from India, and because of the general mentality shift after the French revolution of the 1820s. Prior to 1820s, the British were more likely to choose landlord systems because these were administratively easier to implement. The final reason is a subsequent policy reversal in 1857 after the Sepoy Mutiny (a violent uprising against the British empire). Consequently, all areas conquered after 1857 were endowed with landlord systems.

Landlord and non-landlord areas differ in how land revenues were collected. In landlord areas, the responsibility of collecting rents from individual cultivators was typically assigned to a single landlord. The landlord could set revenues and terms for the cultivators and dispossess persons who did not pay (Banerjee & Iyer, 2005). In non-landlord areas, land revenues were either collected through a village body or directly from individual cultivators. In the village-based systems, village bodies had joint ownership of land and joint liability of revenue. Finally, in some other areas, revenue collection was done directly from cultivators. In these latter two systems, a land cadastral survey was completed in the village to determine land holdings of cultivators. The level of revenue was determined based on output, as opposed to landlord villages. In landlord villages the British

fixed the rates for the landlord while the landlords were free to set rates on their own. Thus, colonial land revenue collection systems created different political structures with different socio-economic conditions in Indian villages and districts in the 1800s.

1.3.2 Why should land tenure matter?

Inequality in the distribution of land ownership has been shown to affect human capital accumulation, labor supply and income, political representation, as well as economic inequality (Bardhan et al., 2014; Bruhn & Gallego, 2012; Field, 2007; Galor et al., 2009). In the context of India, colonial land tenure could matter for education for several reasons. First, landlord systems created different hierarchies within villages which makes local organization and collective action extremely difficult. As discussed earlier, local participation and coordination are necessary for the delivery of public education (and other social services). One of the main responsibilities of local governments and communities is to ascertain accountability in policy implementation. In this sense, the main challenge that could emerge is that landlord villages is that they are more likely to be politically controlled by elites belonging to upper castes who may have little stake in the quality of public service delivery in the village (Pandey, 2010). Furthermore, the hierarchies created by the landlord systems may also disempower the voices of the marginalized communities in improving education quality, and their only viable choice may become exiting the public system and seek options in the private sector.

Another reason land tenure may matter is that policy priorities and incentives for reforms in landlord areas may be different from those in non-landlord areas. As Banerjee & Iyer (2005) show, this is evident from the fact that between independence and present, landlord areas on average passed 90 percent more land reforms than non-landlord areas. In addition to education policies, GPs are responsible for implementation of dozens of other policies in other sectors. Beyond the VECs, GPs also oversee Village Finance Committees, Village Beneficiaries Committees, Village Forest Committees, and Village Health Committees, to name a few. Similarly, political leaders may also prioritize reforms that benefit them first. For example, in the case of West Bengal, land reforms are often explained by electoral competition rather than redistribution (Bardhan et al., 2014). Finally, the landlord effect could also operate through the creation of inequal societies, which makes collective action difficult to achieve (Banerjee & Iyer, 2005). Inequality has been

argued as the main channel for the persistence of historical institutions in other contexts as well (Easterly, 2007; Engerman & Sokoloff, 1997; Kourtellos et al., 2013). These issues are examined empirically in Section 1.7 of the chapter.

1.3.3 Exogeneity of land tenure system

Following Banerjee & Iyer (2005) and Pandey (2010), I argue for exogeneity of land tenure system based on historical evidence. As discussed earlier, non-landlord systems were mostly introduced in the span of roughly 35 years between 1820s and 1857 due to political environment. In the case of the state of Uttar Pradesh for instance, the first annexation of territory occurred in 1773, when the British acquired land from the Nawab of Oudh, and these areas were endowed with landlord systems, while non-landlord systems were put in place in areas that were acquired after 1800 (Pandey, 2010). In another systematic extension started in 1850, and by this time the British government had instructed the East India Company to make village bodies control possession of land. The year 1857 saw the Sepoy mutiny by the Indian regiment of British army, which was followed by widespread civilian rebellion and uprising (Chandra et al., 1988). To prevent future uprisings, the British government sought to take control of local aristocracy, and from this time subsequently annexed districts were endowed with landlord systems. Since the policy was reversed by a one-time exogenous political event, I argue that land tenure can be treated as exogenous. Based on this history, Banerjee & Iyer (2005) also use the year of conquest as an instrumental variable for landlord status. Since districts and villages were more likely to be endowed as with non-landlord systems for pure political regions between the period of 1820 and 1857, a binary indicator of conquest within this period is highly negatively correlated with landlord status and can be used as an instrument. Nevertheless, due to sample size issues, results from the instrumental variables specifications are less precisely estimated, and in this chapter, I focus on the results of the direct effect of landlord systems (more on this later).

1.4 Data and summary statistics

1.4.1 Land tenure data

The land tenure data used in this chapter comes from Banerjee & Iyer (2005) and is available for download from the American Economic Review's website. Data are available at the district level and contain variables on the proportion of landlord areas in each district, the date of British conquest of the district. The districts and states are mapped to 1961 census boundaries so all analysis in this chapter uses those boundaries. Along with these key variables, the data also contains information on geographic characteristics of the districts – altitude, latitude, longitude, soil type, indicator for coastal districts and rainfall. Panel A in Table 1.1 below reports the summary statistics for these key variables. Landlord districts are on average located at a lower altitude (285 meters vs. 419 meters) and have greater rainfall (1,498 mm per year vs. 1,128 mm per year). These districts also have greater quality soil as measured by fraction of red soil (0.33 vs. 0.14). These patterns make landlord districts mode conducive to agriculture. Since these geographic factors are relatively time invariant, and these factors favor landlord districts, I can be reasonably certain that landlord districts did not start at a disadvantage compared to non-landlord districts. In all regression results reported in this chapter, I control of these characteristics.

Panel B of Table 1.1 reports on current socio-economic characteristics of the study villages in landlord and non-landlord districts. Typically, landlord areas tend to be bigger in population and have greater population density. But as the villages in this study come from a sample consisting of villages with less than 10,000 inhabitants in the 2001 census (described in the next sub-section), size differences between villages in landlord areas and non-landlord areas are small. The population of the average village is about 2,500 and in both types of villages, 27 percent of the population belongs to SC and ST categories. Given the size and heterogeneity, issues of political participation and representation are likely to be central in all villages. Landlord areas do have a smaller fraction of population that belongs to SC communities but have a greater share of ST population. On the other hand, the differences in literacy rates, wealth and inequality are quite stark. As measured by the 2001 census, literacy rate in landlord villages is 48 percent while it is 54 percent in non-landlord villages. To measure assets and inequality, I use household survey data.

Landlord villages are poorer and have higher levels of inequality than non-landlord villages. These results are consistent with those previously reported in the literature (Banerjee & Iyer, 2005).

Table 1.1: Average characteristics of landlord and non-landlord districts and villages

	(1) Landlord villages	(2) Non-Landlord villages	(3) Difference
Panel A: District Characteristics			
Altitude (m)	285.51	419.14	133.63***
Latitude	366.41	148.14	93.64***
Coastal (1=Yes)	0.19	0.19	0.01
Annual rainfall (mm)	1,498.19	1,127.78	-370.41***
Soil type (1=Black)	0.12	0.24	0.12*
Soil type (1=Saline and Alkaline)	0.44	0.61	0.17**
Soil type (1=Red)	0.33	0.14	-0.19***
Number of districts	115		
Panel B: Village Characteristics			
Population	2,531.86	2,715.56	183.70
Fraction SC	0.17	0.20	0.03***
Fraction ST	0.10	0.07	-0.03***
Fraction Literate	0.48	0.54	0.06***
Households assets index	-0.57	0.17	0.73***
Gini coefficient on wealth	0.27	0.24	-0.04***
Number of villages	976		

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%

1.4.2 Education data

The education data used in this chapter were collected as a follow-up work to the 2003 World Development Report, which reported teacher absence rates across 17 countries, including India. In the original surveys fielded in India in 2002-2003, a nationally representative sample of nearly 2,000 villages and cities (sampling units, with up to three randomly sampled schools per unit) were visited to collect detailed data on schools and teacher characteristics, key inputs and teachers' absence (Chaudhury et al., 2006; Kremer et al., 2010). Absence was measured with spot verification over three unannounced visits. For each school, a school survey was implemented with the headmaster to collect information on school resources, student enrollment, monitoring and accountability indicators, etc. An individual survey was administered to each teacher to collect their socio-demographic data.

The focus of the 2010 study was on *rural* India, and we revisited a nationally representative sample 1,650 rural villages. Of these, 1,300 villages were from the original 2002-2003 study. This time, instead of sampling up to three schools randomly for further data collection, we first conducted a short census of all public and private schools operating in the village. This census collected basic data on school enrollment, inputs, and teachers. Importantly, this census provides data on the number and enrollment shares of private schools in study villages. From there, we randomly sampled up to two public and one private school per village for further investigation. Each school was revisited three more times to collect data on teacher absence, and in these visits a detailed school survey and teacher surveys were also administered.[7] In the detailed surveys of schools, data was collected on infrastructure, frequency of monitoring by district education offices, parents-teachers associations, etc. Teacher surveys collected information on teachers' education, socioeconomic background, salaries, etc. Finally, mathematics and languages tests were administered to fourth grade students in all sampled schools. The two tests contained 42 and 35 items respectively and were designed to allow for benchmarking with Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS). Tests were scored using Item Response Theory (Hambleton et al., 1991).

In contrast to the 2003 study, the 2010 study also expanded data collection to include households' surveys, and surveys of GPs' and VECs' leaders. In each village, we sampled 15 households randomly and administered a brief survey. Households were asked to list all school-age children and if and where they went to school, and households' ratings of the schools. They were also asked about their involvement in GPs and VECs, as well as their perspectives on the effectiveness of the functioning of these institutions in their villages. Finally, they were also asked about their socioeconomic characteristics which allows me to construct village level wealth and inequalities measures. Similarly, GP surveys enumerated local governments' involvement and perspectives in education. Since VECs are headed by GP leaders, the VEC surveys were administered to the headmasters, who also serve on the VEC.

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[7] For teachers who were absent in all three visits, basic demographic data was collected from headmasters or other teachers.

Combining the two data sets on land tenure and education, the final sample used in this analysis represents 976 villages from 186 districts in 17 states (2001 census). These correspond to 115 districts from 13 states in 1961 census. Further details of data collection and construction is available in Muralidharan et al. (2017). Clearly, the 2010 data contains a lot more details than the 2003 data. For this reason, most of the chapter below focuses on the 2010 data, and I also report results for 2003 data where available. This serves two purposes – first, although the time difference is only seven years, it allows me to comment on the continued persistence of the landlord effect. Second, it allows me to examine if the SSA, which was implemented from 2003 onwards, was successful in closing gaps between underserved and developed areas.

1.5 Empirical strategy and regression specifications

Our main question is if the colonial land tenure system has a continued persistent impact on current outcomes and I examine this in a regression framework with the proportion of landlord area in a district as the key explanatory variable. This empirical strategy employed in this chapter relies on the exogeneity of the land tenure variable. If exogeneity holds, in a linear regression with land tenure system as the independent variable, the regression coefficient on land tenure is identified. As discussed earlier, exogeneity of this variable is already argued for in the literature. Nevertheless, since there are substantial differences between landlord and non-landlord areas (with landlord areas being better) in terms of climate and geography, I control for these in all regressions. In addition to climate and geography controls, I also add GP level controls for log of population, fraction of population that belongs to SC caste, fraction of population that belongs to ST case, and the fraction of population that is literate. Thus, the coefficient on the landlord variable captures differences among villages that are similar along these geographical and GP characteristics.

The regression specification I use is:

$$Y_{ij} = \alpha_1 + \beta_1 L_i + X_j \theta_1 + Z_{ij} \delta_1 + \lambda + \epsilon_{ij}$$

where Y_{ij} is the outcome of interest in village j in district i. L_i is the proportion of non-landlord area in district i. X_j is a vector of district controls, Z_{ij} is a vector of village controls, and λ represents state fixed effects. β_1 is the coefficient of interest and represents the "landlord effect".

Where the data are available, I estimate these regressions separately for the year 2003. All analysis is done at the village level, i.e., education data were collapsed at the village level.

I report results with and without the inclusion of GP controls and state fixed effects. On one hand, the inclusion of state fixed effects is important because much of education policy decisions lay with the state and there may be systematic policy differences that may drive some of the impacts. On the other hand, as discussed earlier, education policy in India has seen a certain level of recentralization with the central government taking over a greater level of control on education policy in recent years. One problem with inclusion of state fixed effects is that due to limited variation in the landlord variable at the state level, the sample size is greatly reduced (which reduces statistical power). In the states of Bihar, Jharkhand, Rajasthan and West Bengal, all villages belong to landlord districts. In the states of Gujarat and Karnataka, all villages are non-landlord areas. This effectively drops 303 of the 976 villages from analysis. This should be kept in mind when interpreting results with state fixed effects.

1.6 Main results

1.6.1 Student outcomes

As described earlier, student outcomes were measured by comprehensive mathematics and language tests that were scored using Item Response Theory which produces a standardized score representing the underlying ability of test takers. Figure 1.1 graphically shows the relationship between the combined score of mathematics and languages tests on the y-axis and on the main variable of interest – proportion of landlord areas – on the x-axis. The pattern is stark – areas with landlord systems have substantially lower student outcomes (as measured by test scores) than areas with non-landlord systems. Table 1.2 then reports regression results of the average difference in student outcomes in landlord and non-landlord areas. Including all district controls described earlier, landlord villages score 0.39 standard deviations lower on average than non-landlord villages. The difference is 0.34 standard deviations in mathematics tests and 0.40 standard deviations in language tests (both results are significant at the 5 percent level, Column 2). Column 3 then adds village level controls in addition to district level controls. Controlling for village characteristics reduces the differences somewhat, but the effects are still large and statistically

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significant – 0.31 standard deviation on average. Finally, column 5 reports results including state fixed effects. Recall that adding state fixed effects has the implication that data from only those states that have variation in landlord status within states are included in the regression. Although this drastically reduces the sample size, the landlord effect is comparable and is 0.35 standard deviations on average.

Figure 1.1: Student outcomes in landlord and non-landlord areas
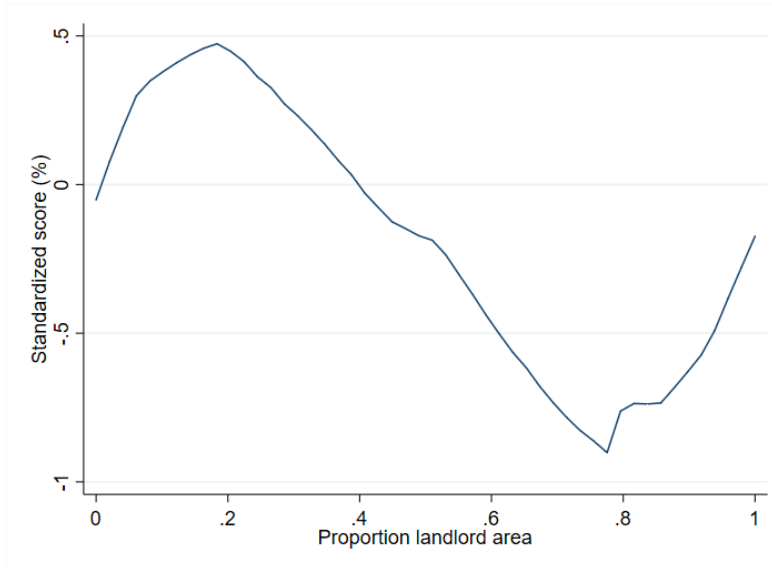
Table 1.2: Average difference in education outcomes in landlord and non-landlord villages, public schools

	(1)	(2)	(3)	(4)
	Mean	Coefficient on proportion landlord		
		District controls	District + GP controls	District + GP controls + State FE
Standardized score	-0.12	-0.39**	-0.31**	-0.35**
		(0.17)	(0.15)	(0.18)
Math standardized score	-0.12	-0.34**	-0.29*	-0.35**
		(0.16)	(0.15)	(0.17)
Language standardized score	-0.11	-0.40**	-0.29*	-0.31*
		(0.18)	(0.15)	(0.17)

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

To put these results in perspective, consider that an average student gains between 0.15 to 0.21 standard deviations in learning for each business-as-usual school year (Evans & Yuan, 2019). That is, if the students were given the same test every year, one should expect to find average increases in this range. Using the upper bound of 0.21 standard deviations, this would imply that fourth grade students in landlord villages are almost 1.5 years behind in learning than their counterparts in non-landlord villages. The effect is also larger than the impacts of successful randomized policy interventions evaluated in controlled settings. In Duflo, et al. (2012), camera based monitoring of teachers and financial incentives for a full year increased test scores by 0.17 standard deviations. In Muralidharan & Sundararaman (2011), performance pay intervention where teachers received an annual bonus of 3 percent of pay increased mathematics and language test scores by 0.28 and 0.16 standard deviations, respectively (Muralidharan & Sundararaman, 2011). Hypothetically speaking, in comparison to these interventions, moving the average fourth grader (or their family) from a village that had a landlord system historically to a village with non-landlord system would have a higher impact on learning outcomes.

1.6.2 Education inputs

Given the large differences in test scores documented above, the natural question to ask is if these are driven by differences in school inputs. I report results for school inputs for years 2003 and 2010 in Table 1.3. Panel A reports results on teacher qualifications as measured by fraction of teachers with bachelors' degrees and with teacher training training, teacher experience (proxied by age), salaries and absence rates. Between 2003 and 2010 there has been a substantial increase in the fraction of teachers with college degrees – from 40 percent to 59 percent. In fact, results show that landlord areas in 2003 had 12.9 to 14.1 percentage points more teachers than non-landlord areas, and this gap was closed by 2010. This is in line with the objectives of the SSA which undertook massive investments to improve teacher quantity and quality. On the other hand, landlord areas have fewer teachers with teacher training in both years, and the effect is statistically significant for 2010 even after controlling for state fixed effects. The lower rate of teacher training in landlord villages is partly explained by greater use of contract teachers in landlord areas. Contract teachers are hired at the school level by VECs and they typically have high school or college degrees, but no formal teacher training. Unlike regular teachers who have permanent contracts, the contracts of these teachers are renewable annually and they are paid less than one-

fifth of the annual salaries of that of regular teachers. Contract teachers have been shown to more, if not equally, effective as regular teachers. They are less likely to be absent, exert greater effort in teaching, and generate better learning outcomes (Muralidharan & Sundararaman, 2013). In 2010, schools in landlord areas were 60-70 percent more likely to have contract teachers, although most of this variation comes from across states than within states.

Table 1.3: Average difference in teacher and school inputs in landlord and non-landlord villages, public schools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Year 2010, coefficient on proportion landlord			Mean	Year 2003, Coefficient on proportion landlord		
		District controls	District + GP controls	District + GP controls + State FE		District controls	District + GP controls	District + GP controls + State FE
Panel A: Teacher inputs								
Have college degree (%)	59.38	2.20	2.43	-6.69**	39.98	14.11***	12.90***	2.83
		(4.56)	(4.60)	(3.35)		(4.31)	(4.32)	(4.42)
Have teacher training (%)	72.40	-23.51***	-22.01***	-9.31**	78.97	-9.47*	-10.88**	-1.06
		(3.91)	(3.97)	(4.14)		(5.66)	(5.11)	(5.35)
Average age (years)	39.58	-0.06	0.41	-0.41	39.60	0.23	0.87	-2.29*
		(0.87)	(0.84)	(0.88)		(1.14)	(1.12)	(1.18)
Are contract teachers (%)	27.33	20.33***	18.39***	4.97	4.93	2.76	1.57	7.48***
		(5.35)	(5.20)	(3.32)		(2.17)	(2.17)	(2.52)
Are native to the village (%)	18.11	3.98	3.00	5.11	20.21	1.45	4.07	1.74
		(2.79)	(2.58)	(3.19)		(3.66)	(3.42)	(4.53)
Log of monthly salary	12,888.63	-1,547.9*	-1,127.9	-323.9	-	-	-	-
		(828.0)	(777.5)	(858.0)				
Absence rate (%)	20.69	5.22**	4.04*	6.35*	26.59	5.06**	4.11	0.59
		(2.27)	(2.36)	(3.24)		(2.48)	(2.52)	(2.83)
Actively teaching (%)	58.77	-5.18	-3.31	-5.70	47.02	-9.42*	-8.74*	-0.76
		(3.28)	(3.23)	(4.63)		(5.05)	(4.95)	(4.45)
Panel B: School inputs								
Log of pupil-teacher ratio	3.44	0.33***	0.28***	0.12*	3.59	0.31***	0.25***	0.22***
		(0.07)	(0.06)	(0.07)		(0.07)	(0.06)	(0.07)
Infrastructure index	3.62	-0.88***	-0.72***	0.05	2.25	-0.75***	-0.65***	-0.01
		(0.19)	(0.17)	(0.16)		(0.17)	(0.16)	(0.16)
Has toilets	0.87	-0.08	-0.07	0.02	0.42	-0.07	-0.05	-0.01
		(0.05)	(0.05)	(0.05)		(0.06)	(0.06)	(0.06)
Has electricity	0.75	-0.20***	-0.15***	-0.06	0.54	-0.26***	-0.25***	-0.12
		(0.06)	(0.05)	(0.06)		(0.07)	(0.07)	(0.07)
Has a library	0.51	-0.30***	-0.26***	0.03	0.15	-0.15***	-0.13***	-0.03
		(0.07)	(0.07)	(0.07)		(0.04)	(0.04)	(0.03)
Mid-day meals	0.82	0.03	0.04	-0.07	0.19	0.03	0.03	-0.08
		(0.07)	(0.06)	(0.07)		(0.10)	(0.08)	(0.07)
Panel C: Student inputs								
Student attendance	69.32	-10.07***	-7.18**	-2.10	-	-	-	-
		(3.77)	(3.44)	(4.02)				
Takes private tuitions	21.10	11.20***	13.56***	9.59***	-	-	-	-
		(3.73)	(3.77)	(2.95)				

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

In terms of teacher effort and accountability, I find that teachers in landlord areas are 19.5 to 30.7 percent more absent. The average absence rate in my sample is 20.7 percent. Assuming a 200 days' school year, teachers in landlord areas are 8 to 12 days more absent than those in non-landlord areas. The effects are statistically significant in all specifications for the year 2010. Similarly, the percentage of teacher actively teaching, defined as present at the time of spot verification and actively engaged with students is also lower in landlord areas, although the differences are not statistically significant. Finally, there are no statistically significant differences in salaries earned by teachers in landlord and non-landlord areas, although the coefficient on landlord variable is negative. Taken together, I conclude that teacher inputs are substantially lower in landlord villages than non-landlord villages. Furthermore, if contract teachers are indeed more effective in general, and landlord villages are more likely to have contract teachers, we would expect students in landlord villages to perform better in standardized tests. But this is not what I find suggesting that there may be systematic differences in the productivity of inputs between these two types of villages.

Another key input for student learning is the ratio of pupils per teacher (PTR). First note that during the implementation period of the SSA, PTR declined only modestly. Although there have been large increases in number of teachers in this period, net primary school enrollment also increased from 84 percent in 2002 to 91 percent in 2010 which may explain the lack of improvement in PTRs. I find that landlord villages had PTRs that were 22 to 31 percent higher than non-landlord villages in 2003 and these differences persisted through 2010 (Table 1.3, Panel B). The effects are statistically significant and robust to inclusion of controls and state fixed effects. In terms of school infrastructure, landlord villages have substantially lower infrastructure in both 2003 and 2010, although the effects become statistically insignificant once across state heterogeneity is controlled for. Finally, I find no differences in the likelihood of villages offering mid-day meals. Between 2003 and 2010, the proportion of villages offering mid-day meals increased from 19 percent to 82 percent, confirming the findings from previous research (Khera, 2006).

Panel C of Table 1.3 reports on student inputs. Student effort, as measured by attendance rate of fourth graders, is also lower in landlord areas. It is worth noting that average student attendance in the sample is only 69 percent, which it itself alarming. The landlord effect is large and significant

(between 10.3 and 14.5 percent) but is substantially reduced and becomes insignificant when state fixed effects are added (3.0 percent). Public school students in landlord areas are also significantly more likely to take private tuitions outside of school. Overall 21.1 percent of students said that they take private tuitions, and in landlord areas, students are 9.6 to 13.6 percentage points more likely to take private tuitions.

Considering the stated goals of the SSA was to achieve universal enrollment and close the gaps in access, through the provisioning of budget for strengthening vital areas of education provision, these patterns evidence to muted impacts of the SSA. In Appendix Table 1.10, I examine the differences in the flow of SSA funding to landlord and non-landlord areas. Results suggest that SSA was successful at directing more funding to historically worse performing landlord areas. The average allocation in 2010 as reported by VECs was Rs.59,323, and landlord areas received nearly 1.5 more funds than non-landlord areas. The effects are statistically significant in regression including district and village controls (Columns 2 and 3). Although adding state fixed effects reduces statistical precision, the coefficient is similar in magnitude to the ones estimated without state fixed effects. Similarly, the effect on per-pupil SSA allocation is in the range of 24 to 35 percent, but the results are not statistically significant. These patterns again suggest that the reason for lack of improvement may not be the availability of funding or inputs but the ability of villages to productively utilize these inputs. That is, landlord areas may be less capable in effectively and efficiently executing resources. It is also possible that landlord villages are investing in less productive inputs than non-landlord areas. Unfortunately, disaggregated funding data for each input is not available, although I do find that landlord areas tend to invest more in construction projects than filling teacher vacancies (Appendix Table 1.10).

1.6.3 Monitoring and governance

The empowerment and participation of local communities in local policy decision making and implementation has been a central policy agenda since at least 1959 when the three-tier system of *Panchayati Raj* (district, block, and village level) came into effect in the state of Rajasthan. The modern Panchayati Raj system was introduced in India in 1993 through the 73rd constitutional amendment. And throughout the post-independence period, as described earlier, education policy has sought to empower and leverage local governments for implementation. These public

institutions are responsible for the formation and operation of VECs and PTAs, which in turn have prominent roles in school management.

The first variable of interest in this system of local governance is top-down monitoring from the district and block level. Frequent monitoring of schools has been shown to be robustly correlated with lower teacher absence. Using panel data and a series of specifications, Muralidharan et al. (2017) finds that regular (three-monthly) monitoring of schools is correlated with 27 to 35 percent reduction in teacher absence. In the across state results, I find that schools in landlord areas are inspected 11.4 to 13.1 percent less often than landlord areas (Table 1.4). Adding state fixed effects reverses the sign of the coefficient on landlord status but the effect is statistically insignificant. Noting that 19 percent of all positions are vacant in district education offices, Muralidharan et al. (2017) speculate that one reason for variation in top-down monitoring is the availability of inspectors. While I do not have vacancy data for inspectors' positions, the results obtained for teachers' vacancies are consistent with this explanation. Areas that suffer from weak governance and accountability are also likely to be areas that have harder time filling positions. In addition, since the responsibility because filling vacancies at the district level is the responsibility of state governments, it also makes sense that the effects are only significant in regressions without state fixed effects.

Table 1.4: Average difference in governance and monitoring indicators in landlord and non-landlord villages, public schools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean	Year 2010, coefficient on proportion landlord			Mean	Year 2003, Coefficient on proportion landlord		
		District controls	District + GP controls	District + GP controls + State FE		District controls	District + GP controls	District + GP controls + State FE
School was inspected in last 3 months	0.61	-0.08**	-0.07*	0.06	0.43	-0.08	-0.08	0.06
		(0.04)	(0.04)	(0.04)		(0.06)	(0.06)	(0.08)
PTA exists	0.74	-0.06	-0.03	0.08*	0.69	-0.34***	-0.32***	-0.07
		(0.06)	(0.06)	(0.05)		(0.07)	(0.06)	(0.06)
PTA met in last 3 months	0.48	0.02	0.03	0.13**	0.34	-0.15**	-0.12**	-0.05
		(0.06)	(0.06)	(0.06)		(0.07)	(0.06)	(0.05)
Village has an education committee (VEC)	0.88	-0.11**	-0.09*	-0.01	-	-	-	-
		(0.05)	(0.04)	(0.05)				
Number of VEC meetings in past 1 year	5.15	-0.21	0.15	0.83	-	-	-	-
		(0.75)	(0.69)	(0.76)				
Frequency of DEO office visits	0.57	-0.07	-0.06	0.02	-	-	-	-
		(0.07)	(0.07)	(0.09)				
Number of times audited in last 1 year	1.16	-0.02	-0.06	-0.15	-	-	-	-
		(0.18)	(0.16)	(0.13)				

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

The responsibility of bottom-up monitoring lays with PTAs and VECs. In 2003, landlord villages were nearly half as likely as non-landlord villages to have PTAs. This gap closed nearly fully between 2003 and 2010. In 2010, the landlord effect is small and negative, but is statistically not significant. Similarly, gaps in frequency of PTA meetings also closed between 2003 and 2010. Data on VEC existence and meeting frequency is only available for 2010. In landlord areas, VECs exist in 12 percent fewer villages, and the effect is statistically significant in regressions without state fixed effects. The frequency of VEC meetings is similar in landlord and non-landlord areas. Similarly, landlord areas are no less likely to be visited by district education offices for auditing purposes and no less likely to be audited.

1.6.4 The education production function

The earlier results show that school inputs and outputs are lower in landlord villages. In this section, I examine if the ability to convert inputs to outputs also differs by landlord status. To do this, the idea is to estimate a simple education production function. Evidence from previous studies estimating the impact of school inputs on outcomes have found mixed impacts, with some studies finding robust relationships between inputs and outputs and others not (Hanushek, 2003). In more carefully conducted evaluations, lower pupil-teacher ratios, better school infrastructure, and technology have shown to causally improve student learning (Angrist & Lavy, 1999; Barrett et al., 2019; Krueger, 1999). This had led researchers to argue that the lack of robust effects more likely reflects inefficiencies in education production, rather than misspecification of the production function itself (Hanushek, 2008). In this sense, a failure to find correlations between inputs and outputs would signal the inability of school administrators and management to convert inputs into outputs.

Figure 1.2: Components of the education production function in landlord and non-landlord areas
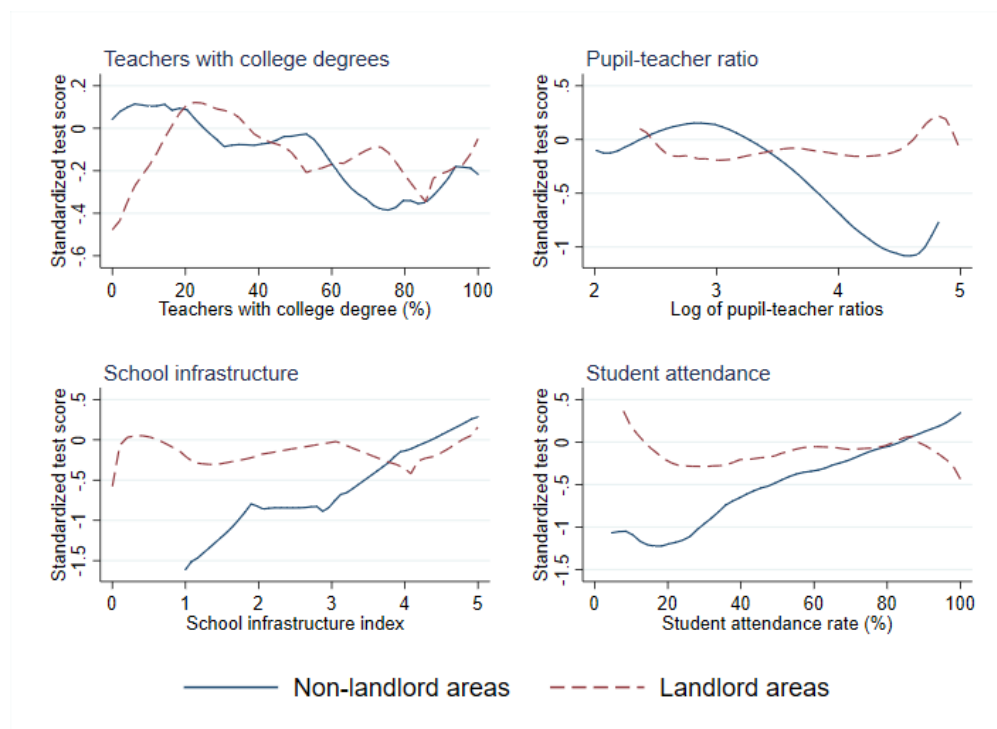
Figure 1.2 plots key inputs on the horizontal axis and standardized test scores on the vertical axis separately for landlord and non-landlord areas. The relationship between teacher quality (as

measured by fraction of teachers with college degree) and students' test scores are similar in landlord and non-landlord areas. In contrast, student performance declines significantly over the PTR distribution for non-landlord areas, while the relationship in landlord areas is flat. That is, lower PTR seems to have a positive effect on test scores in landlord areas, but not in landlord areas. Similarly, school infrastructure and student attendance are positively correlated with student performance in non-landlord areas but not in non-landlord areas. These patterns indeed support the hypothesis that landlord areas may be inefficient in converting inputs into outputs.

Table 1.5: Correlates of student outcomes in landlord and non-landlord villages

	(1)	(2)	(3)	(4)	(5)	(6)
	Non-landlord villages			Landlord villages		
Teachers with college degrees (%)	0.001	0.002	0.001	-0.001	-0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Teachers with teacher training (%)	0.008***	0.006***	0.005**	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Absence rate of teachers (%)	-0.008**	-0.007**	-0.002	0.000	0.000	0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)
Log of pupil-teacher ratios	-0.234**	-0.230**	-0.094	0.076	0.129	0.109
	(0.105)	(0.108)	(0.095)	(0.127)	(0.135)	(0.145)
School infrastructure index	0.290***	0.285***	-0.000	0.045	0.022	0.024
	(0.058)	(0.061)	(0.063)	(0.051)	(0.050)	(0.047)
School inspected in past 3 months	0.080	0.091	0.148	0.254	0.283	0.352*
	(0.183)	(0.184)	(0.149)	(0.193)	(0.190)	(0.200)
Number of PTA meetings in past 3 months	-0.022	-0.029	-0.123	-0.186	-0.182	-0.167
	(0.109)	(0.107)	(0.112)	(0.117)	(0.121)	(0.121)
Village has an education committee (VEC)	-0.033	-0.066	0.238	0.086	0.024	0.012
	(0.145)	(0.142)	(0.153)	(0.159)	(0.169)	(0.189)
Number of VEC meetings in past 1 year	0.012	0.014	-0.009	0.016	0.012	-0.002
	(0.015)	(0.014)	(0.014)	(0.012)	(0.013)	(0.015)
Student attendance rate (%)	0.005**	0.005**	0.001	0.000	-0.000	0.000
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
R-squared	0.251	0.263	0.479	0.035	0.055	0.089
Number of observations	462	462	462	243	243	243
Controls	No	Yes	Yes	No	Yes	Yes
State fixed effects	No	No	Yes	No	No	Yes

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 1.5 separately reports correlations between student outcomes and school inputs in a multivariate regression framework for landlord and non-landlord villages. In non-landlord villages, the share of teachers with teacher training, school infrastructure and student attendance are robustly correlated with learning outcomes (Columns 1 to 3). Similarly, outcomes are also correlated with lower absence rates of teachers and PTR. The coefficient on school inspections is positive but fails short of statistical significance. In contrast, there are no statistically significant relationships between these inputs and outcomes in landlord areas (Columns 4 to 6). The estimated coefficients and standard errors on teacher training, infrastructure, teacher absence, student attendance, and PTRs are small, suggesting that these inputs are indeed uncorrelated with outcomes. Notice that the coefficient on school inspections and existence of VEC is sharply increased, suggesting that monitoring may have a relatively larger effect on learning in landlord areas, although these effects are not statistically significant. Although I find significant differences in school inputs between landlord and non-landlord areas, these patterns strongly suggest that the culprit behind poor performance in landlord areas is not the lack of inputs, but rather the ability to convert these inputs into outcomes. Why this is so is the subject of the next section.

1.7 Mechanisms

In this section, I examine accountability and political representation, elite participation in public education, and inequality as possible mechanisms through which the landlord effect may be operating. These channels have been found to be salient in different contexts in the literature on impacts of historical institutions. Our VEC leader (school headmaster) and GP leader surveys asked respondents to rate the roles and effectiveness of the VECs along seven dimensions – identifying and addressing the needs of schools, use of education funds and construction management, promotion of student enrollment, students' monitoring and retention, teacher hiring, teacher monitoring, and mid-day meals implementation. On each dimension, respondents were asked to report VEC's effectiveness on a 1 to 5 Likert scale. From this measure, I construct an index of VEC effectiveness by averaging the responses to the individual items. Table 1.6 reports the regression results examining differences in VEC effectiveness in landlord and non-landlord villages. In the regressions without state fixed effects leaders rated VEC effectiveness 16 to 17 percent lower than non-landlord villages.

Table 1.6: Possible mechanisms of landlord effect

	(1) Mean	(2)	(3)	(4)
		Year 2010, coefficient on proportion landlord		
		District controls	District + GP controls	District + GP controls + State FE
VEC effectiveness index	3.68	-0.62***	-0.59**	0.36
		(0.24)	(0.23)	(0.25)
VEC members with 10th grade or more (%)	58.25	3.70	4.96	-1.47
		(5.67)	(5.05)	(3.97)
VEC members from SC/ST castes (%)	27.64	-5.96*	-5.31*	-1.11
		(3.60)	(2.85)	(3.47)
SC/ST represented in GP leadership	0.52	-0.05	-0.01	-0.13**
		(0.05)	(0.05)	(0.06)
GP leaders' children go to public schools	0.55	0.09	0.06	0.13
		(0.08)	(0.08)	(0.09)
SC/ST enrollment share as a fraction of population share	2.78	1.27	0.73	0.63
		(0.85)	(0.75)	(1.20)
Gini coefficient	0.25	0.01	0.01	0.01
		(0.02)	(0.01)	(0.01)

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

In Appendix Table 1.11, I report the effects on each individual dimension as well as responses from both school headmasters and GP leaders. The dimensions where the landlord impact is highest are identifying and addressing the needs of schools, promotion of students' enrollment, and students' and teachers monitoring. Interestingly, although there are no differences in overall average scores as reported by headmasters and GP leaders, the landlord effect is bigger in the responses provided by headmasters. Considering that the VEC is headed by the chairperson of the GP, these results suggest that GP leaders in landlord villages may be overstating the effectiveness of VECs. In any case, VEC effectiveness is lower in landlord villages, which suggests that accountability may be an important channel of impact.

Poor accountability could also be a result of the lack of political representation. SC and ST population also tend to be underrepresented in VECs. Recall that in both landlord and non-landlord villages the percentage of population belonging to SC or ST communities was 27 percent. Although the average share of SC/ST members in VECs is similar in population share (27.6 percent), landlord villages have significantly lower representation of SC/ST communities in VECs.

Likewise, compared to non-landlord villages, SC/ST populations are also less likely to be represented in GP leadership. In contrast, the lack of elite interest does not seem be a driving factor. To check for this, I examine if SC/ST population is more likely to be enrolled in public schools in landlord villages and if GP leaders' children attend private schools. Although SC/ST population is 2.8 times overrepresented in public education relative to their population share, the landlord effect is statistically insignificant. In the study sample, 55 percent of GP leaders' (chairperson, vice-chairperson, and secretary) children go to public schools, and there are no statistically significant differences between landlord and non-landlord areas. Table 1.6 also reports the landlord effect on village level inequality, as measured by the Gini coefficient of household wealth within villages. I find that there are no systematic differences in inequality levels between landlord and non-landlord villages, suggesting that inequality is not the relevant channel of impact.

Finally, in landlord villages, households are also less likely to be aware about the existence of VECs and they are less likely to have taken up matters with VEC (Appendix Table 1.12). Our surveys also asked households about their ratings of public sector performance and priorities for education. Table 1.12 also shows that households' rate public schools' quality to be lower in landlord villages. This is not because households' priorities for education in landlord villages are different. They are more likely to report that quantity and quality of teachers and school infrastructure as priorities. The landlord effect is also present in households' rating of GP's competence and GP's commitment to education. In landlord villages, households view GPs as less competent and less committed to education. Overall, these results suggest that the key drivers of the landlord effect on education outcomes may be the lack of accountability and political representation, rather than elite interest and inequality.

1.8 Private sector response

In this section, I investigate the private sector response to the patterns described above, focusing on differences between landlord and non-landlord areas. The rise of private schools in primary education in India is well documented (Kingdon, 2007). One branch of research has established that private school prevalence is higher in areas with poor public schools' performance suggesting that private and public schools are substitutes (Kingdon, 2020; Kremer & Muralidharan, 2008). Another branch of research examines the supply of private schools and finds that the private

schooling phenomenon complements expansions of public schooling, in part because increased education creates a greater pool of potential teacher candidates at the local level (Khanna, 2020). Results from my analysis are more nuanced and show that private schools may be operating as complements to public schooling and competing with public schools in well performing non-landlord areas. In landlord areas, where public school performance is dismal, they appear to be operating as substitutes and easily getting higher market shares.

1.8.1 Availability of private schools

Just over one-third of the village in the sample has a private school within the village and the average number of private schools is 0.6 (Table 1.7). Conditional on having a private school, villages have 1.7 private schools on average. In terms of private school availability, the estimated coefficients on the landlord variable are sizeable (8-10 percentage points, 23-29 percent), but not statistically significant. In my sample, private school enrollment share as measured by data from the census of schools sampled villages is 17.6 percent which is lower than national estimates of 35.2 percent reported by Kingdon (2020). There are two main reasons for these differences. First, the national estimates includes both urban and rural areas, and private schooling is more prevalent in urban areas. The villages in my data are in fact are sampled from the lower side of the population size distribution of villages, which may explain the difference. Second, the school census data only capture relative shares from the pool of students that go to school within village boundaries and fail to capture school choice of students that may be traveling outside the villages for schooling. Indeed, villages in India are well connected with urban highway clusters and small towns, and a substantial portion of the population travels outside to obtain better quality social services (Das et al., 2016).

Table 1.7: Private schools' availability in landlord and non-landlord villages

	(1)	(2)	(3)	(4)
	Mean	Year 2010, coefficient on proportion landlord		
		District controls	District + GP controls	District + GP controls + State FE
Has a private school inside village	0.34	0.08	0.10	0.01
		(0.07)	(0.07)	(0.06)
Number of private schools inside village	0.58	0.16	0.20	-0.04
		(0.15)	(0.14)	(0.14)
Private schools' enrolment share inside village (%)	17.63	0.39	1.03	-0.75
		(4.26)	(4.44)	(4.29)
Private schools' enrolment share (%)	24.09	-5.78	-5.06	0.94
		(3.63)	(3.75)	(3.97)
Share of enrollment within village	67.81	3.51	2.74	-2.32
		(3.19)	(3.19)	(3.82)

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

Fortunately, the household survey asked parents to schooling choices all children inside and outside the villages, and 32.2 percent of primary grade children are enrolled in schools outside village boundaries. Note that this is not because of the lack of availability of primary schools. All villages in my sample have at least one school (public or private) and only 19 villages do not have a public school. Thus, enrollment of children outside village more likely reflects parents' preferences for education rather than supply constraints. The share of private enrollment calculated from household surveys is 24.1 percent which is much higher than the within village share calculated from school census and closer to the national estimate. Nevertheless, I do not find evidence for higher private enrollment share in landlord areas. The coefficient on landlord variable is negative but is not statistically significant. Since private school enrollment also depends on households' ability and willingness to pay, and because landlord villages are substantially poorer than non-landlord villages, it is possible that enrollment share is lower because there are fewer people who are willing to pay in landlord areas. The next sub-section examines in greater detail placement decisions of private schools.

1.8.2 Placement decisions of private schools

I begin by visualizing the predictors of private school presence in Indian villages in Figure 1.3. The likelihood of having a private school is correlated with increased PTRs – at the lower end of the public PTR distribution, there are 0.2 private schools on average and at the higher end there are 1.2 private schools. Similarly, at the lower end of the public schools' test scores distribution there are 1.2 private schools, and this number falls to nearly zero at the higher end. These patterns are consistent with the notion that the rise of private schooling is response to poor public sector performance. In contrast, public school infrastructure is positively correlated with number of private schools which is consistent with competition. Finally, private schools' prevalence is positively correlated with village wealth, which makes sense as profit-maximizing private schools are more likely to enter areas where people would have the ability and willingness to pay.

Figure 1.3: Correlates of private schools' prevalence
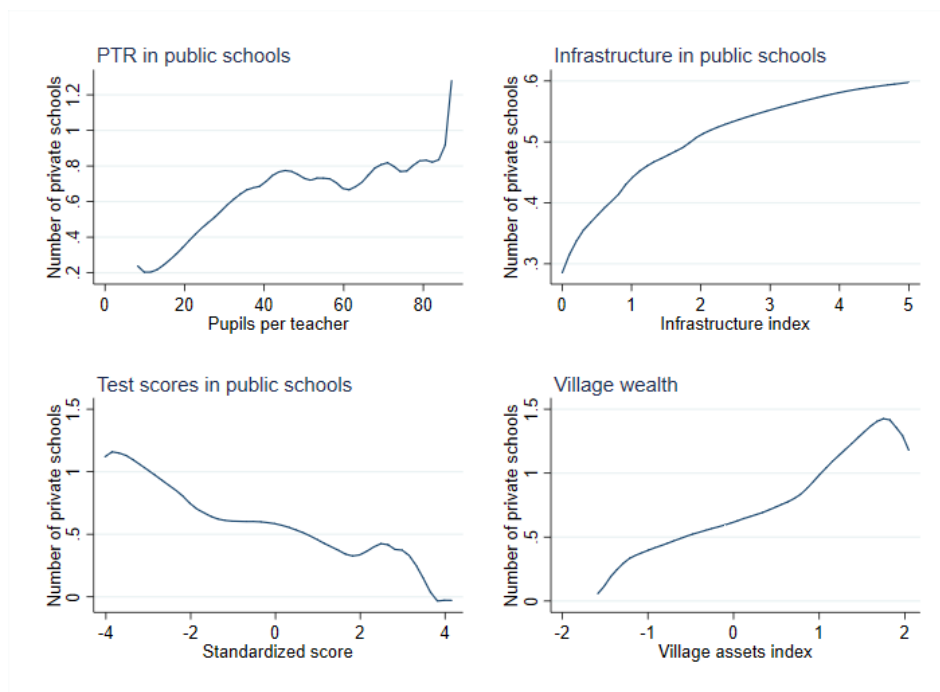
Table 1.8 then presents results from regressions of private schools' availability and market shares in landlord and non-landlord areas. As expected, in both landlord and non-landlord villages private schools' availability is correlated with village population and wealth, underscoring the importance of a sizeable population with willingness to pay as important factors for entry decision. Similarly,

private schools' enrollment share is also positively correlated with village population and wealth, which is consistent with entry decision. That is, private schools can command greater market share in areas with willingness to pay.

Table 1.8: Correlates of private school availability and enrolment shares in landlord and non-landlord villages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Outcome variable: Village has a private school (1=yes)				Outcome variable: Enrolment share of private school in village			
	Non-landlord villages		Landlord villages		Non-landlord villages		Landlord villages	
Number of public schools	0.01	0.02	-0.02	-0.03	-2.48	-2.14	-2.51**	-2.58**
	(0.07)	(0.07)	(0.06)	(0.06)	(1.53)	(1.56)	(1.28)	(1.17)
Log of PTR in public schools	0.19**	0.05	0.02	-0.02	2.65	-1.86	-3.97*	-2.86
	(0.08)	(0.10)	(0.11)	(0.12)	(2.89)	(3.32)	(2.20)	(2.55)
Infrastructure index of public schools	-0.10**	-0.00	-0.03	-0.05	-1.73	0.47	0.33	-0.33
	(0.05)	(0.05)	(0.04)	(0.04)	(1.51)	(1.48)	(0.94)	(0.95)
Test scores in public schools	-0.14***	-0.11**	0.02	0.03	-3.00**	-3.35**	-2.77**	-3.03**
	(0.04)	(0.05)	(0.06)	(0.06)	(1.45)	(1.58)	(1.30)	(1.41)
Village households' assets	0.28***	0.24**	0.35***	0.38***	4.85**	2.74	6.31**	6.70**
	(0.09)	(0.09)	(0.13)	(0.14)	(2.28)	(1.97)	(2.55)	(2.64)
Gini coefficient on village wealth	0.21	-0.09	1.44**	1.06*	-4.93	-10.91	40.22***	31.14**
	(0.52)	(0.54)	(0.63)	(0.56)	(18.09)	(19.74)	(14.96)	(14.99)
Village population (thousands)	0.24***	0.23***	0.14**	0.16***	4.05***	3.72***	2.00**	2.12**
	(0.03)	(0.03)	(0.06)	(0.06)	(0.64)	(0.61)	(0.97)	(0.87)
SC population (%)	0.20	0.05	-0.12	-0.12	3.31	-2.91	-1.79	-1.63
	(0.25)	(0.26)	(0.27)	(0.28)	(8.63)	(9.40)	(6.07)	(6.55)
ST population (%)	-0.10	0.37*	-0.05	0.05	-7.11	8.98**	-3.75	-3.71
	(0.20)	(0.22)	(0.18)	(0.20)	(5.93)	(4.23)	(4.52)	(4.90)
Literacy rate (%)	0.36	0.76	-0.45	-0.11	10.28	25.58**	-16.90	-14.78
	(0.48)	(0.48)	(0.54)	(0.53)	(11.99)	(11.77)	(12.63)	(12.00)
R-squared	0.363	0.425	0.173	0.205	0.227	0.326	0.173	0.216
Number of observations	490	490	265	265	489	489	265	265
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

On the other hand, landlord and non-landlord villages differ substantially in how private school availability relates to the quality of public schools. In non-landlord villages, the availability of private schools is strongly correlated with higher PTR, poorer school infrastructure and lower test scores (although the coefficient on PTR and infrastructure is not statistically significant after controlling for across state variation, Columns 1 to 4). In contrast, private school availability appears to be uncorrelated with public school quality in landlord villages. Instead, the most robust correlation is with the Gini-index of village wealth. Moving from full equality (a Gini value to 0)

to full inequality (a Gini value of 1), is correlated with 1.1 to 1.4 more private schools (a 190 to 240 percent increase). Regressions results with share of private sector enrollment as the outcome variable are in line with the hypothesis above (Table 1.8, Columns 5 to 8). Here I find that enrollment share is correlated with test scores in public schools in landlord villages as well. The correlation between Gini coefficient and enrollment share is large and statistically significant and moving from full equality to full inequality is likely to increase private sector enrollment share by 31.1 to 40.2 percentage points.

These differences suggest that entry decisions of private school may be quite different in landlord and non-landlord areas. In both landlord areas, the decision to enter and operate in a rural village first and foremost depends on the availability of a sizeable population (school aged children) and households' willingness and ability to pay (as measured by village level wealth). In non-landlord areas, private school availability and enrollment is also negatively correlated with quality of public schools, suggesting that in such villages, private schools can only successfully operate when public school quality is poor. In contrast, in landlord villages, the absence on correlation between availability of private schools and quality of public schools suggest that competitive market forces may be less at play in these villages. In contrast, the strong correlations with village inequality suggests that success of private schools in landlord villages depends more social and political factors.

1.8.3 Performance and productivity of private schools

This final section of the chapter analyzes performance and productivity of private schools in landlord areas and non-landlord areas. If private schools faced stronger competition from public schools in non-landlord areas, we would expect to see higher, in not equal, levels of inputs and outputs in those areas. Figure 1.4 displays correlations of school inputs and outcomes on proportion landlord variable separately for public and private schools. In both types of villages, the gap in inputs and outcomes between public and private schools increases with proportion of landlord areas. It is not that private school deliver better inputs and outcomes in landlord areas, but that the drops in public school quality is far greater than that of private schools. In order words, relative to non-landlord areas, private schools in landlord areas have an easier time competing with public schools.

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Patterns in Figure 1.4 also point to substantial productivity differences between private schools themselves. Relative to non-landlord villages, school infrastructure and student attendance is substantially lower in landlord areas, yet test scores are similar suggesting that private schools are more productive in landlord areas. In Table 1.9, I examine productivity differences among private schools in a regression framework. Panel A reports test scores and finds that there are indeed no statistically significant differences among private schools in landlord and non-landlord areas. In all three columns with and without controls and state fixed effects, the estimated coefficient is small and statistically indistinguishable from zero. On the other hand, there are substantial differences in teacher and school inputs, at least across states. Teachers' education and training levels are lower in landlord areas and it is perhaps for this reason, teacher salaries are also nearly 50 percent lower.[8] Similarly, there are large and meaningful differences in school inputs such as PTR and infrastructure index. In contrast, I find no differences in student and household inputs. Student attendance are statistically similar, and so are parental inputs (as measured by parents' education levels).

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[8] Teachers' salary could also be lower because market equilibrium wages are very different in these areas.

Figure 1.4: Differences in public and private schools' inputs and outcomes in landlord and non-landlord areas
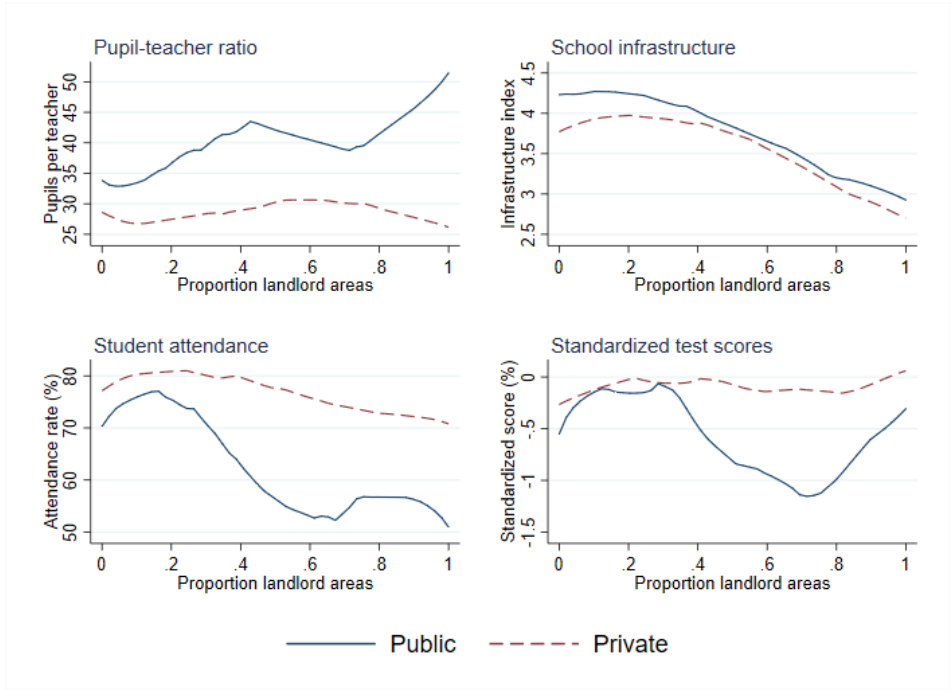
Table 1.9: Average difference in private schools in landlord and non-landlord villages, public schools

	(1) Year 2010 Mean	(2) Landlord	(3) Landlord + GP controls	(4) Landlord + GP controls + State FE
Panel A: Outcomes				
Standardized score	-0.11	-0.01	-0.01	0.15
		(0.24)	(0.23)	(0.32)
Math standardized score	-0.09	-0.11	-0.11	0.15
		(0.24)	(0.23)	(0.35)
Language standardized score	-0.11	0.08	0.09	0.12
		(0.23)	(0.23)	(0.28)
Panel B: Teacher inputs				
Teachers with college degree (%)	60.83	-11.29**	-8.19	-4.96
		(5.27)	(5.96)	(6.47)
Teachers with teacher training (%)	32.27	-24.24***	-23.70***	1.95
		(6.34)	(6.28)	(5.26)
Log of monthly salary of teachers	3,009.54	-1,622.58**	-1,610.56**	-331.47
		(784.17)	(790.95)	(755.67)
Panel C: School inputs				
Log of pupil-teacher ratio	3.18	-0.08	-0.21*	0.01
		(0.12)	(0.11)	(0.13)
Infrastructure index	3.49	-0.78***	-0.64**	-0.08
		(0.28)	(0.28)	(0.42)
Panel D: Student and household inputs				
Student attendance	75.90	-2.96	-0.74	1.61
		(5.61)	(4.81)	(8.39)
Takes additional tuition	0.22	0.07	0.10	-0.06
		(0.08)	(0.08)	(0.09)
Father completed primary school	0.70	-0.01	0.02	0.05
		(0.07)	(0.06)	(0.08)
Mother completed primary school	0.52	-0.10	-0.04	-0.06
		(0.07)	(0.06)	(0.07)
Log of yearly expenditures	2,582.22	127.44	259.48	106.25
		(398.80)	(400.47)	(439.56)

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

The final piece of evidence is on monthly fees charged by private schools. Since private schools in landlord villages use fewer inputs, fees charged should also be lower. Additionally, if schools are charging according to parents' ability to pay, fees in landlord villages could be lower due to low levels of wealth as well. The analysis is fees is confounded by one additional factor which should be kept in mind. As described earlier, and as discussed by Kremer and Muralidharan (2008) and Kingdon (2020), private schools charge equilibrium market wages which are much lower than public schools' salaries. Market wages may differ systematically across landlord and non-landlord areas because landlord areas are substantially less productive than non-landlord areas (Banerjee & Iyer, 2005). Figure 1.5 plots the correlation between monthly fees charged by private schools to fourth grade students and proportion landlord variable. Results show that private schools in non-landlord villages charge nearly twice as much as private schools in landlord villages.

Figure 1.5: Private schools' fees in landlord and non-landlord areas

1.9 Conclusions

Among social scientists and policymakers, there is enormous interest in studying and understanding the persistence effects of colonial institutions in present day economic outcomes. Recent literature in economics has shown that extractive and oppressive historical institutions can have persistent effects on current economic outcomes through a diverse set of channels. This chapter contributes to the literature by adding micro-evidence from the education sector in India.

In this chapter, I examined if the colonial land tenure system used in India during the British era can explain some of the differences observed in current education outcomes. Using detailed micro-data from nearly 1,000 villages, I find that areas that had oppressive landlord systems continue to have significant worst outcomes today. The test score gap between landlord areas is 0.35 standard deviations which is large and economically meaningful. While some of this gap can be explained by differences in school inputs across landlord and non-landlord villages (with landlord villages having lower level of inputs), in my data, differences in inputs alone do not explain the test score gap. In further analysis, I show that relative to non-landlord villages, landlord villages are also unable to convert school inputs into outputs. In further analysis, I find that the likely channel of the persistence of landlord effect in the sample is the lack of accountability and poor representation at the village level. Local bodies in landlord villages are less active and have weaker oversight over public education, and similarly households are also less engaged in education delivery.

Noting that the private sector for primary education in increasing rapidly in India, the chapter provides further insights behind this phenomenon. In all villages, the rise of the private sector is explained by poor public sector performance. Although I do not find differences in private schools' existence in landlord and non-landlord village, I find that the private sector faces quite different entry barriers and market conditions in these two types of villages. In non-landlord areas, where public sector schools perform better, private sector schools provide better inputs that the public sector and produce marginally better results. In landlord villages, where public sector performance is already poor, the private sector can easily compete and provides better inputs and produces better outputs. In addition to contributing to the literature on historical institutions and their impacts on current economic outcomes, this chapter also contributes to our understanding of the functioning of the private sector for education in India. This chapter also contributes to the overall research and policy debate by showing the importance of local accountability and engagement for improving education outcomes. Finally, the findings from this chapter could also help contextualize and adapt tested policy interventions for efficient scaling-up.

1.10 Appendix: Additional results

Table 1.10: Funding allocation in landlord and non-landlord villages, public schools

	(1) Year 2010 Mean	(2) Landlord	(3) Landlord + GP controls	(4) Landlord + GP controls + State FE
Total SSA allocation (rupees)	59,323.04	34,975.91***	33,064.20**	32,073.99
		(12,901.00)	(13,308.35)	(20,878.56)
Per pupil SSA allocation (rupees)	313.61	83.92	73.62	110.89
		(73.80)	(74.23)	(109.51)
Allocation adequate (1=yes)	0.38	-0.03	-0.04	0.05
		(0.06)	(0.06)	(0.06)
Number of construction projects in past 1 year	0.87	-0.02	-0.02	-0.20
		(0.09)	(0.09)	(0.13)
Total cost of construction projects (rupees)	51,504.51	40,970.07**	39,763.30**	16,208.14
		(16,425.81)	(16,634.95)	(19,788.12)
Teacher vacancy rate (%)	7.81	5.19***	4.86***	-0.55
		(1.68)	(1.60)	(2.04)

Notes: Robust standard errors clustered at the district-level are in parenthesis. All regressions include district level controls for altitude, coastal district, climate and soil type. GP controls add village level controls for log population, percentage SC population, percentage ST population, and literacy rate. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

Table 1.11: Average difference in monitoring indicators in landlord and non-landlord villages, public schools

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	GP responses				Headmaster responses			
	Mean	Landlord	Landlord + GP controls	Landlord + GP controls + State FE	Mean	Landlord	Landlord + GP controls	Landlord + GP controls + State FE
VEC effectiveness: Identifying needs of school	3.49	-0.68**	-0.57**	0.07	3.63	-0.70***	-0.68***	0.37
		(0.28)	(0.26)	(0.28)		(0.25)	(0.24)	(0.23)
VEC effectiveness: Funds/construction management	3.43	-0.69**	-0.57**	0.21	3.64	-0.69***	-0.66***	0.43*
		(0.29)	(0.27)	(0.29)		(0.26)	(0.26)	(0.24)
VEC effectiveness: Student enrolment	3.35	-0.64**	-0.58**	0.10	3.50	-0.88***	-0.85***	0.38
		(0.31)	(0.29)	(0.31)		(0.34)	(0.33)	(0.37)
VEC effectiveness: Student monitoring	3.47	-0.64**	-0.51**	0.14	3.59	-0.66**	-0.63**	0.37
		(0.28)	(0.25)	(0.26)		(0.27)	(0.26)	(0.25)
VEC effectiveness: Teacher hiring	2.18	-0.80	-0.70	0.72	2.54	-1.40**	-1.37**	0.50
		(0.55)	(0.52)	(0.79)		(0.58)	(0.57)	(0.89)
VEC effectiveness: Teacher monitoring	3.36	-0.64**	-0.52**	-0.04	3.53	-0.85***	-0.83***	0.24
		(0.27)	(0.24)	(0.27)		(0.28)	(0.28)	(0.24)
VEC effectiveness: Mid-day meals	3.48	-0.63**	-0.49**	-0.03	3.58	-0.66**	-0.63**	0.48*
		(0.28)	(0.25)	(0.27)		(0.28)	(0.27)	(0.26)

Notes: Robust standard errors clustered at the district-level are in parenthesis. Regressions in columns 3 and 7 adds district level controls for altitude, coastal district, climate and soil type, as well as village level controls for log population, percentage SC population, percentage ST population, and literacy rate, and household assets. Regression in columns 4 and 8 add state fixed effects in addition to controls. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

Table 1.12: Average difference in perceptions and preferences for education in landlord and non-landlord villages, public schools

	(1) Year 2010 Mean	(2) Landlord	(3) Landlord + GP controls	(4) Landlord + GP controls + State FE
Panel A: Households' responses				
Village has an education committee (1=yes, 0=no/don't know)	0.28	-0.16***	-0.14**	-0.01
		(0.06)	(0.06)	(0.03)
Is a member of education committee	0.03	-0.01	-0.01	0.01
		(0.01)	(0.01)	(0.02)
Has taken up matters with education committee	0.05	-0.03*	-0.03*	0.01
		(0.02)	(0.02)	(0.02)
Rating of primary school infrastructure quality (1-5)	4.09	-0.18**	-0.14*	0.10
		(0.08)	(0.08)	(0.09)
Rating of primary schools' teaching quality (1-5)	4.07	-0.14	-0.10	0.10
		(0.09)	(0.08)	(0.08)
Improvements in school quality over past 5 years (1-5)	3.82	0.01	0.05	0.13**
		(0.07)	(0.06)	(0.06)
Priority: more or better infrastructure	0.70	0.08**	0.09***	0.09**
		(0.04)	(0.03)	(0.04)
Priority: free supplies (textbooks, uniform, etc.)	0.31	-0.03	-0.03	-0.02
		(0.04)	(0.04)	(0.04)
Priority: more or better teachers	0.64	0.12**	0.11**	0.00
		(0.06)	(0.06)	(0.04)
Rating of GP's overall competence (1-5)	3.69	-0.14	-0.09	-0.06
		(0.09)	(0.08)	(0.08)
Rating of GP's commitment to education (1-5)	3.59	-0.18**	-0.14*	-0.09
		(0.09)	(0.08)	(0.07)
Panel B: Headmasters' responses				
Rating of primary school quality (1-5)	4.13	-0.08	-0.06	0.15*
		(0.07)	(0.07)	(0.08)
Rating of teacher absence problem (1-5)	2.05	0.31***	0.30***	0.12
		(0.10)	(0.09)	(0.12)
Panel B: Gram Panchayat				
Rating of primary school quality (1-5)	4.02	-0.13	-0.10	-0.12
		(0.08)	(0.08)	(0.10)
Rating of teacher absence problem (1-5)	2.40	0.09	0.08	-0.08
		(0.15)	(0.15)	(0.15)

Notes: Robust standard errors clustered at the district-level are in parenthesis. Regressions in columns 3 and 7 adds district level controls for altitude, coastal district, climate and soil type, as well as village level controls for log population, percentage SC population, percentage ST population, and literacy rate, and household assets. Regression in columns 4 and 8 add state fixed effects in addition to controls. *** Significant at 1%, ** Significant at 5%, * Significant at 10%

Chapter 2 Aspirations and Financial Decisions: Experimental Evidence from the Philippines

This chapter is co-authored with David McKenzie (World Bank)

and Dean Yang (University of Michigan)

2.1 Introduction

Can raising the aspirations of the poor help them escape poverty? Theoretically, sub-optimally low aspirations could arise through a behavioral bias (Dalton et al., 2016). Aspirations spur individuals to work harder, but when determining their effort level, people fail to account for how realized outcomes will affect future aspirations and hence future effort. This "aspirations failure" may cause a behavioral poverty trap: poverty begets lower aspirations, which keeps individuals in poverty. In the absence of other binding constraints, simply inducing the poor to set higher aspirations can help them break out of the poverty trap. This "mindset" approach has been the focus of bestselling financial self-help books such as *Secrets of the Millionaire Mind* (Eker, 2005) and *Rich Dad, Poor Dad* (Kiyosaki, 2017). In the developing country context, Appadurai (2004) highlights the potential for poverty traps due to sub-optimally low aspirations.

There is, however, a potential downside to encouraging higher aspirations. If aspirations are set too high, individuals may fail to reach their goals, and become frustrated. This frustration could lead people to reduce their economic investments (Genicot & Ray, 2020). Furthermore, frustration could have lasting negative consequences if it affects consequential psychological factors, such as a reduction in perceived ability to control one's life outcomes.

We conducted a randomized experiment with over 2,600 small-scale entrepreneurs, who were clients of a microfinance institution in the Philippines, to study how raising aspirations affects financial decision-making and financial outcomes. The financial aspirations treatment was implemented with microcredit borrowing groups in eight weekly sessions, and encouraged

participants to set ambitious life goals, and choose savings targets associated with those goals. We also cross-randomized clients to a more traditional "knowledge" treatment that provided financial education about savings, budgeting, and planning. This enables benchmarking the impact of the aspirations treatment against impacts of an intervention that is more traditional in the microfinance context.

We measure impacts of the aspirations and knowledge treatments with a survey two years later, alongside administrative microfinance institution data on savings and borrowing. We find the aspirations treatment leads individuals to set higher savings goals. However, individuals achieve only very small fractions (on average 5 percent) of their savings goals, and the aspirations treatment does not lead to higher savings. Instead, the aspirations treatment leads to less borrowing (a 15 percent reduction in debt) and less business investment (a 37 percent reduction). The finding of zero impact on savings and the reduction in borrowing is consistent across self-reported survey outcomes and administrative data. These results provide evidence for the theorized possibility of Genicot & Ray (2017) that if aspirations are set too high, they could lead to frustration and a reduction in economic investments. We also find an additional mechanism not included in their model: the survey data also reveals a reduction in respondents' beliefs that they are in control of their own life outcomes, as measured by an index of internal locus of control.[9]

Our paper is related to several other studies of the impact of raising aspirations on poverty. Prior research has shown that inducing higher aspirations can positively affect educational investments (Beaman et al., 2012; Bernard et al., 2019; Carlana et al., forthcoming; Mukherjee, 2017; Riley, 2020), and induce higher savings and productive investments (Macours & Vakis, 2014; Seshan & Yang, 2014).

Relative to this literature, our paper has several distinguishing features. First, ours is the first study of an intervention explicitly aimed at raising aspirations to influence financial decision-making regarding savings and credit. Second, we provide empirical confirmation of a "frustration" effect

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[9] The knowledge treatment, on the other hand, has little impact on most of the outcomes examined, and we find little evidence of interactions between the two treatments.

from increasing aspirations, which can lead to reduced economic investment.[10] Finally, our results reveal an additional mechanism through which a failure to reach aspirations may have enduring consequences on financial decision-making, even after aspirations may have returned to their original levels: a reduction in internal locus of control. If people respond to the experience of trying and failing to reach high aspirations by believing that they have less control over their own lives, this may change their financial decision-making in the future, potentially for the worse.

Our work is also related to the economics literature on locus of control (Judge et al., 2002; Rotter, 1954, 1966). Internal locus of control is positively associated with many economic outcomes, such as labor market performance and financial decision-making (Cobb-Clark, 2014; Ng et al., 2006; Salamanca et al., 2020). A smaller set of studies has found that locus of control is a pliable individual characteristic. Randomized treatments have been found to increase internal locus of control (Gottschalk, 2005; Pederson et al., 2015), while negative shocks in early life lead to lower internal locus of control in adulthood (Shoji, 2020). Relative to this literature, our contribution is to show that well-meaning interventions (such as the aspirations treatment we study) can inadvertently lead people to have less internal locus of control, with resulting real consequences for their future financial decision-making.

This paper also contributes to a large literature on financial literacy. Poor financial knowledge is argued to be a key barrier to savings (Brown & Gartner, 2007; Lusardi, 2001), but research examining the impacts of financial literacy training alone has found mixed impacts on financial behaviors (Fernandes et al., 2014; Knowles, 2018). On the other hand, financial training combined with monetary incentives and subsidies have been shown to increase take-up and utilization of savings products (Cole et al., 2011). A few studies also combined financial education with goal setting and personalized financial counseling, and found significant impacts on real financial outcomes (Carpena et al., 2019). Our study tests the approach of trying to increase financial aspirations and compares it to the more traditional financial education approach of improving financial knowledge.

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[10] Galiani et al. (2018) find that that exogenously raising aspirations does not affect housing investment; they do not, however, find *reductions* in investments, as we do.

2.2 Intervention and Experimental design

2.2.1 Study setting and partner institution

Our study takes place in the Sorsogon province, Philippines. Our partner institution, *Peoples' Alternative Livelihood Foundation of Sorsogon, Inc.* (PALFSI), is a microfinance institution that was founded in 1995 and operates throughout the province. It offers savings accounts and group-based microfinance loans to a client base mostly consisting of female subsistence entrepreneurs. Typical businesses are raising livestock (primarily hogs); small retail businesses selling items such as baked goods, fish, candies, or sodas; tricycle and boat rentals; hair dressing; and reselling scrap metal. Loans are typically one year in duration, with borrowers paying 2 percent fixed interest on the initial value of the loan each month throughout the duration of the loan.[11]

For every loan a client takes on, 4 percent of the total value is withheld and deposited in a compulsory savings account, which the client can only access on graduation from PALFSI's microcredit services. In addition, clients have access to a voluntary savings account that offers a five percent annual interest rate vested quarterly conditional on clients saving at least 500 pesos in their account. Before this savings account, clients had no formal access to free, flexible savings accounts. At baseline in 2012, take up of this product was low, with 43 percent of clients having 0 dollars in savings, 31 percent between 0 and $2.50 (105.5 pesos) in savings, and 26 percent had more than this amount in savings.[12]

2.2.2 Treatment assignment

Our sample consists of PALFSI's universe of 3,757 microfinance clients, who belong to 191 microcredit borrowing groups, ranging in size from 6 to 47 members. We stratified these groups by: (i) PALFSI's three physical branch locations; (ii) whether the group had more than 16 members (57% did); and (iii) whether the group had 80 percent or more of its members with voluntary savings balances of 100 pesos ($2.37) or less (59% did). Out of these 12 potential strata, one was

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[11] For a year-long loan, this is equivalent to a 48 percent APR since the principal is paid back in weekly installments over the year.
[12] For all currency conversions in this paper, we use the average nominal exchange rate for the year 2012, US$1 = 42.2 Philippine pesos.

empty, leaving eleven strata. Groups were then randomly assigned by computer within each stratum using a 2x2 design into a control group or one of three treatment groups – aspirations training only (T1), knowledge training only (T2), or both aspirations and knowledge training (T3).

Prior to the launch of the intervention and randomization, we conducted a very short baseline survey collecting self-reported savings (in PALFSI as well as other institutions), follow-up contact information, and basic demographics. The 2,593 clients from 190 groups[13] who completed this baseline survey are the sample of interest for this experiment. Randomization resulted in 48 groups in T1, 48 in T2, 48 in T3, and 46 in control (Figure 2.2 in the Appendix). We were then able to re-interview 94.7 percent of these (2,464 clients) in a follow-up survey two years later. Sample attrition is uncorrelated with treatment status.[14] We use this sample of 2,464 clients for all analysis in the paper: 586 in T1, 618 in T2, 634 in T3, and 626 in control.

2.2.3 Baseline characteristics and balance tests

We present summary statistics and tests of balance with respect to treatment assignment in Table 2.5 in the Appendix. 92 percent of the participants in the control group were female and they were on average 47.1 years old. 81 percent are married, and 56 percent have high school education or above. The average client in the control group reported having 8,320 pesos in savings ($197). This represents 7.3 percent of GDP per capita of $2,694 in 2012 (World Bank, 2020a). Almost 60 percent of savings are held in PALSFI accounts. 38.7 percent of the clients said that they made deposits on a weekly basis. Across all variables shown in Table 2.5, means in treatment groups are not statistically different from the control group means, with the exception of client gender (column 5): those in the knowledge group are statistically significantly more likely to be female (by 2.6 percentage points). This is roughly what would be expected to happen by chance. Overall, randomization appears to have succeeded in achieving balance with respect to baseline observables.

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[13] In one group, all 16 clients were inactive.
[14] Appendix Table 2.5, Panel A.

2.2.4 Training contents and delivery

The two treatments were designed by PlaNet Finance, an international non-profit organization working to develop the microfinance sector that operates in more than 60 countries. Each treatment consisted of eight one-hour sessions. Here we summarize the contents of each treatment and provide further details in Appendix.

The aspirations treatment sought to encourage and inspire clients to develop a long-term approach to personal and business finance. It used games to build self-confidence and exercises to help participants articulate long-term aspirations and define intermediate steps to reaching those aspirations. The first session helped participants identify obstacles to savings and empowering them to try to overcome these obstacles. The next two sessions asked participants to define their dreams and the steps required to reach these dreams. The fourth session introduced participants to the famous marshmallow experiment, to highlight the importance of delaying gratification to achieve future rewards. The next three sessions reviewed concepts from prior sessions, and asked participants to reflect on and express the motivations behind their dreams. Finally, the last session emphasized positive thinking and "thinking rich". The training specifically focused on getting participants to dream and set big goals. Figure 2.6 in the Appendix provides an example – participants were told that if dreams are too small, they will only see the barriers blocking them, but a big dream will overpower the barriers.

The knowledge treatment aimed to teach participants the financial skills needed to make savings and loan decisions. It emphasized learning about assets, liabilities, budgeting, and life cycle planning. The first session introduced microfinance clients to assets and liabilities to prepare them for the second session on assessing one's net worth. The third session reviewed simple savings calculations and interest rates ("what happens if you save 1 dollar a day for 5 years and what happens if you save it in a bank account versus in your piggy bank?"). The fourth session focused on saving in advance for retirement savings goals. The fifth session extends the retirement planning course to life events including weddings and college education. This was followed by two sessions on budgeting, and a final overview session putting budgeting and savings together.

To maximize participation and integrate trainings into clients' existing interactions with PALFSI, the training sessions were included once per month in the saving groups' weekly meetings. PlaNet Finance, together with World Bank and Innovations for Poverty Action (IPA) staff, trained PALSFI's 19 loan officers, who then conducted trainings for their own groups. The aspirations module started in November 2012 for both T1 and T3 and concluded in August 2013. The knowledge module started in June 2013 and concluded in December 2013 (Figure 2.3 in the Appendix presents the study and intervention timeline).

2.3 Intervention take-up, data and empirical strategy

2.3.1 Take-up of the interventions

Take-up of the interventions was high. In T1 (aspirations only), 95 percent of clients attended at least one session, with a mean of 73 percent of sessions and median of seven out of eight sessions attended. Thirty percent of clients attended all sessions. In T2 (knowledge only), 80 percent attended at least one session, with a mean of 64 percent of sessions and median of seven out of eight sessions attended, and 36 percent attending all sessions. Clients in the third treatment group (both aspirations and knowledge treatments) attended a median of 11 out of 16 sessions, with 93 percent attending at least one aspirations training session, and 79 percent at least one knowledge training session, and a mean attendance rate of 64 percent of all sessions. 13 percent in this group attended all 16 sessions.[15]

The fact that the treatment sessions were held during regular PALFSI group meetings likely contributed to achieving these high attendance rates, especially relative to many standalone financial education programs (Ibarra et al., 2019). Attendance rates are comparable to business training attendance rates when training has been provided by microfinance credit officers: 71 percent in Field, et al. (2010), 50 percent in Giné and Mansuri (2020) and 76-88 percent in Karlan and Valdivia (2011).

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[15] Appendix Figure 2.4 shows attendance by training session.

2.3.2 Survey and administrative data

The primary outcomes of this study are savings and loan balances of study participants. We use both self-reported outcomes from our endline survey, as well as administrative outcomes from PALFSI's financial records. The outcomes from administrative data are important to rule out possible reporting biases (experimenter demand effects) in survey data.[16] The survey data provide insight into savings and borrowing from institutions other than PALFSI, helping to check whether any changes in these outcomes at PALFSI reflect shifting of financial activity to and from other institutions (we find no evidence of such shifting).

The administrative data come from PALFSI's electronic financial accounting system and are processed to measure average savings and loan balances during time periods relevant for the study. The correlation between the savings account balance in the administrative data and in our self-reported survey data is nearly one, as can be seen in summary statistics reported in Table 2.2 and Appendix Table 2.5.

We fielded our endline survey from May 2015 to September 2015, approximately two years after the end of the intervention. The survey collected detailed data on savings goals, financial knowledge, savings and borrowing (at PALFSI and other institutions), business activity, and household expenditures and assets. We also collected information on time preference and locus of control. The survey was fielded to all 2,593 clients who had valid baseline data with a completion rate of 94.7 percent (2,464 clients).

2.3.3 Empirical specification

We estimate intention-to-treat (ITT) effects by estimating the following treatment regression:

$$y_{ij} = \alpha_1 + \beta_1 \cdot \mathbb{I}\{T1 = 1 \text{ or } T3 = 1\}_{ij} + \beta_2 \cdot \mathbb{I}\{T2 = 1 \text{ or } T3 = 1\}_{ij} + \delta_s + \epsilon_{ij} \dots (1)$$

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[16] We will see that findings turn out to be very similar across these survey-reported and administrative outcomes, suggesting that reporting biases in the survey data are not significant in this context.

where y_{ij} denotes the outcome of interest for client i in group j. $\mathbb{I}(\cdot)$ denotes an indicator function that takes a value of 1 if the condition is satisfied, 0 otherwise. We include fixed effects for the eleven stratification cells (δ_s) in all regressions. ϵ_{ij} is the individual error term. Standard errors are clustered at the borrowing group level.

This specification maximizes statistical power by using what Muralidharan, et al. (2021) refer to as the "short model". β_1 and β_2 then give the effects of being offered the aspirations and knowledge treatments in a sample in which half the individuals have also been offered the other treatment. We are underpowered to detect interaction effects, but the Appendix also report results from the "long model" in which separate indicators are included for each treatment.

2.4 Empirical results

2.4.1 Effect on retention of training concepts and savings goals

We begin by examining participants' retention of concepts taught in the training sessions. We fielded the endline survey two years after the interventions, so the impacts we measure will be those that persist over this timeframe. We are therefore capturing lasting impacts, rather than immediate recall right after training.

We asked participants questions on material covered in the two treatments and calculate the percent of correct responses (the full list of these questions can be found in Appendix). We do this separately for questions related to the aspirations treatment (e.g., definitions of limiting beliefs and dream timelines) and those related to the knowledge treatment (e.g., definitions of assets, liabilities, and net worth).

We estimate equation (1) for these outcomes and report results in Table 2.1, Panel A. Each treatment did lead to retention of concepts related to the training. The aspirations treatment leads to 1.99 percentage points higher share of correct responses on the aspirations questions, representing a 9 percent improvement relative to the control mean. The knowledge treatment raises the share of correct responses on the knowledge questions by 3.1 percentage points, an 8 percent

improvement over the control mean. As one should expect, the aspirations treatment does not raise correct responses to the knowledge questions, and vice versa.

Table 2.1 Impact on retention of training concepts and savings goals

| | (1) | (2) | (3) | (4) | (5) |
| | | | | | Aspirations = |
	Number of observations	Mean of control	Aspirations	Knowledge	Knowledge (p-value)
Panel A: Training concepts retention					
Aspirations related questions (3 questions)	2,464	22.2	1.99**	-0.012	0.102
			(0.880)	(0.873)	
Knowledge related questions (5 questions)	2,464	39.7	-0.756	3.08***	0.011
			(1.034)	(1.056)	
Panel B: Savings goals					
Total savings goals (pesos)	2,464	29,643	5,372	-266	0.350
			(4,224)	(4,130)	
Savings goal as share of annual income	2,454	0.240	0.097*	-0.017	0.258
			(0.056)	(0.058)	
Education savings goals (pesos)	2,464	14,753	7,116**	-1,202	0.055
			(2,932)	(3,126)	

Notes: Each row (dependent variable) reports results from a separate regression. Columns (3) and (4) report regressions coefficients from estimation Equation (1), where the treatments are pooled together into two categories (Aspirations = T1 or T3, and Knowledge = T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

We turn to examining impacts on savings goals in Panel B. The aspirations treatment specifically focused on getting participants to "dream" and set more ambitious savings goals. The knowledge-based treatment emphasized the importance of planning for the future and considering future needs such as saving for education of one's children, which could also lead to changes in respondents' financial goals. We find that the aspirations treatment led to higher savings goals, and higher savings goals specifically for education. Education is the most frequently mentioned goal of savings, accounting for more than half of stated savings goals in money terms. The coefficient on the aspirations indicator is positive and large in magnitude for both outcomes, and statistically significantly different from zero at the 5% level for the education savings goals. Savings goals as a share of household income are also higher among individuals assigned to the aspirations treatment (coefficient significant at the 10% level). By contrast, there is no large or statistically significant impact of the knowledge treatment on these savings goal outcomes.

These savings goal outcomes were measured roughly two years after the treatment. Respondents could have changed their aspirations by the time we surveyed them, compared to their aspirations immediately after treatment, two years before. We did not collect information about savings goals immediately after the treatment, so we cannot comment on the dynamics of the treatment effect on goals over time. But the results we are to discuss next suggest that these goals measured two years after treatment might be lower than the goals respondents originally set right after treatment. We will return to this point shortly.

2.4.2 Impacts of financial outcomes

The aspirations treatment led individuals to set more ambitious savings goals, so we now examine impacts on the primary financial outcomes: savings and borrowing. Most participants are very far from meeting their stated savings goals. In Table 2.2, Panel A, the average fraction of savings goal met in the control group is 0.050, and the average fraction of education savings goal met is 0.017.

Panel B of Table 2.2 shows that neither treatment had a sizeable or statistically significant impact on meeting these goals, with point estimates below 1 percentage point. Low achievement of goals, and the negligible impact of treatments on goal achievement, can also be seen in histograms of the distribution of the savings goal met by treatment status (Figure 2.1). The distributions are visually similar, and all have a significant probability mass at zero.

We next turn to examining treatment effects on savings and borrowing. Panel B of Table 2.2 reports impacts on savings balances, and Panel C on loan balances. The endline survey collected detailed loan and saving information for all accounts held at PALSFI, other banks and microfinance institutions, ROSCAs, money lenders, as well as savings and loans with informal sources such as family members and friends. From these survey responses, we calculate study participants' savings balances and loan balances (the latter variable is the total remaining unpaid balance of loans outstanding). We also construct corresponding savings and loan balance outcomes from PALFSI's administrative data for the same individuals, on average for the 4 months when the endline survey was completed (May to August 2015).

Table 2.2 Impact on financial outcomes

	(1) Number of observations	(2) Mean of control	(3) Aspirations	(4) Knowledge	(5) Aspirations = Knowledge (p-value)
Panel A: Meeting savings goals					
Fraction of savings goal met	2,464	0.050	0.006 (0.006)	-0.002 (0.006)	0.332
Fraction of education savings goal met	2,464	0.017	0.003 (0.004)	0.002 (0.004)	0.877
Panel B: Savings					
Total savings (pesos, survey)	2,464	7,424	-356 (575)	-315 (567)	0.961
PALFSI savings (pesos, survey)	2,420	6,010	-432 (497)	-273 (493)	0.825
PALFSI savings (pesos, admin)	2,464	5,619	-465 (477)	-319 (480)	0.839
Panel C: Loan accounts					
Total loans (pesos, survey)	2,464	11,262	-1,734** (745)	-338 (696)	0.109
PALFSI loans (pesos, survey)	2,424	7,842	-1,202** (566)	-328 (543)	0.267
PALSFI loans (pesos, admin)	2,464	9,318	-1,257* (760)	-272 (767)	0.331
Number of loans (survey)	2,464	1.347	-0.121** (0.055)	-0.110** (0.053)	0.889
Number of PALSFI loans (survey)	2,462	0.990	-0.087 (0.054)	-0.130** (0.052)	0.564
Number of PALSFI loans (admin)	2,464	1.049	-0.084 (0.051)	-0.095* (0.051)	0.874

Notes: Each row (dependent variable) reports results from a separate regression. Columns (3) and (4) report regressions coefficients from estimation Equation (1), where the treatments are pooled together into two categories (Aspirations = T1 or T3, and Knowledge = T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Figure 2.1 Distribution of savings goals met, by treatment
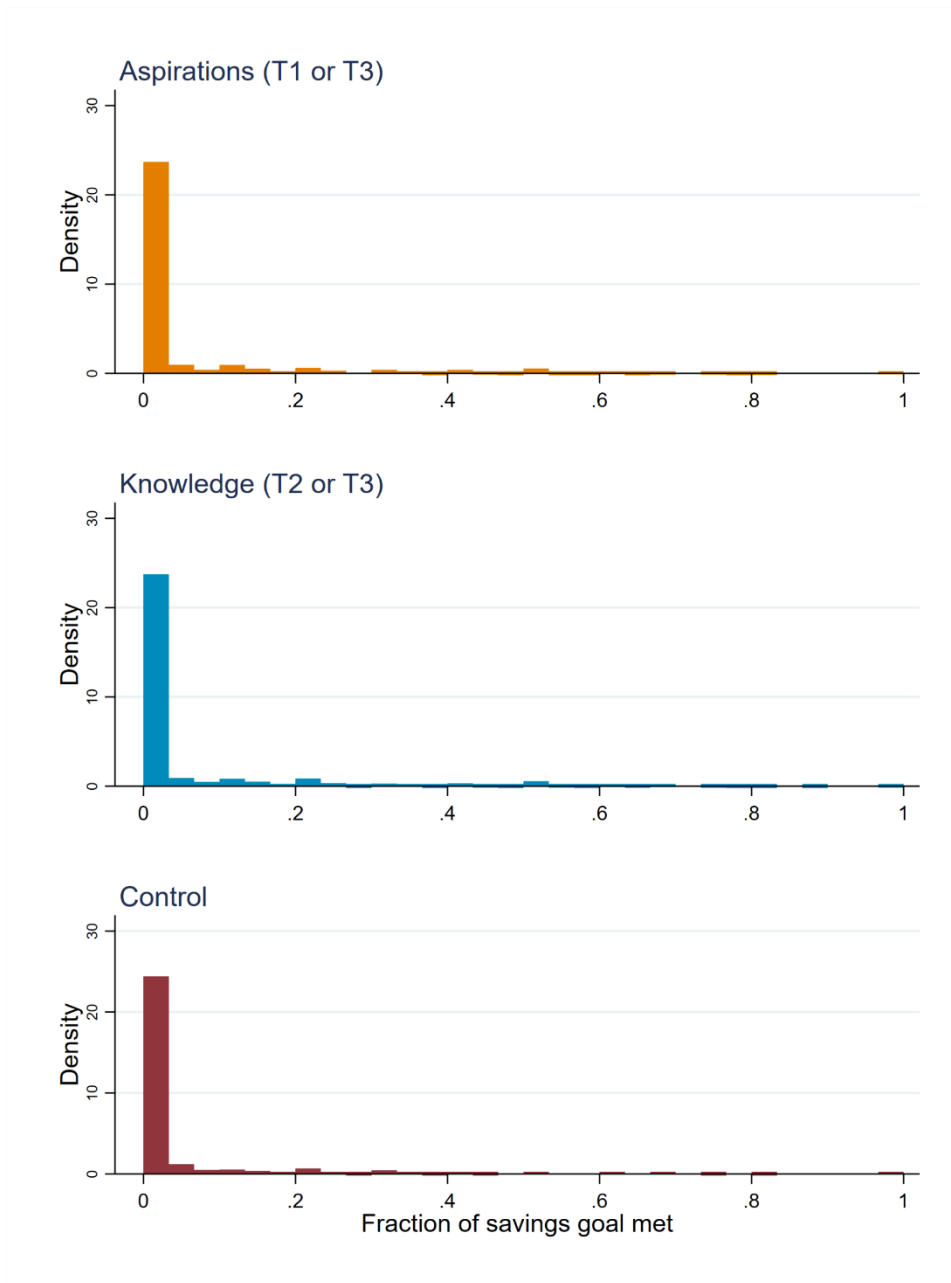
Individuals in the control group report having 7,424 pesos in total savings, 6,010 of which is they report holding at PALFSI. The corresponding administrative data on PALFSI savings in the control group has a mean (5,619 pesos) very close to the survey-reported outcome, which provides confidence in the survey-reported data. Corresponding figures for loan balances are 11,262 in total, 7,842 at PALFSI, and 9,318 in the administrative data. For loan balances, it appears that there is slight underreporting of loan balances in the survey compared to the administrative data.

Neither treatment has large or statistically significant effects on savings, in either survey or administrative data. Point estimates are in fact slightly negative. These findings concord with the absence of treatment effects on meeting savings goals in Panel A.

By contrast, we find that the aspirations treatment leads individuals to have smaller outstanding loan balances. The aspirations treatment lowers survey-reported total loan balances by 1,734 pesos (a 15.4 percent reduction from the control mean) and PALFSI loan balances by 1,202 pesos; both these coefficients are statistically significantly different from zero at the 5% level. The coefficient estimate for PALFSI loan balances calculated from administrative data is very similar, -1,257 pesos (statistically significant at the 10% level).

Similar patterns emerge when looking simply at the number of outstanding loans respondents have, in the last three rows of Panel B. In the control group, respondents have 1.35 loans in total, about 1.0 of which is at PALFSI (in either survey or administrative data). The aspirations treatment leads to 0.12 fewer total loans, and about 0.087 or 0.084 fewer PALFSI loans (in the survey and administrative data respectively). The treatment effect on total loans is significant at the 5% level.

2.5 Mechanisms and channels of impact

The aspirations treatment led participants to raise their savings goals, but most individuals failed to meet those goals. The aspirations treatment did not lead to higher savings, and in fact led respondents to borrow less. These results are consistent with possibilities highlighted in the models of Genicot & Ray (2020) and Dalton et al. (2016). If people set aspirations too high, they may fail to reach their goals, and become frustrated or discouraged. As a result, they subsequently reduce their economic investments. In light of these models, our finding that our small-entrepreneur respondents reduce their borrowing could be due to discouragement stemming from the failure to reach one's goals.[17]

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[17] Genicot & Ray (2020) and Dalton et al. (2016) would also predict that people respond to failure by reducing their aspirations, so as to reduce the pain of frustration. While we do not have the data to explore how aspirations have changed over time, we speculate that savings goals could have been even higher immediately after the aspirations treatment, in which case the aspirations treatment effects on savings goals in Table 1 will be lower bounds on the immediate impacts on savings goals.

That said, other explanations for these results are possible. We conducted the endline survey two years after treatment. One might speculate that perhaps savings *did* increase at some point after treatment, and respondents withdrew these savings at some point prior to the endline survey to invest in their businesses. We would thus see no increase in savings in the endline survey, *and* a reduction in borrowing because entrepreneurs were now able to finance their investments via savings instead of credit. In what follows, we conduct additional analyses to further understand the impact of the aspirations treatment and use this to rule out this competing explanation.

2.5.1 Dynamic impacts on savings and borrowing

To address the alternative hypothesis that savings did increase (and then was withdrawn) prior to the endline survey, we examine administrative data on saving at PALFSI from before and after treatment. Appendix Figure 2.5 shows that savings held in PALFSI accounts evolve similarly for the clients in treatment and control groups. In January 2014, the first month after all training was completed, average savings in the aspirations group was 5,837 pesos, compared 5,829 in the control group and 5,637 in the information group (the differences are not statistically significant). Similarly, savings in August 2015, the last month for which administrative data are available, are similar for the two treatment groups and control. It is thus not the case that treated individuals built up large savings that they then withdrew before the endline.

Appendix Figure 2.5 also shows the corresponding administrative data on PALFSI loan balances over the same time period. This examines a related hypothesis that perhaps individuals receiving the aspirations treatment *increased* their borrowing immediately after treatment, achieved their investment goals, and so subsequently *decreased* their borrowing by the time of the endline survey. Relative to the control group, there are no substantial differences in outstanding loan balance for the treatment groups. Consistent with the regression results, borrowing declines closer to the endline period.

Further, if treated respondents were able to finance their investments through increased savings between treatment and endline, we might observe positive impacts on business and non-business investments at endline. In Appendix Table 2.8, we show that the treatment did not lead individuals

to start new businesses. There are no differences in total business value or household assets. In sum, there is no evidence for the alternative hypothesis that respondents in the aspirations treatment achieved their savings and investment goals in the time period *before* the endline survey.

2.5.2 Impact on expenditures

Mean monthly household income reported by households in our follow-up survey is 11,283 pesos ($267), which is less than mean monthly household expenditures of 13,124 pesos ($311). Even allowing for some underreporting of incomes, this suggests households are typically spending all they earn. Both training programs emphasized that a key way to increase savings was through reducing expenditure. The knowledge training highlighted the value of forgoing typical temptation goods like lottery tickets, cigarettes, alcohol and soft drinks, while the aspirations training emphasized the value of delaying gratification in the short-term to build long-term opportunities. We examine in Table 2.3 whether individuals followed this advice by modifying their spending habits. We examine impacts on total household expenditure, as well as expenditure subcategories: food consumed outside the home, temptation goods, celebrations, durable goods, and education. Estimated effects of both the aspirations and knowledge treatments are small in magnitude, and none are statistically significantly different from zero.

Given that both aspirations and knowledge treatment encourage clients to reduce temptation spending, the absence of a resulting reduction in temptation spending is striking. This is despite clients saying they do spend on goods that they regret later. In the control group, 84 percent of clients said they regretted spending on alcohol, 84 percent on tobacco, and 63 percent on gambling and lotteries. That we find no effect of the aspirations treatment on temptation spending suggests that consumption habits are very "sticky" and hard to break (Berry et al., 2018; Bruhn et al., 2014).

The last row of Table 2.3 does show one area in which spending significantly fell: there is a negative effect of the aspirations treatment on business investments. The aspirations treatment leads business investments in the last six months to be lower by 630 pesos (37 percent below the control group). PALFSI's microloans are typically made with business uses in mind, so this finding concords with interpreting our negative treatment effects on loans as due to less desire on the part of individuals to invest in their businesses.

Table 2.3 Impact on household expenditures

	(1) Number of observations	(2) Mean of control	(3) Aspirations	(4) Knowledge	(5) Aspirations = Knowledge (p-value)
Total monthly household expenditures (pesos, monthly)	2,376	13,221	-659 (602)	422 (567)	0.202
Food consumed outside home (pesos, monthly)	2,463	89.8	-11.56 (13.1)	0.70 (13.1)	0.483
Temptation goods - alcohol, tobacco, gambling, etc. (pesos, monthly)	2,446	593	-47.36 (63.2)	0.8 (57.4)	0.548
Celebrations - fiesta, birthday, wedding etc. (pesos, six-monthly)	2,461	2,494	8.30 (261)	289 (252)	0.458
Durable goods - clothing, appliances, furniture, etc. (pesos, six-monthly)	2,455	1,481	-20.7 (183)	217 (165)	0.336
Education (pesos, six-monthly)	2,457	1,805	40 (140)	-149 (139)	0.273
Business investment (pesos, six monthly)	2,463	1,692	-630** (293)	-91.6 (276)	0.140

Notes: Each row (dependent variable) reports results from a separate regression. Columns (3) and (4) report regressions coefficients from estimation Equation (1), where the treatments are pooled together into two categories (Aspirations = T1 or T3, and Knowledge = T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

This analysis helps explain why households are not saving more: they spend almost all of what they earn, and were not able to cut back on spending, despite saying they regret some of the spending that they do. Instead, they reduce borrowing and investments in their business. All told, these results are quite consistent with the Genicot & Ray (2017) and Dalton et al. (2016) models, in which frustration stemming from not achieving goals leads individuals to scale back their economic investments.

2.5.2 Impacts on locus of control and time preferences

We now explore an additional reason why individuals may reduce their economic investments: their preference parameters or beliefs may change in such a way as to lead them to be less willing to invest. This mechanism is separate from but complementary to the mechanism outlined in Genicot & Ray (2020) and Dalton et al. (2016). Neither of those models contemplate any additional effects resulting from changes in individuals' preferences or beliefs. In our endline survey, we measured two such factors: locus of control and present bias. We consider these in turn.

Locus of control measures how strongly people believe they have control over the situations and experiences that affect their lives (Rotter, 1954, 1966). Those who believe that events in their lives are primarily a result of their own actions have higher scores and are referred to as having "internal locus of control", whereas those who attribute life events to outside factors have "external locus of control." Locus of control plays a central role in our aspirations treatment, as well as other mindset-based approaches to financial education. The aspirations treatment emphasizes that personal obstacles can be overcome through a positive mindset, seeking to convince individuals that they are in control of their future through their savings decisions. In *Secrets of the Millionaire Mind,* Eker (2005) argues that rich people believe "I create my life" while poor people believe "life happens to me". This content is explicitly included in the culminating "rich mindset" session of the aspirations treatment (the last of eight sessions).

In the endline survey, we use a seven-item set of questions that measure economic internal locus of control, derived from Furnham (1986). We ask individuals to say how much they agree or disagree on a Likert scale with statements like "Whether or not I get to become wealthy depends mostly on my ability" and "If I become poor, it's usually my own fault".[18] We code each of the seven items so that higher scores indicate higher internal locus of control and sum the total. Table 2.4 shows that the aspirations treatment has a negative effect on internal locus of control that is statistically significant at the 5% level. The knowledge treatment also has a negative effect, also

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[18] The full set of questions can be found in Appendix.

significant at the 5% level. Both treatments significantly reduce the extent to which individuals believe their own actions determine their financial lives.

Table 2.4 Impact on locus of control and time preferences

	(1) Number of observations	(2) Mean of control	(3) Aspirations	(4) Knowledge	(5) Aspirations = Knowledge (p-value)
Internal locus of control	2,463	41.8	-0.776** (0.325)	-0.584** (0.295)	0.682
Present bias (fraction of choices)	2,464	0.134	0.010 (0.012)	-0.015 (0.011)	0.180

Notes: Each row (dependent variable) reports results from a separate regression. Columns (3) and (4) report regressions coefficients from estimation Equation (1), where the treatments are pooled together into two categories (Aspirations = T1 or T3, and Knowledge = T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Why did training have the opposite effect on locus of control than intended? We have seen that training resulted in clients setting substantially higher savings goals than individuals in the control group, but that the average individual had only saved a tiny fraction (5 percent) of this goal, and that treatment did not make individuals any more likely to achieve their goals. It is possible that encouraging people to have big dreams and set ambitious goals in a context where they are not able to meet these goals might have eventually demotivated or frustrated them and lead them to conclude that their actions do not much determine their financial outcomes.

Taking the above evidence as a whole, we then speculate that the fall in loans and in business investment in the treated groups may be explained as follows: training caused participants to set ambitious savings goals and make budgets, but they did not change their spending behavior, and as a result, they were far from meeting these savings goals. This led to frustration, and reductions in economic investments. These effects could have been compounded by individuals in the aspirations treatment coming to believe that their own actions would have little influence in determining their financial success (lower internal locus of control). Such a change in beliefs could

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have reinforced the discouragement effect, further lowering individuals' desire to invest in their businesses.

We also explore whether the treatments affect present bias. Alan and Ertac (2018) show that an educational intervention that gets children to better imagine their future selves was able to increase patience. The aspirations treatment explicitly tries to get individuals to be less present-biased. The fourth aspirations session presented participants a video of the "marshmallow" experiment to highlighting the gains from making current sacrifices in return for future gains. The knowledge intervention gets individuals to think of their future selves through lifecycle planning and an emphasis on reducing temptation spending.

We measure present bias using by asking individuals to make hypothetical choices between different money amounts tomorrow versus in one month, and in two months versus three months, and seeing whether there are preference reversals.[19] Table 2.4 shows that 13 percent of individuals in the control group make a present-biased choice, and that neither the aspirations nor the knowledge treatment has a large or statistically significant effect on present bias. This lack of impact on time preferences is consistent with individuals not changing their temptation spending and suggests that while high discount rates may help explain why individuals undersave, the treatments were not able to change this preference parameter.

2.6 Conclusions

Encouraging small-scale entrepreneurs to increase their financial aspirations did lead individuals to set higher savings goals, but most individuals failed to achieve their goals. Two years after the treatment, treated individuals had no higher savings, and – strikingly – were borrowing substantially less (in total and from the partner microfinance institution). The aspirations treatment also led to lower business investment. Genicot & Ray (2020) and Dalton et al. (2016) emphasize that, in theory, setting higher aspirations may lead to higher economic investments, but failure to achieve aspirations may lead to frustration, and a decline in economic investments. Our results

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[19] Our procedures for measuring present bias are detailed in Appendix III.

provide empirical support for this theory. Aspirations should therefore be set high, but not too high. The aspirations treatment we study may have set individuals' goals too high to be achievable, leading to discouragement and a decline in investments. We also find that the aspirations treatment reduced internal locus of control. This is an outcome of interest in itself, and it may also be an additional mechanism through which the ultimate negative impacts on investment arose.

This study suggests several avenues for future research. Perhaps most prominently: would an intervention that encouraged individuals to set more modest aspirations have had a more positive impact? Aspirations that were more modest would have been more achievable, reducing the negative consequences from frustration and discouragement. Future studies could investigate multiple treatment arms where individuals are encouraged to set different-sized financial goals, to explore whether lower, more manageable goals have more positive effects.

2.7 Appendix: Additional Results

Figure 2.2 Randomization and treatment assignment
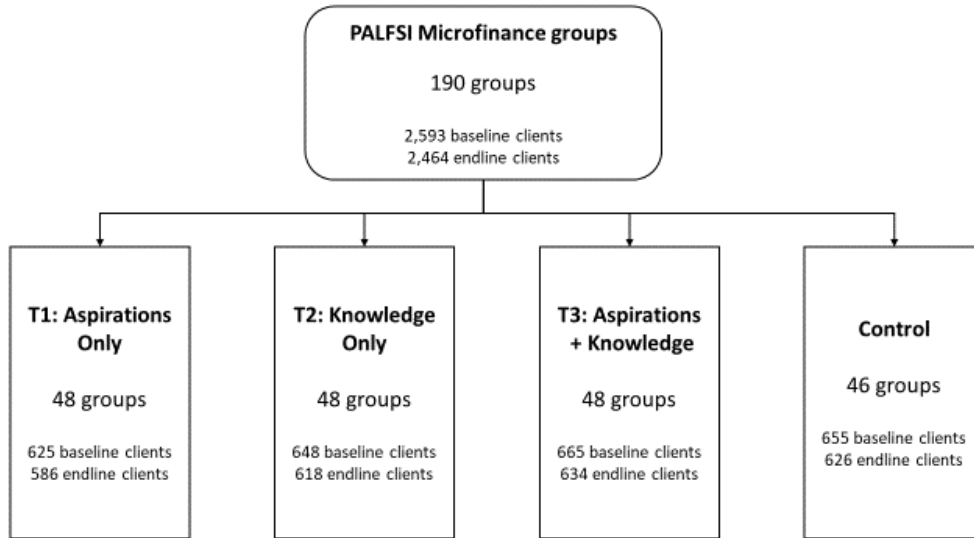
Figure 2.3 Timeline of the evaluation
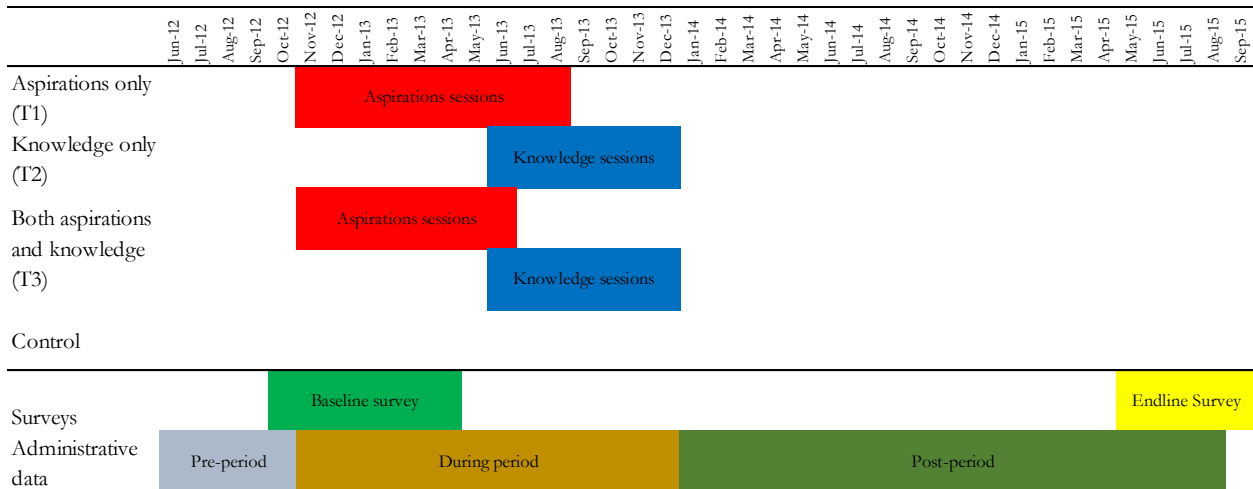
Figure 2.4 Attendance in trainings by treatment
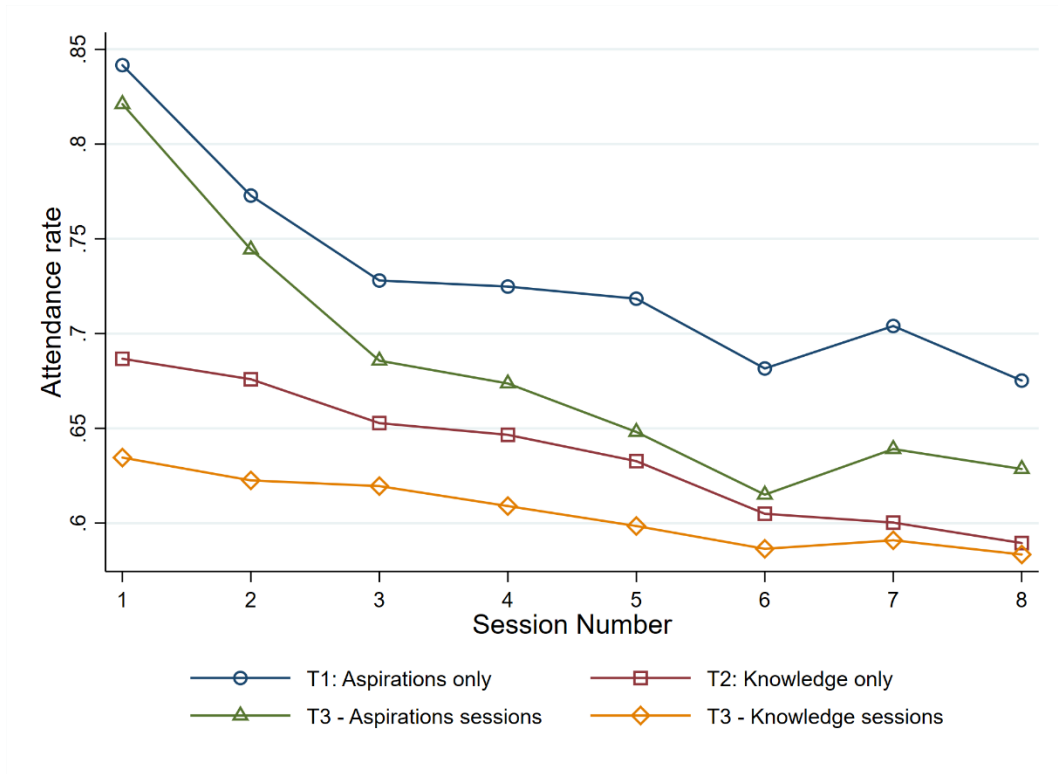
Figure 2.5 Evolution of PALFSI savings and loans over time, by treatment
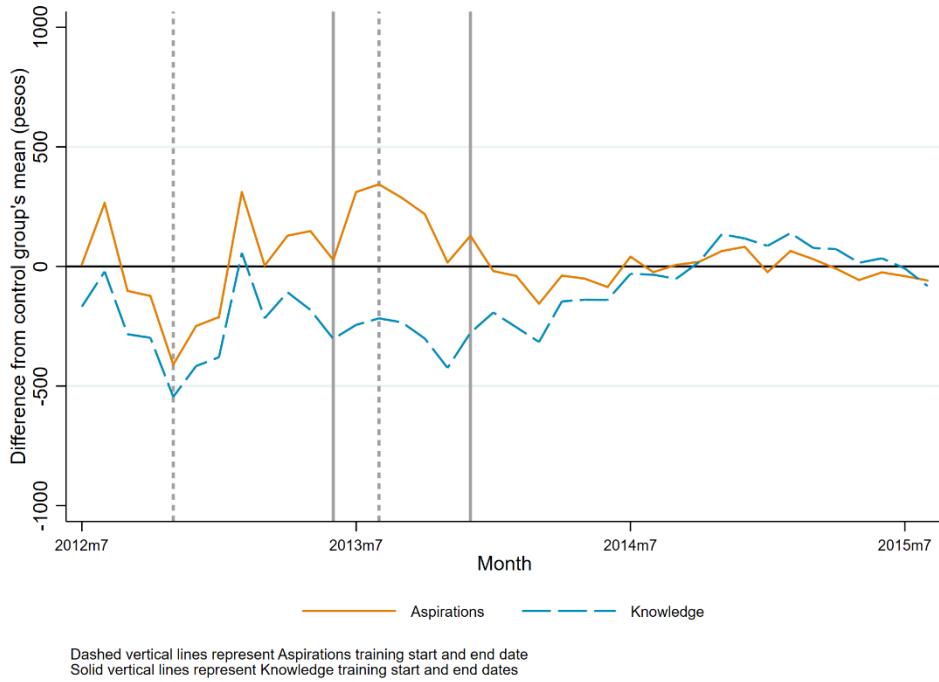
Panel A: Savings
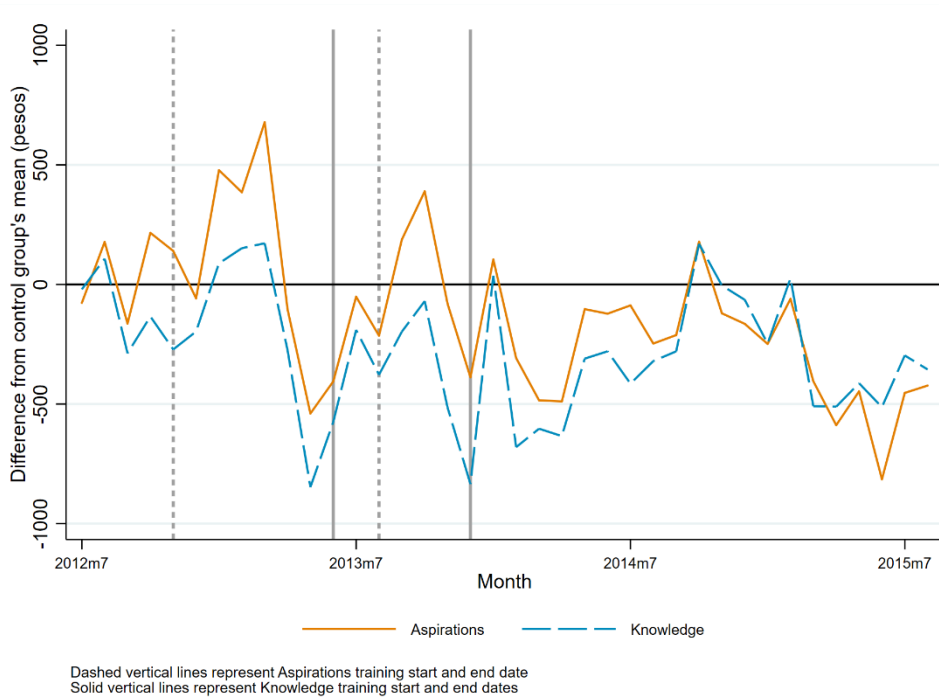
Panel B: Outstanding loan balance

Table 2.5 Sample description and balance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Number of observations	Mean of control	Aspirations	Knowledge	Aspirations = Knowledge (p-value)	Aspirations only (T1)	Knowledge only (T2)	Aspirations + Knowledge (T3)	T1 = T2 = T3 (p-value)	T1 = T3 (p-value)	T2 = T3 (p-value)
Panel A: Sample description											
Endline completed (1=yes)	2,593	0.956	-0.007	0.007	0.287	-0.018	-0.003	-0.000	0.402	0.229	0.869
			(0.010)	(0.010)		(0.014)	(0.014)	(0.014)			
Panel B: Demographic characteristics and savings at baseline											
Client is female (1=yes)	2,459	0.923	-0.005	0.026**	0.078	-0.015	0.016	0.022	0.060	0.023	0.733
			(0.012)	(0.011)		(0.017)	(0.017)	(0.015)			
Age of client (years)	2,460	47.1	-0.270	-0.648	0.671	-0.411	-0.785	-0.921	0.794	0.501	0.870
			(0.565)	(0.571)		(0.752)	(0.834)	(0.708)			
Client is married (1=yes)	2,464	0.805	-0.017	0.006	0.312	0.020	0.042**	-0.010	0.051	0.175	0.015
			(0.016)	(0.016)		(0.022)	(0.021)	(0.022)			
Client is high school or more educated	2,464	0.562	0.017	-0.026	0.280	0.033	-0.011	-0.009	0.432	0.283	0.966
			(0.029)	(0.027)		(0.038)	(0.039)	(0.039)			
Total savings (in pesos)	2,464	8,320	788	347	0.657	909	464	1,138	0.787	0.828	0.502
			(705)	(735)		(1,005)	(1,001)	(1,043)			
Savings in PALFSI accounts (pesos)	2,464	4,905	37	59	0.968	416	425	104	0.728	0.521	0.496
			(344)	(342)		(477)	(456)	(424)			
Savings deposit frequency is at least weekly (1=yes)	2,464	0.387	0.038	-0.027	0.338	0.092	0.024	0.012	0.444	0.220	0.840
			(0.045)	(0.046)		(0.065)	(0.064)	(0.061)			
Panel C: Administrative data at baseline (July											
Total savings (pesos)	2,464	5,589	-39	-274	0.679	-180	-410	-316	0.919	0.782	0.852
			(350)	(347)		(460)	(475)	(409)			
Outstanding loan balance (pesos)	2,464	8,693	73	81	0.988	-291	-271	147	0.688	0.436	0.476
			(400)	(388)		(525)	(535)	(540)			
Net savings (pesos)	2,464	-3,158	-125	-337	0.560	121	-99	-457	0.237	0.091	0.343
			(269)	(268)		(372)	(403)	(393)			

Notes: Each row (dependent variable) reports results from two separate regressions. The first regression result is in Columns (3) and (4) where the main independent variables are binary indicators of receiving aspirations or knowledge treatments (Aspirations = T1 or T3, and Knowledge = T2 or T3). The second regression is in Columns (6)-(9), with three treatments (T1, T2 and T3) as separate independent variables. All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 2.6 Impact on retention of training concepts and savings goals, long-form

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Number of observations	Mean of control	Aspirations only (T1)	Knowledge only (T2)	Aspirations + Knowledge (T3)	T1 = T2 = T3 (p-value)	T1 = T3 (p-value)	T2 = T3 (p-value)
Panel A: Training concepts retention								
Financial literacy: Inspiration related questions	2,464	22.151	3.738***	1.677	2.019	0.189	0.161	0.775
(3 questions)			(1.192)	(1.152)	(1.235)			
Financial literacy: Knowledge related questions	2,464	39.736	-1.781	2.084	2.299	0.011	0.006	0.876
(5 questions)			(1.535)	(1.484)	(1.461)			
Panel B: Savings goals								
Has savings goals (1=yes)	2,464	0.486	0.087**	0.065	0.020	0.238	0.096	0.269
			(0.042)	(0.042)	(0.041)			
Total savings goals (pesos)	2,464	29,643	11,533**	5,697	5,241	0.488	0.273	0.937
			(5,845)	(5,800)	(5,769)			
Savings goal as share of annual income	2,454	0.240	0.197**	0.080*	0.083	0.502	0.276	0.959
			(0.099)	(0.046)	(0.052)			
Has savings goals for education (1=yes)	2,464	0.224	0.098***	0.077***	0.054**	0.389	0.174	0.460
			(0.032)	(0.029)	(0.027)			
Education savings goals (pesos)	2,464	14,753	8,905**	530	5,952	0.096	0.551	0.147
			(4,372)	(3,308)	(4,260)			

Notes: Each row (dependent variable) reports results from the regression of individual binary indicators for the three treatments (T1, T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 2.7 Impact on financial outcomes, long-form

	(1) Number of observations	(2) Mean of control	(3) Aspirations only (T1)	(4) Knowledge only (T2)	(5) Aspirations + Knowledge (T3)	(6) T1 = T2 = T3 (p-value)	(7) T1 = T3 (p-value)	(8) T2 = T3 (p-value)
Panel A: Meeting savings goals								
Fraction of savings goal met	2,464	0.050	0.008 (0.010)	-0.001 (0.007)	0.004 (0.008)	0.591	0.674	0.525
Fraction of education savings goal met	2,464	0.017	0.008 (0.006)	0.007 (0.005)	0.006 (0.005)	0.884	0.650	0.741
Panel B: Savings								
Total savings (pesos, survey)	2,464	7,424	183 (784)	207 (738)	-660 (754)	0.477	0.314	0.283
PALFSI savings (pesos, survey)	2,420	6,010	222 (654)	358 (672)	-690 (663)	0.249	0.177	0.136
PALFSI savings (pesos, admin)	2,464	5,619	369 (637)	488 (661)	-766 (615)	0.089	0.074	0.058
Panel C: Loan accounts								
Total loans (pesos, survey)	2,464	11,262	-1,612 (1,118)	-220 (1,023)	-2,069* (1,153)	0.102	0.633	0.048
PALFSI loans (pesos, survey)	2,424	7,842	-461 (780)	384 (732)	-1,514** (771)	0.050	0.179	0.015
PALSFI loans (pesos, admin)	2,464	9,318	-1,444 (942)	-453 (1,160)	-1,532 (1,145)	0.566	0.927	0.354
Number of loans (survey)	2,464	1.347	-0.070 (0.084)	-0.061 (0.078)	-0.230*** (0.077)	0.023	0.028	0.015
Number of PALSFI loans (survey)	2,464	1.347	-0.070 (0.084)	-0.061 (0.078)	-0.230*** (0.077)	0.023	0.028	0.015
Number of PALSFI loans (admin)	2,464	1.049	-0.009 (0.072)	-0.023 (0.069)	-0.178** (0.072)	0.030	0.018	0.026

Notes: Each row (dependent variable) reports results from the regression of individual binary indicators for the three treatments (T1, T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 2.8 Impact on business investments and assets

	(1) Number of observations	(2) Mean of control	(3) Aspirations	(4) Knowledge	(5) Aspirations = Knowledge (p-value)	(6) Aspirations only (T1)	(7) Knowledge only (T2)	(8) Aspirations + Knowledge (T3)	(9) T1 = T2 = T3 (p-value)	(10) T1 = T3 (p-value)	(11) T2 = T3 (p-value)
Owns a business (1=yes)	2,464	0.743	-0.008	0.009	0.567	-0.028	-0.011	0.001	0.551	0.278	0.692
			(0.020)	(0.020)		(0.028)	(0.030)	(0.028)			
Started a new business in the post training period	2,457	0.1	0.016	0.005	0.514	0.028	0.016	0.021	0.796	0.719	0.775
			(0.013)	(0.013)		(0.018)	(0.015)	(0.018)			
Value of business(es) today (pesos)	2,446	40,139	-2,505	4,545	0.292	-2,488	4,561	2,039	0.575	0.529	0.701
			(4,915)	(4,797)		(7,108)	(6,293)	(7,057)			
Asset index (PCA of 11 household goods)	2,463	-0.063	0.004	0.026	0.883	-0.006	0.016	0.030	0.970	0.806	0.922
			(0.105)	(0.103)		(0.154)	(0.147)	(0.148)			

Notes: Each row (dependent variable) reports results from two separate regressions. The first regression result is in Columns (3) and (4) where the main independent variables are binary indicators of receiving aspirations or knowledge treatments (Aspirations = T1 or T3, and Knowledge = T2 or T3). The second regression is in Columns (6)-(9), with three treatments (T1, T2 and T3) as separate independent variables. All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 2.9 Impact on expenditures, long-form

	(1) Number of observations	(2) Mean of control	(3) Aspirations only (T1)	(4) Knowledge only (T2)	(5) Aspirations + Knowledge (T3)	(6) T1 = T2 = T3 (p-value)	(7) T1 = T3 (p-value)	(8) T2 = T3 (p-value)
Total monthly household expenditures	2,376	13,221	-192	871	-225	0.329	0.968	0.181
(pesos, monthly)			(848)	(800)	(802)			
Food consumed outside home	2,463	89.8	-14.6	-2.28	-10.93	0.775	0.804	0.631
(pesos, monthly)			(18.2)	(20.8)	(19.6)			
Temptation goods - alcohol, tobacco, gambling, etc.	2,446	593	-98.2	-48.3	-47.9	0.717	0.491	0.996
(pesos, monthly)			(75.6)	(84.3)	(90.4)			
Celebrations - fiesta, birthday, wedding etc.	2,461	2,494	-75.7	208.3	295.9	0.547	0.292	0.818
(pesos, six-monthly)			(357)	(374)	(347)			
Durable goods - clothing, appliances, furniture, etc.	2,455	1,481	30.7	266.4	197.0	0.570	0.470	0.804
(pesos, six-monthly)			(210)	(242)	(245)			
Education	2,457	1,805	-132.1	-315.5	-111.8	0.473	0.903	0.276
(pesos, six-monthly)			(202)	(218)	(220)			
Business investment	2,463	1,692	-703*	-162	-723*	0.283	0.955	0.184
(pesos, six-monthly)			(389)	(430)	(439)			

Notes: Each row (dependent variable) reports results from the regression of individual binary indicators for the three treatments (T1, T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Table 2.10 Impact on locus of control and time preferences, long-form

	(1) Number of observations	(2) Mean of control	(3) Aspirations only (T1)	(4) Knowledge only (T2)	(5) Aspirations + Knowledge (T3)	(6) T1 = T2 = T3 (p-value)	(7) T1 = T3 (p-value)	(8) T2 = T3 (p-value)
Locus of control	2,463	41.8	-1.17** (0.475)	-0.969** (0.418)	-1.37*** (0.406)	0.649	0.661	0.353
Present bias (fraction of choices)	2,464	0.134	0.010 (0.018)	-0.014 (0.017)	-0.005 (0.016)	0.388	0.340	0.590

Notes: Each row (dependent variable) reports results from the regression of individual binary indicators for the three treatments (T1, T2 or T3). All regressions include a constant and dummies for the sampling strata. Robust standard errors clustered at the center level are reported in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

2.8 Appendix: Contents of the two training programs

Often the content of training programs is a black box, making it difficult to compare across studies. We provide session-by-session details here to enable the reader to more clearly see what was emphasized in the two training programs.

Knowledge Training

Session 1: Calculating Your Net Worth Part 1

Session goal: introduce clients to a structured framework for understanding their financial status, and advise clients to save more as it will add to their assets and increase their net worth.

This session introduces the clients to the general notion of Assets, Liabilities and Net worth by asking the clients to write down their assets and liabilities and estimating their total values. Assets were defined as 'something you own that you could resell'; Liabilities as 'something you owe'; and Net Worth as 'how much is left after deducting your liability from your assets'. This session emphasized that one could increase her net worth by saving and that the PALFSI Flexible Savings Account is one of their options to accumulate savings.

Session 2: Calculating Your Net Worth and Understanding PALFSI's Flexible Savings Account

Session goal: teach clients how to calculate their net worth by methodically estimating the value of each asset and liability.

This session is a continuation of the previous session. The clients were asked to assign values to their assets and liabilities which they listed in the previous session. They were then asked to subtract the value of their assets from the liabilities to come up with their net worth.

In this session the advantages and the disadvantages of formal and informal savings were also discussed and the clients were given the handout about the comparison. In addition the PALFSI Flexible Savings Account Fact Sheet handout was also distributed so that the client will better

understand the PALFSI Flexible Savings Account. The clients were also asked to create an inventory of their assets and liabilities by filling out the handout Asset and Liabilities calculation.

Session 3: Calculating Savings

Session goal: introduce clients to the concept that saving a little bit everyday can turn into a lot of money, to the idea that saving in a bank account is preferable to saving at home because it rewards people with interest, and to simple math on savings accumulation.

The interest rate was introduced as 'a financial reward for saving in a bank (or a formal institution like PALFSI) or a cost for taking out loan. Saving at home vs. saving in an interest-bearing account was also discussed in this session. The clients were given the 'Computing for Savings' handout. It was stressed that forgoing with some typical temptation goods (like 'Jueteng' [a local lottery which is illegal], cigarettes, alcoholic beverages and soft drinks) can be a source of money for savings. Saving a little a day will accumulate savings if done regularly, was also emphasized in this session.

Session 4: Calculating Simple Long Term Financial Goals

Session goal: create knowledge and awareness of long-term expenses like retirement, education and marriage, and of the importance of saving a little bit everyday to help reach these expenses.

The clients were given a copy of the 'Simple Long Term Financial Goals Calculator' handout. As an example, retirement was discussed as a long term financial goal. They were asked to compute for the amount they should save daily or weekly to successfully retire. It was emphasized in this session that if they save in an interest bearing account they would have to set aside smaller amounts daily or weekly for their long term financial goals such as retirement, education etc., compared to saving at home. The clients were advised to save more on PALFSI savings account where their savings can grow.

Session 5: Introduction to Budgets

Session goal: Introduce clients to the concept of budgeting, help them understand where they are spending their money, their flow of income, and where opportunities lie to cut down on spending and increase savings.

Clients were introduced to the concept of Budgeting. They were taught how to compare their earnings from their expenses using the Budget Table Handout. Clients were asked to identify where they could cut down on certain spending and translate it into savings. They were also asked to check if their expenses are greater than their income and what expenses they could forgo to at least equalize their income and expenses or better yet cut on expenses to save. It was emphasized in this session that in order to save effectively they should first set aside a portion of their income for savings as opposed to spending first and save whatever is left from their income. Setting aside an amount from the income will make sure that they can save and PALFSI Flexible Savings Account is a place to accumulate these savings.

Session 6: Budgets and Savings

Session goal: Delve deeper into the concept of budgeting introduced in previous session, and help identify opportunities to cut down on spending and increase savings.

This session is the second part of the topics on budget. The clients were asked to fill out the Last Week's Budget and the Next Weeks' Budget Handout. They were asked to recall all their expenses in the past week to help them think about their expenses for the coming week. It was emphasized in this exercise that knowing about where they spent on in the last week will help them plan for the succeeding week and make adjustments on their expenses so that they can save. This exercise will help them identify opportunities to cut down on expenses to increase savings.

Session 7: Budgets Part 3

Session goal: Continue to learn more about budgeting, and help clients understand how hindsight and foresight can differ.

This is part 3 of the budgeting sessions. The loan officers reviewed the concept of budgeting as a 'financial plan for a long term and short term future'. The clients were asked to fill out another Last Week's Budget Handout and ask them to compare the Next Week's Budget handout they filled out in the preceding week. The disparities between the two were highlighted as the difference between hindsight and foresight.

The difference between hindsight and foresight was emphasized in this session. It was also emphasized that if their carefully plan and practice more on budgeting they could have a better control of their future expenses and this would help them identify opportunities for saving.

Session 8. Financial Knowledge Quiz

Session goal: Reinforce learning of first seven sessions and review contents.

In this session, the clients were asked to take a simple quiz about what they learned in the previous 7 session as a review. The loan officers clarified question with regards to the concepts which were introduced in the previous sessions. It also discusses savings in general and savings at PALFSI through the flexible savings accounts to help clients better understand the benefits of savings.

Aspirations Training

Session 1: Overcoming Limiting Beliefs

Session goal: intended to teach clients that personal obstacles can be overcome through a positive mindset, an optimistic outlook, and a willingness to try again. The goal is to boost each individual client's sense of self and confidence in overcoming obstacles in life.

Participants were paired and were asked to stack up Styrofoam cups (In the form of a pyramid). This was done 3 times per client. In the first and second try, the cups were scattered on the table, but on the 3rd try each client were told that they can pre-arrange the cups in a way that will make it easier for them to stack it later to improve their time.

The learning emphasized was 'positive mindset and confidence can help overcome personal obstacles and planning ahead would help them better overcome obstacles. It was emphasized that savings through the PALFSI Flexible Capital Build Up is a way to prepare for emergencies and build up capital for investments.

Session 2: Dream Collage

Session goal: intended to help clients to focus on their long term goals and organize their thoughts about how they can reach these goals.

Participants were asked to make a Dream Collage by cutting out pictures from newspapers or draw representations of what they want to have or achieve in the future and paste it in an illustration board. They were then asked to make a list of the dreams in the Dream List handout from the Dream Collage they made. They also presented their Dream Collage to the group. At the end of the session the clients were told to bring home their dream map and post it on their wall to remind them of what they should work towards.

The learning emphasized was to focus on their long term goals and organize their thoughts about how they can reach these goals. It was also emphasized that achieving long term goals requires planning and financial preparations and PALFSI's Flexible Savings Capital Build Up is a good place to save one's money.

Session 3: Dream Timeline and Financial Matrix

Session goal: intended to help clients organize their financial plans and structure their approaches towards reaching their goals.

Based on their Dream list from the previous session, the clients were asked to create a Dream Goal by selecting a business goal that they could achieve in 6 months to 1 year. They were then asked to articulate this business goal by filling out clear goals. They have to make their goal measurable, assign dates on when they want to start and achieve their goals, and visualize it.

They were also asked to fill in the Dream Map handout by sorting their dreams as to whether the dreams are related to their business or family by writing the dreams above or below the ladder. It

was also emphasized that the PALFSI Flexible Savings Account can help clients work towards their financial goals and meet the plans detailed in the Dream Map and Financial Matrix.

Session 4: Delaying Gratification "Marshmallow" Experiment

Session goal: intended to motivate clients to avoid immediate gratification that can be costly to long term gratification and inspire clients to think longer into the future.

The clients were shown a video presentation, the "Marshmallow" experiment which was dubbed in Filipino. In this session it was emphasized that delaying gratification in the short term will create opportunities in the long term. Like forgoing with purchasing of a new TV set and investing the money instead in their business will give them long term benefits or opportunities in the future. The movie was a tool to inspire clients to think farther into the future. It was also a tool to bring across the idea that the values of patience, self-discipline and focus will help them achieve their long term goals.

Session 5: Overcoming Limiting Beliefs II

Session goal: intended to teach clients that personal obstacles can be overcome through a positive mindset, an optimistic outlook, and a willingness to try again.

This session is the same as Session 1 but instead of 10 cups they were asked to use 15 cups. It was emphasized in this session that situations may change, oftentimes beyond their control, but they could always adjust to the new situation by changing their negative attitudes to positive ones. By saving in the PALFSI Flexible Savings Account they could also prepare for any unforeseen events in the future.

Session 6: Understanding Your "Why"

Session goal: encourage clients to think deeper about their future business goals and inspire a more future oriented mindset.

The clients were asked to fill out the Understanding Your "Why" Handout by identifying one of their business goals. They were then asked to pair with another group mate and discuss why the goal was important to them. They were asked to visualize their dream. It was emphasized in this exercise that if they want to pursue their goal they should be persistent in achieving it and that they should have a more future oriented mindset.

Session 7: Review of Dream Timeline and Financial Matrix

Session goal: bring together the lessons learned from previous trainings and inspire the clients to move forward with their dreams.

This is a review of Sessions 1, 3, and 6 with the objective to inspire the clients to move on with achieving their dreams. Believing in oneself was also emphasized in this session. PALFSI Flexible Savings Account was again mentioned as a way to help clients save money to help them in their future plans.

Session 8: Rich Mindset

Session goal: intended to finalize the inspiration training with a discussion of how to think positively and powerfully about one's finances. The take away from this session is that positive thoughts lead to positive results. Furthermore, if a poor man saves his money and plans for the future, he can turn into a rich man.

For this session, the loan officers discussed the statements in the Rich Mindset Handout while asking the clients to give examples to the group when they acted with a rich mindset or a poor mindset. When they give examples of when they acted with a poor mindset the loan officer they were asked how to change it into a rich mindset. It was emphasized in this session how positive thinking can lead to positive results. In addition, a poor man saving money can turn into a rich man. For the clients, saving in PALFSI Flexible Savings Account is a part of the rich mindset.

Figure 2.6 The Aspirations Training Stressed Setting Big Goals
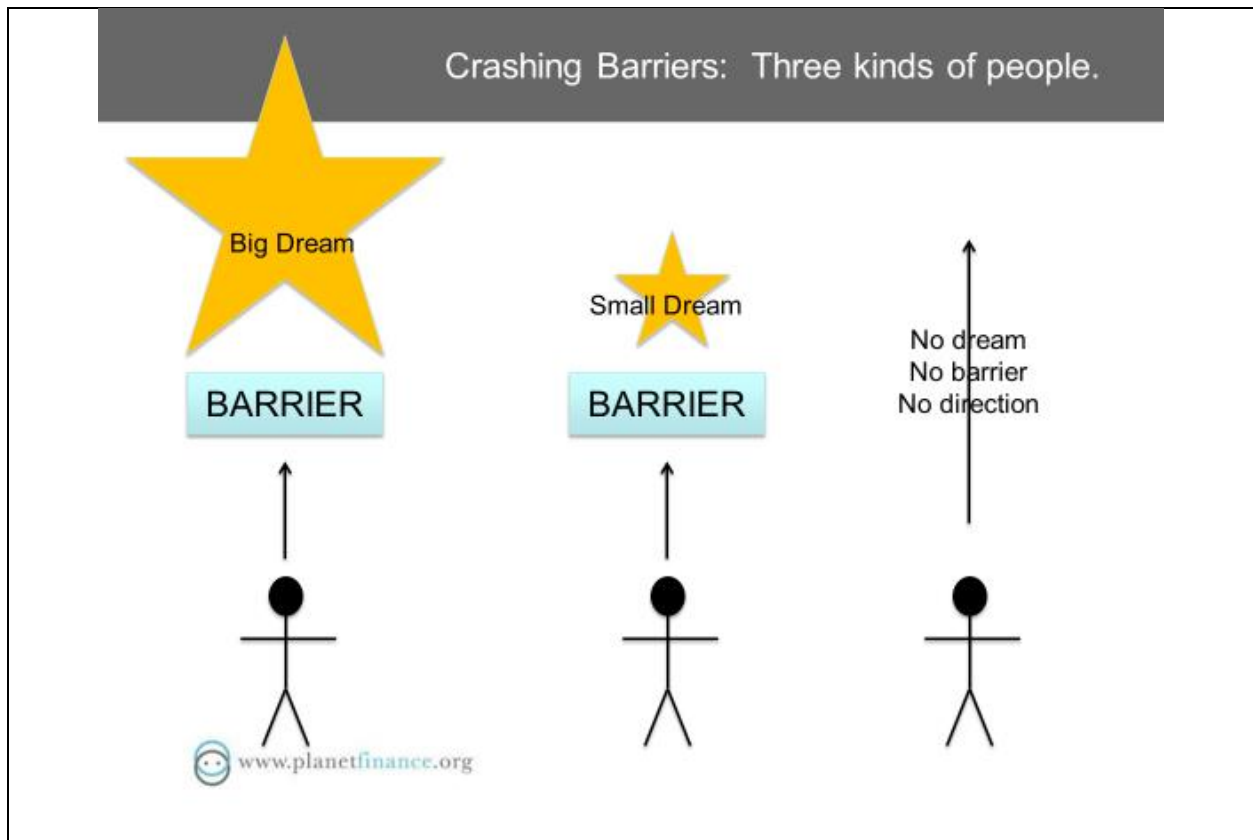
You may feel that your dreams cost a lot. But you do not decrease your dream, instead you expand your income.

Anecdote:

Ask a fresh graduate what kind of home he wants: often the answers are: Big house, with garage, three bedrooms, big yard, with maybe a swimming pool. This person has no income, yet he dreams big!

Ask a working person what kind of home he wants: often the answer will be, "*ung simple lang po na kaya ng pag-ibig fund*".

1. A person without a dream does not have any barriers. His future is also uncertain because he has no direction.
2. A person with a small dream will always only see barriers blocking his way into achieving his dreams.
3. A person with a big dream will see his dream and not his barrier. Because the barrier is too small compared to his dream.

2.9 Appendix: Measurement

Survey Questions Related to Training Retention

Aspirations training related questions

1) Which of the following is/are examples of "Limiting Beliefs"?
   i) I can't sing well, but if I try or go to singing lessons, I can improve my ability
   ii) I did not finish my studies so I will never be rich
   iii) I am a housewife, but I can also be an entrepreneur if I want to
   iv) All of the above
   v) Other (specify)
   vi) Don't know

2) What is a "Dream Collage"?
   i) A collection of images of goals you wish to experience in reality
   ii) A tool designed to help you visualize your dreams
   iii) A tool to help you create a picture of what you want
   iv) All of the above
   v) Other (specify)
   vi) Don't know

3) What is a "Dream Timeline"?
   i) A tool that can help you organize your dreams in a structured and a realistic framework
   ii) A collection of images of goals you wish to experience in reality
   iii) A list of all upcoming incomes and expenditures
   iv) All of the above
   v) Other (specify)
   vi) Don't know

Knowledge training related questions

1) What is a budget?

a)   A tool to calculate future loan payments

b)   A tool to compare how much you earn to how much you spend

c)   A tool to calculate interest on your loan

d)   All of the above

e)   Other (specify)

f)   Don't know

2)   What are assets?

i)   Savings minus loans at PALFSI

ii) How much you own that you could resell

iii) How much you owe

iv) All of the above

v)   Other (specify)

vi) Don't know

3)   What are liabilities?

i)   Savings minus loans at PALFSI

ii) How much you own that you could resell

iii) How much you owe

iv) All of the above

v)   Other (specify)

vi) Don't know

4)   What does net worth mean?

i)   The amount you owe

ii) How much you own minus how much you owe

iii) The money in your bank account

iv) All of the above

v)   Other (specify)

vi) Don't know

5) What is an interest rate?
    i) Monthly fees to maintain a bank account
    ii) How much you own that you could resell
    iii) A financial reward for saving with the bank or an extra cost for taking out a loan
    iv) All of the above
    v) Other (specify)
    vi) Don't know

Locus of Control

For each of the 7 items, the following statements are read to the respondent. Then they are asked to respond to what extent they agree or disagree using a 7-point scale: 1 = Strongly disagree, 2 = Moderately disagree, 3 = Slightly disagree, 4 = Neutral/ neither disagree nor agree, 5 = Slightly agree, 6 = Moderately agree, 7 = Strongly agree.

1) Saving and careful investing is a key factor in becoming rich
2) Whether or not I get to become wealthy depends mostly on my ability
3) In the long-run, people who take very good care of their finances stay wealthy
4) If I become poor, it's usually my own fault
5) I am usually able to protect my personal interests
6) When I get what I want, it's usually because I worked hard for it
7) My life is determined by my own actions

Time Preferences and Present Bias

We measure present bias using by asking individuals to make hypothetical choices between different money amounts tomorrow versus in one month early in the survey, and in two months versus three months later in the survey and seeing whether there are preference reversals (see modules below)

Respondents are given 20 tokens each worth 20 pesos (400 pesos total) and asked to allocate tokens to the two time periods. To incentivize respondents to allocate tokens honestly, they were told that

a randomly chosen respondent's allocation will be implemented after all the surveys have been completed. The interest rate is held constant in both time periods (10 percent, 25 percent, 50 percent, 75 percent, 100 percent). For a given interest rate, we consider a choice present biased when respondents allocated more to the nearer period when choosing between tomorrow and one month versus tomorrow compared to when choosing two months from tomorrow versus three months from tomorrow.

Section 3: Time Preference A		
Surveyor instructions: Let the respondent rearrange tokens as many times as he/she likes. Write down the final answer here and on the index card for each question		
1	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 22 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens tomorrow	22 pesos ☐☐ Tokens in one month
2	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 25 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens tomorrow	25 pesos ☐☐ Tokens in one month
3	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 30 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens tomorrow	30 pesos ☐☐ Tokens in one month
4	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 35 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens tomorrow	35 pesos ☐☐ Tokens in one month
5	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 40 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens tomorrow	40 pesos ☐☐ Tokens in one month

Section 8: Time Preference B			
Surveyor instructions: Let the respondent rearrange tokens as many times as he/she likes. Write down the final answer here and on the index card for each question			

		20 pesos ☐☐	22 pesos ☐☐
1	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 22 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	Tokens two months from tomorrow	Tokens three months from tomorrow
2	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 25 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens two months from tomorrow	25 pesos ☐☐ Tokens three months from tomorrow
3	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 30 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens two months from tomorrow	30 pesos ☐☐ Tokens three months from tomorrow
4	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 35 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens two months from tomorrow	35 pesos ☐☐ Tokens three months from tomorrow
5	Tokens that you redeem tomorrow are worth 20 pesos each. Tokens that you redeem one month from tomorrow are worth 40 pesos each. How many tokens would you like to redeem tomorrow, and how many in one month?	20 pesos ☐☐ Tokens two months from tomorrow	40 pesos ☐☐ Tokens three months from tomorrow

Chapter 3 Poverty and Well-Being of the Elderly in Latin America: The Role of Health, Pensions and Private Transfers

3.1 Introduction

As the Latin America and the Caribbean (LAC) region undergoes rapid demographic and epidemiological transformations, policymakers and governments are facing new challenges to meet the health and social insurance needs of the elderly population. Universal health coverage (UHC) and social insurance of the poor and vulnerable populations are two of the main Sustainable Development Goals (SDGs) for the eradication of poverty and achieving good health and well-being.[20] While many LAC countries have recently adopted policies to enhance UHC and social protection, no country has so far achieved UHC, and only 45 percent of the population is enrolled in contributory pensions' schemes (Dmytraczenko & Almeida, 2015; ILO, 2018; OECD/IDB/The World Bank, 2014; Wagstaff et al., 2015). In most countries, employment-based health and pensions systems were adopted in the first half of the 20th century, which assumed that over time most of the population will enter formal employment. Nevertheless, 53 percent of the population remains employed in the informal sector and without access to contributory health insurance and pensions coverage (Salazar-Xirnachs & Chacaltana, 2019). In the meantime, the fraction of population 65 years or above has nearly doubled in the last three decades reaching 8.7 percent of population, and the share of disease burden from non-communicable diseases (NCDs) has increased from 47.9 percent to 70.5 percent (IHME, 2015; World Bank, 2020b). These shifts have increased fiscal pressures on governments to cover the needs of the elderly population. Combined

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[20] Universal Health Coverage means that all people have access to the health services they need, when and where they need, without financial hardship. It includes the full range of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care (WHO, 2020). The SDG related to UHC is Goal 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all. The social protection related SDG is Goal 1.3: Implement nationally appropriate social protection systems and measures for all, and by 2030 achieve substantial coverage of the poor and the vulnerable.

with reduced revenues due to the economic downturn caused by the COVID-19 pandemic, LAC countries need urgent reforms to ensure adequate health and social insurance coverage of their vulnerable populations.[21]

The importance of access to health services and social protection for the well-being of the elderly cannot be overstated. Relative to other types of shocks, health shocks are idiosyncratic and more common, they involve responses from the entire household, they often trigger more coping strategies, and lead to declines in consumption (Adhvaryu & Nyshadham, 2017; Wagstaff, 2007; Wagstaff & Lindelow, 2014). In addition to increased health care expenditures due to old age, the elderly also suffer a significant decline in consumption following retirement (Haider & Stephens, 2007). Social security benefits and non-contributory pension schemes have the important effect of preserving quality of life of the elderly and ensuring they do not fall into poverty (Bando et al., 2020; Engelhardt & Gruber, 2004). These benefits also generate positive spillovers for other members of the family (Duflo, 2003). Not surprisingly, in opinions' surveys in Latin America, people consistently rate the availability and quality of social services as their highest priority (Pew Research Center, 2016).

Given this background for LAC, the goal of this chapter is to document the patterns and evolution of poverty among the elderly in the LAC region. The main questions for this analysis are – what is the extent of poverty among the elderly in LAC countries? To what extent do they have adequate access to health care? What is the incidence and burden of out-of-pocket health expenditures (OOPE) for the elderly? Do these push them into poverty? On the social protection side, what fraction of the older population are covered by pensions, and what role, if any, do pensions play in reducing poverty among the elderly? In countries where pensions are less prevalent, do private transfers fill the gap?

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[21] LAC is also hit the hardest by COVID-19. Five of the top 20 countries with most COVID-19 cases are in LAC. According to the World Bank's Global Economic Prospects, expected GDP decline for the LAC region was 7.2 percent for 2020, which is higher than any other region and the world average of 5.2 percent.

To answer these questions, I build on the existing literature in economics and other social sciences. Rather than diving deep into one country, I cover a broad set of countries to document the extent of the challenges in those countries.[22] I look at two time periods – 2006 and 2015 – to document the evolution of key outcomes over time. A special emphasis is placed on understanding health care utilization, the levels of OOPE and its impact on old-age poverty, and the role of social transfers (public and private) in reducing the burden of poverty. Finally, I also analyze living arrangements of the elderly to explore complementarities and spillovers within the household.

My analysis uses data from 44 national and special purpose household surveys from the LAC region. Most countries in Latin America administer frequent (annual) nationally representative household surveys to enumerate socio-economic characteristics, demographics and labor and employment histories of their populations. Some of the survey data utilized in this study comes from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC), a joint initiative between World Bank and the Center for Distributive, Labor and Social Studies (CEDLAS) at the National University of La Plata, Argentina to harmonize household surveys across LAC countries. These datasets contain harmonized and standardized values of individual and household incomes, labor force participation etc. However, for 11 out of 17 countries, these surveys do not contain information on households' health seeking behavior and OOP expenditures, and in the remaining countries, the variables are not yet harmonized. Similarly, the individual components of incomes are also not harmonized. I undertook a separate exercise to locate health related surveys and construct and harmonize key health and income variables for the same 17 countries. Together these data sets allow me examine health care expenditures and social transfers for all countries.

Consistent with previous findings from Latin America and other regions, I find that the elderly population is almost half as likely to be in poverty as the non-elderly population, although there is substantial variation across countries (Cotlear & Tornarolli, 2011; Li & Dalaker, 2019). Part of the

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[22] There are 33 countries in the LAC region. The 17 countries included in the analysis are – Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay. Together these countries accounted for 91 percent of LAC population in 2018.

poverty among the elderly could be due to the high burden of OOP expenditures on them. Older people have greater health care needs and I find that they are 1.5 times more likely to utilize outpatient consultations than the non-elderly population, and twice more likely to be hospitalized. However, the ratio of OOPE between the elderly and non-elderly is nearly three times. This translates into the elderly facing much greater risk of incurring catastrophic health expenditures (2.6 times the non-elderly population) and impoverishing health expenditures (2.3 times the non-elderly population). Insurance coverage has a significant role to play in improving access to health services and providing financial risk protection from OOPE. In almost all 17 countries studied, the elderly access more care when they are covered by contributory health insurance, and they are much less likely to incur catastrophic or impoverishing risk.

Pensions (and private transfers to a lesser degree) play a similar role in improving the well-being of the elderly. The good news is that pension coverage of the elderly has increased substantially between 2006 and 2015, and the incidence of poverty among beneficiaries and non-beneficiaries is substantially different – 1.9 percent and 8.8 percent. Similarly, pensions may also be enabling the elderly to retire early. The average labor force participation rate for those with pensions is 23.3 percent while for those without pensions it is 53.0. These patterns vary significantly across countries with poorer countries demonstrating much lower coverage. Finally, I show that like in other countries, there is an increasing tendency among the elderly to live on their own (alone or with a spouse). Higher income, availability of pensions and private transfers are positively correlated with the likelihood of the elderly living alone in almost all countries. The large reductions in poverty and the expansion of pension coverage are therefore consistent with the observed patterns of an increasing tendency of the elderly to live on their own.

This chapter makes two main contributions to the literature and research agenda on aging. First, it contributes to our understanding of health care utilization patterns, OOPE and their impacts on the elderly population. Several studies have examined the patterns and correlates of health care utilization and OOP expenditures across countries, but few have focused on the elderly population, who constitute the majority of the population facing financial risk due to health expenditures (O'Donnell et al., 2008; WHO, 2019). In the development literature, the focus in cross-county studies is on population-level results, or on maternal and child health, mainly because

internationally comparable datasets such as Demographic and Health Surveys (DHS) focus on these conditions (Vollmer et al., 2014; Wagstaff et al., 2015). This chapter is among the few to leverage existing routine survey data sets to construct age-profiles of health care utilization and OOP expenditures among many countries in the LAC region. Results from this chapter will be useful for policymakers and governments to understand the extent of the issues in their countries, benchmark their performance with that of their regional peers, and to generate momentum towards policy reforms.

The second key contribution of the chapter is that in delivering the age-profiles for health variables, the chapter produces a public good in the form of algorithms and standardized datasets across countries. The 18 different surveys[23] related to health in this chapter are routine surveys that are administered annually in most countries. As such, the algorithms and code for the purpose of this chapter will be useful to researchers undertaking similar analyses or extensions in the future. Since surveys and their contents differ across countries, estimating health care utilization and OOP expenditures in a consistent manner across countries also requires careful treatment of data and methodological issues such as different recall periods in surveys, reporting at the household vs. individual level, etc. This chapter includes a discussion of these issues and applications of simple techniques to address those issues.

The remainder of the paper proceeds as follows. In Section 3.2, I summarize the health and protection systems in place in LAC and the main challenges facing the region in these areas. Section 3.3 describes the surveys and data utilized, methodology used to estimate poverty and to estimate the burden of OOP expenditures. Section 3.4 presents poverty results for the elderly and non-elderly populations. In Section 3.5, I present patterns in health care utilization, OOP expenditures and their contribution to poverty of the elderly. Section 3.5 also discusses the availability and size of pensions and private transfers to the elderly and their role in alleviating poverty. In section 3.6, I explore the role of family and living arrangements of the elderly in LAC. Section 3.7 concludes with a discussion of policy implications and avenues for future research.

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[23] In the case of Brazil, data comes from two different surveys.

3.2 Health and social protection systems in Latin America

Health and social protection systems in Latin America are segmented and fragmented (Frenk & Gomez-Dantes, 2018). In many countries, these systems were designed in the first half of the 20th century and have since been changed to keep up with the changing nature of the economy and needs of the population. Social Security Institutions (for example, Chile's Compulsory Insurance Fund, Mexican Institute of Social Security, etc.) are well funded and provide the health and social protection needs of the salaried population. These institutions operate independently of the state, and main their own finances and operate their own health provider networks. In the meantime, the unsalaried (or non-formally employed population) are covered by Ministries of Health and services financed from general governments' budgets. This results in dissimilar rules and unequal benefits (in both health services provide and access to pensions). Ministries of Health also operate their own network of health facilities and provide poorer quality of care to the predominantly poor and vulnerable population that depend on them. The public sector operates with no separate of functions (financing and provisions) and has been shown to be inefficient in many different contexts (Dmytraczenko & Almeida, 2015).

Table 3.1: Health insurance and pensions systems in Latin America and the Caribbean

Country	Health insurance	Pensions		
		Scheme	Eligibility age	Benefit/income per capita
Argentina	Ministry of Health	Pensions asistenciales	70	25.0%
Bolivia	Multiple schemes, Ministry of Health	Renta dignidad	60	12.6%
Brazil	Sistema Unico de Saude	Previdencaira rural, Beneficio de Prestacao Continuada	60/55, 65	17.2%, 33.0%
Chile	FONASA	Pension Basica Solidaria de Vejez	65	12.0%
Colombia	ARS, EPS-S	PPSAM	57/52	4.3%
Costa Rica	CCSS	Regimen No Contributivo	65	17.8%
Dom. Rep.	Ministry of Health	Nonagenarios	na	na
Ecuador	IESS Campesino, Ministry of Health	Pension para adultos mayores	65	7.7%
El Salvador	Multiple schemes, Ministry of Health	Pension Basica Universal	70	12.2%
Guatemala	IGSS, Ministry of Health	Aporte Economico a Adulto Mayor	65	18.0%
Honduras	Ministry of Health	-		
Mexico	Seguro popular	65 y mas	65	5.0%
Nicaragua	Ministry of Health	-		
Panama	Ministry of Health	100 a los 70	70	12.6%
Paraguay	Ministry of Health	Pension alimentaria	65	29.3%
Peru	SIS, Ministry of Health	Pension 65	65	8.6%
Uruguay	SNS	Pensiones no contributivas	70	22.0%

Source: Own research, Rofman et al. (2013), OECD (2014)

While health system reform has been on the agenda for more than half a century for most countries, only a few countries have managed to make progress towards integration of segmented health systems (Brazil, Chile, and Uruguay, for example). Other countries such as Peru (Integral Health Insurance) and Mexico (Popular Health Insurance) introduced insurance schemes to improve efficiency of the public sector and increase coverage of the poor and vulnerable population, however, progress has been limited. Access to care and quality of available from these systems is still substantially worse than that available from the health networks of social security institutions (World Bank, 2016). Table 3.1 describes the health insurance systems in the 17 countries studied.

On the social protection side, only 45 percent of the population is covered by mandatory contributory pensions schemes. Almost all countries in LAC (and 15 out of 17 in this study) have in recent years introduced non-contributory social pensions to cover the poor and informally employed population, and there exists significant variation in eligibility and benefits level across countries. The age of eligibility ranges between 57 years for males and 52 years for females in Colombia to 70 years in Argentina, El Salvador, Panama, and Uruguay. Benefits level similarly vary between 4.3 percent of median income per capita in Colombia and 29.3 percent of income per capita in Paraguay (Table 3.1). Given this heterogeneity, we expect there is to be substantial differences in the relative impacts of health insurance and pensions coverage on the poverty status and well-being of the elderly.

3.3 Data and methodology

3.3.1 Surveys used

The data used in this paper comes from routine household surveys. All countries included in this analysis implement annual population-level income and expenditures surveys of households. Since the focus of these surveys is on household finance, detailed information is available on labor force participation, sector of employment, hours worked, income at the individual level and sources of income. For this paper, I utilize data from two points of time, circa, 2006 and 2015. Table 3.10 in the Appendix describes the data sets utilized for each country and year pair, the level of representativeness of the data and sample sizes. All surveys are representative at the national level except for Argentina, where the data are representative for 31 urban cities. For 14 out of the 17 countries, the exact years 2006 and 2015 are available. For Colombia and Ecuador, the first time-period is different from 2006 (2008 and 2007, respectively) and for Guatemala, the second time-period used is 2014 instead of 2015. In the case of Costa Rica, the same household survey is not available for the time periods. However, both surveys used have similar characteristics in terms of coverage, sample sizes and variables included. These surveys are the main source of data for the analysis of poverty, incomes, pensions, and private transfers.

Only 8 out of the 17 countries' surveys include a health module that contain information on health care utilization and expenditures (Appendix Table 3.11). For the remaining countries, I did a

detailed search to find and carefully select the latest and most suitable surveys for analysis of health variables. In countries such as Argentina, Brazil and Ecuador, the data come from specially implemented health surveys. In the case of Dominican Republic and Honduras, the data comes from the Demographic and Health Surveys (DHS). The latest available year varies between 2006 and 2015, and the modal year is 2014 (6 countries). For three countries, the data are from 2015, four countries they are from 2013, and for the remaining countries, they are from before 2012 or earlier. The data sets used for health care analysis are representative at the national level for all countries except for Colombia, where it is representative for the department of Cundinamarca (representing 6 percent of the population in 2018).[24] For Brazil, I use two separate surveys. The national household survey contains information on OOP expenditures but not health care utilization. Conversely, the health survey contains information on health care utilization but not OOP expenditures. For this reason, I use both surveys.

3.3.2 Estimating Income and poverty

Previous research has advocated for a consumption-based measure of household well-being, rather than an income-based measure (Deaton & Zaidi, 2002). This is because current consumption is closer to permanent income (or consumption), than current income (assuming people can lend and borrow), misreporting is generally a bigger concern for income than consumption, and incomes are frequently reported before taxes, while consumption is an after-tax concept. Despite the benefits of using consumption in lieu of income, studies evaluating household welfare in LAC almost always use the income measure. This is because only a few household surveys measure consumption in LAC, while most measure individual and household income.

The SEDLAC database constructs and reports aggregate individual and household income, as well as breakdowns by labor and non-labor incomes. For this paper, I need the non-labor income component disaggregated to capture incomes from pensions and private transfers as well. For this reason, I re-construct aggregate income variable for each of the 17 countries, and incomes from

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[24] Colombia is made up of 32 departments. Cudinamarca as a department is highly urbanized and contains the national capital of Bogota. This should be kept in mind when interpreting the results.

different sources including pensions and private transfers. In most surveys, the questions related to income use a one-month recall period. From this estimate, I calculate a measure of monthly income which is later converted to annual income. All income and related data reported in this paper are in 2013 Purchasing Power Parity (PPP) dollars. A related caveat in using income as a measure of welfare or estimating income-based poverty is that income is volatile and can vary from one month to another. This should be kept in mind when interpreting the results.

While income per capita based measures of poverty are simple to estimate, they also ignore the effects of household size and demographic composition and consumption. People live in households and share resources, and economies of scale maybe present in bigger households which allows them to reach same levels of consumption with lower income per capita relative to smaller households (Deaton & Paxson, 1998). Needs may also differ between households as children need to consume less than adult. Adjusting for these factors can therefore affect poverty rates. I address both these considerations and adjust the poverty estimates for the size of the household and its composition. I follow the approach of and Deaton & Paxson (1997) by assuming a parametric form for an "adult equivalence" and household economies of scale. Specifically, I assume that the living standard of an individual i living in household h is given by:

$$x_{ih} = \frac{Y_h}{(\alpha_1 C_1 + \alpha_2 C_2 + A)^\theta}$$

where, C_1 is the number of children under age 5, C_2 is the number of children aged 6–14, and A is the number of adults. Parameters α allow for different weights for younger and older children compared with adults, while θ regulates the degree of household economies of scale. When $\theta = 1$, there are no economies of scale, while at the other extreme, when $\theta = 0$, there are full economies of scale, meaning that all goods in the household could be shared completely. In poor settings where people spend nearly all their income on food, there is not much scope for economies of scale. In developed settings where a much larger share of the budget is spent on housing, energy, heating, transportation, entertainment, and other goods that are easier to share, consumption economies of scale is more important. Following the suggestion of Deaton & Zaidi (2002) for middle-income countries such as those in LAC, I take intermediate values of the αs ($\alpha_1 = 0.50$ & $\alpha_2 = 0.75$) and θ ($\theta = 0.8$) in reporting the benchmark figures in the next section.

In practice, it is convenient to work with a transformation of the above equation to make poverty estimates comparable to those obtained with household per capita income and the US$3.20-a-day line. The need for an adjustment comes from the fact that by deflating by $(\alpha_1 C_1 + \alpha_2 C_2 + A)^\theta$ instead of by just the number of family members $(C_1 + C_2 + A)$ the indicator of individual welfare x_{ih} increases, and without any adjustment in the poverty lines, poverty estimates go down. However, since we are not trying to adjust the total percentage of people classified as poor; instead we want to compare the relative situation of different age groups. I alleviate this concern to some extent by following the procedure suggested by Deaton & Paxson (1997) and multiplying the above equation by $(\alpha_1 C_1^0 + \alpha_2 C_2^0 + A^0)^\theta / (C_1^0 + C_2^0 + A^0)$, where C_1^0, C_2^0 and A^0 are the number of children under age 5, children aged 6–14, and adults in the "base" household, respectively. I take the average number of children and adults in each country to construct the base family.

Finally, to report poverty rate or headcount ratio, a poverty line is needed. National poverty lines vary across countries in LAC. To allow for comparison, I report poverty figures based on $1.90 per day and $3.20 per day, which are World Bank's recommended lines for low-income countries and lower-middle income countries, respectively. While I report both measures, I focus on the $3.20 per day measure since most countries in LAC fall in the lower-middle income category. The poverty results, with and without adjusting for adults' equivalence and economies of scale are reported in the next section.

3.3.3 Estimating Health care utilization and out-of-pocket (OOP) health expenditures

Details of the surveys used for estimating health care utilization and OOP expenditures are available in Appendix Table 3.11. A few conceptual issues merit discussion. First, the availability of data varies across countries. Given the focus of the paper is on the elderly, two measures of health care utilization are important – outpatient visits (or consultations) and inpatient visits (or hospitalizations). From the surveys used, it is possible to compute averages for consultations for all countries except Costa Rica, and it is possible to construct hospitalization rates for all countries except Ecuador. Together with utilization measures, I also report on OOPE and OOPE as a percentage of income. For Chile, the OOPE measure is not available. And for two countries –

Argentina and Honduras – an income aggregate cannot be constructed due to limitations in the health specific surveys used (Appendix Table 3.12 details the variables available in the surveys).

Second, surveys' typically ask households about the last time they used health services within a specified timeframe, and this timeframe (or the recall period) varies across countries. For outpatient visits, it ranges from 15 days to 3 months, and for in-patient visits it ranges from 1 month to 12 months. These differences could have different impacts for comparability of estimates across countries. Out-patient visits occur relatively frequently, and thus using a longer recall period can understate true utilization estimates. Conversely, hospitalizations are relatively rarer episodes, and using a shorter recall period can fail to capture the true extent of utilization. This issue is well-documented in the literature and unfortunately, there are no easy solutions to the problem (Das et al., 2012). Further, in the case of Mexico, instead of using a defined timeframe, the survey asks respondents to report actual dates of last consultation and hospitalization episodes. I compute utilization estimates using the modal recall periods of 1 month for outpatient and 6 months inpatient visits for the case of Mexico. I circumvent the limitations faced for cross-country comparisons by reporting ratios of utilization between the elderly and non-elderly population within countries. This utilization ratio for country i is defined as $UR_i = \frac{U_{i65+}}{U_{i65-}}$. When examining utilization across the entire age distribution, I use the utilization rates of 15-24 year-old population (considered the healthiest group) as the denominator. Addressing this issue more rigorously should be an important area for future research.

The third conceptual issue is in the estimation of the level OOPE and OOPE as a share of income due to the source of data and the level of reporting. In household surveys, information about health expenditures is either enumerated together with outpatient and inpatient visits (health modules of the surveys), or in the households' expenditure modules. When data is collected in the health module, they are usually attributable to specific morbidity episodes and specific individuals and correspond to the same recall period. When they are collected in expenditures modules, they are collected at the household level and may utilize different recall periods (see Appendix Table 3.12 contains information at the country level). As for income, while they are reported at the individual level for most countries, they are recorded at the household level in Mexico. Which measure of OOP expenditures – individual or household – is relevant, depends on the policy question that

needs to be answered. Since households tend to pool resources, at the aggregate level, a household measure of per capita OOP may be more relevant. On the other hand, if the policy question is to examine differential OOP expenditures and their impacts on the elderly and to design interventions to reduce these expenditures for the elderly, the individual measure may be more suitable. In this paper, to allow for comparability across countries, I focus on the household-based per capita measure (for both OOP expenditures and incomes). In the future, more research is needed to clearly understand the implications of using one measure versus the another.

In addition, the levels of OOP expenditures as a share of income, I use two threshold approaches of OOP expenditures as suggested in the literature (Wagstaff & van Doorslaer, 2003). The first is "catastrophic risk" measure which captures the intensity of catastrophe as well as its incidence and by estimating the degree to which catastrophic payments occur disproportionately among poor individual and households. This measure categorizes the household or individual as experiencing catastrophic expenditures in health when expenditures exceed a pre-defined threshold percentage of income. A difficulty with this measure is that it cannot distinguish the degree of hardship faced by households. A 5 percent level of expenditure on health would be more concerning for a household that makes 3 dollars a day in comparison to a household that makes 300 dollars a day. Another measure that is used in parallel as proposed by Wagstaff & van Doorslaer (2003) is "impoverishing risk." The fundamental idea here is that health care expenditures should not be so severe that it pushes households into poverty. A household is categorized as experiencing impoverishing risk if their income net of health expenditures is sufficient to push them below the poverty line. While catastrophic measure reports the percentage of population at risk of such expenditures, impoverishing measure reports the additional increase in poverty that occurs due to health expenditures. The popularly used threshold levels of catastrophic risk are 10 percent and 25 percent of income, while for impoverishment risk, the poverty lines used are $1.90 per day and $3.20 per day. I report results using both thresholds but considering that most countries in my sample are middle-income countries, I focus the discussion on 25 percent income threshold for catastrophic risk and $3.20 per day poverty line for impoverishment risk.

3.4 Poverty at different ages

I start by documenting the rapid progression in the share of elderly among the 17 countries included in the analysis. Table 3.2 reports the percentage of population that is 60 years or older in 2006 and 2015. At the regional level, the share of elderly population increased from 10.1 percent in 2006 to 12.1 percent in 2015. There is however substantial heterogeneity across countries. The greatest increases are observed for countries such as Brazil, Costa Rica and Mexico which were in the middle of the aging process in 2006. For countries such as Argentina which already had more than 14.2 percent of the population over 60 years in 2006, the increase is small - 0.6 percentage points. In Uruguay, where 19.5 percent of the population was over 60 years in 2006, the figure even declined to 18.6 percent. In less developed countries of the region such as Guatemala, Honduras and Paraguay, the growth rate of the aging population is faster. These countries are relatively younger, and the demographic divided is yet to be realized (Rofman & Apella, 2020). Table 3.2 also reports the share of population that is 80 years or older. At the LAC level, the share of this population increased from 1.6 percent to 2.0 percent. As expected, richer countries like Argentina, Chile and Uruguay have a greater share of population that is 80 years and older.

Table 3.2: Percentage of population that is elderly, 2006 and 2015

	(1)	(2)	(3)	(4)	(5)	(6)
	Population 60+ (%)			Population 80+ (%)		
Country	2006	2015	Percentage change	2006	2015	Percentage change
Argentina	14.2	14.8	4.7***	2.3	2.5	11.3***
Bolivia	7.5	10.3	37.4	0.7	1.2	62.1
Brazil	10.1	14.3	41.2***	1.3	2.0	50.0***
Chile	12.9	17.5	35.8***	1.9	3.0	58.8***
Colombia	9.6	11.4	18.8***	1.4	1.7	24.3***
Costa Rica	9.1	13.1	44.2***	1.4	2.2	56.3***
Dominican Rep.	9.7	12.0	23.7***	1.5	2.2	42.5***
Ecuador	10.3	9.8	-4.5	1.6	1.6	4.8
El Salvador	9.6	12.0	24.9***	1.6	2.2	33.2***
Guatemala	6.7	7.7	14.9	1.0	1.1	7.2
Honduras	7.3	8.9	22.5	1.2	1.4	14.9
Mexico	9.1	10.5	15.6***	1.4	1.5	9.8***
Nicaragua	7.4	8.1	9.8***	1.2	1.5	26.7***
Panama	10.4	12.6	21.2	1.7	2.1	27.0
Paraguay	8.7	8.8	1.2	1.4	1.2	-11.9
Peru	10.7	13.9	30.8	1.6	2.4	53.4
Uruguay	19.5	18.6	-4.7***	3.5	3.7	5.0***
LAC average (unweighted)	10.1	12.0	19.9	1.6	2.0	28.0

Notes: Country averages are weighted by survey weights, LAC average is the unweighted average of country means. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Figure 3.1: Poverty headcount ratio by age, 2015

Note: Poverty line: US$3.20-a-day in 2011 PPP dollars.
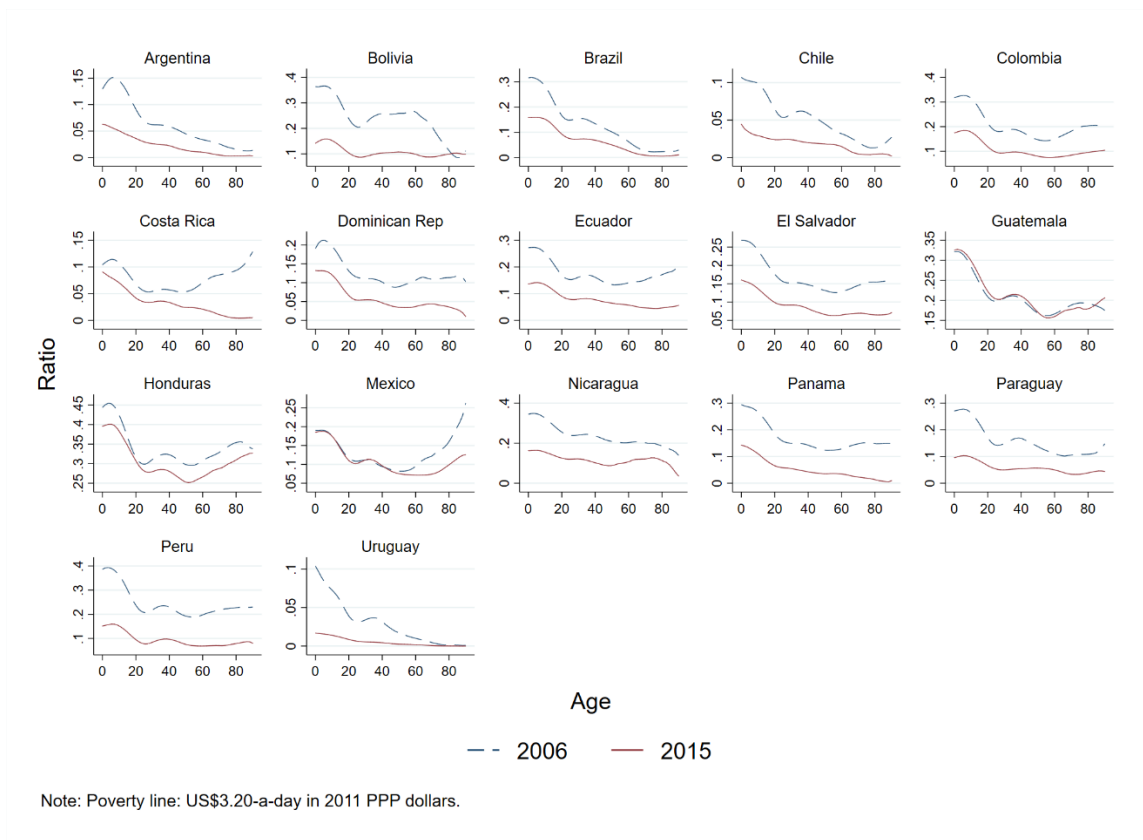
I now turn to reporting absolute and relative poverty rates for the elderly populations. Before that, it worth noting that between the two years surveyed, at the population level, poverty headcount ratio reduced by more than half – from 8.6 percent in 2006 to 19.6 percent in 2015. Poverty was reduced for all ages in most countries although the improvements across countries have been heterogenous (Figure 3.1). Richer countries such as Argentina, Chile, Costa Rica, and Uruguay which had low levels of poverty in 2006 reduced poverty by more than 60 percent. Among the countries that had high rates of poverty in 2006, Bolivia, El Salvador and Nicaragua have been more successful in reducing poverty (by over 60 percent) while countries like Guatemala and Honduras have been less successful (poverty rates decreased by less than 25 percent).

Country	(1) Per capita income measure		(3)	(4)	(5)	(6)	(7)	(8)
			Household income adjusted for					
			Adult equivalents		Economies of scale		Both	
	60+ (%)	60+/<60	60+ (%)	60+/<60	60+ (%)	60+/<60	60+ (%)	60+/<60
Argentina	0.51	0.15	0.61	0.21	0.65	0.21	0.69	0.26
Bolivia	8.83	0.73	12.05	1.06	13.69	1.17	16.11	1.43
Brazil	1.15	0.13	1.14	0.14	1.17	0.14	1.18	0.15
Chile	0.69	0.29	0.87	0.37	0.81	0.33	0.93	0.39
Colombia	8.39	0.68	9.46	0.82	9.74	0.81	10.46	0.94
Costa Rica	1.24	0.28	1.39	0.36	1.45	0.35	1.59	0.42
Dominican Rep.	4.05	0.55	4.50	0.65	4.58	0.64	5.38	0.79
Ecuador	4.95	0.50	5.92	0.65	5.98	0.62	7.14	0.79
El Salvador	6.93	0.67	7.88	0.81	7.81	0.77	8.57	0.93
Guatemala	17.79	0.72	19.82	0.83	19.89	0.82	22.83	0.96
Honduras	29.04	0.89	30.72	0.96	30.21	0.93	32.25	1.00
Mexico	7.90	0.63	9.20	0.80	9.38	0.78	10.42	0.94
Nicaragua	11.65	0.90	12.98	1.09	12.06	0.94	12.90	1.08
Panama	2.41	0.33	2.55	0.39	2.51	0.37	2.73	0.44
Paraguay	3.82	0.53	4.14	0.63	4.22	0.61	4.33	0.67
Peru	7.28	0.67	8.98	0.86	10.05	0.93	11.82	1.13
Uruguay	0.07	0.09	0.07	0.12	0.06	0.10	0.06	0.14
LAC average (unweighted)	6.87	0.51	7.78	0.63	7.90	0.62	8.79	0.73

Notes: Poverty line = US$3.20-a-day purchasing power parity. Equivalence scales: a1 = 0.5, a2 = 0.75, theta = 0.8

Table 3.3 then reports unadjusted and adjusted absolute poverty headcount ratio for the elderly population as well as the relative poverty ratios using the $3.20 per day poverty line for the year 2015. There is significant variation across countries in elderly poverty levels. Countries in the southern cone, which are also more developed, have poverty levels well below 1 percent – Argentina 0.51 percent; Chile 0.69 percent, and Uruguay 0.07 percent. On the other hand, less developed Central American countries such as Guatemala (17.8 percent) and Honduras (29.04 percent) have elderly poverty levels that more than twice the regional average of 6.87 percent. In all countries, poverty rates for the elderly compares favorably to that of the overall population, the relative ratio at the regional level is 0.51 which means that the elderly are half as likely to be poor as the non-elderly population. Once again, the countries in the southern cone have lower relative poverty among the elderly. The ratio is Argentina is 0.15, Chile 0.29 and Uruguay 0.09. In countries such Guatemala, Honduras, and Nicaragua, which has higher national poverty rates, the

relative poverty levels of the elderly are also higher, with the ratio being 0.72, 0.89 and 0.90, respectively.

These patterns suggest that countries that are richer are better at protecting the elderly in both absolute and relative sense. In addition to national wealth, is it also possible that differences in demographic structures maybe explain the variation in absolute and relative poverty levels across countries? Poorer countries tend to have relatively younger populations and bigger households and adjusting for adult equivalency and household economies of scale may reduce the gap between countries. Table 3.3 also reports absolute and relative poverty ratios adjusting for adult equivalency and economies of scale individually, and both together. In all countries, adjusting the income measure yields higher absolute and relative poverty rates for the elderly population. This is partly because the elderly in Latin America tends to have greater incomes than the non-elderly (discussed in the next section). The increases in relative poverty ratios are higher for richer countries like Argentina where the ratio increases by 70 percent, 51 percent in Costa Rica and 60 percent in Uruguay. The increase in relative poverty is also substantial for Bolivia and Peru where the ratio is increased by 95 percent and 70 percent, respectively. In the case of Argentina, Bolivia, Costa Rica, and Uruguay, this is due to family size. These countries occupy four out of the top five spots in terms of small family size.

3.5 Understanding poverty and well-being of the elderly

In this section, I examine the impacts of health care expenditures, pensions, and private transfers on the well-being of the elderly. I begin by documenting patterns of health care utilization of outpatient and inpatient services and OOP expenditures. I then describe coverage of health insurance and examine the correlations between insurance coverage and utilization and expenditures. Then I turn to estimating the availability of pensions and social transfers and their impacts on the well-being of the elderly.

3.5.1 Health care utilization, expenditures, and the role of insurance

Health care utilization over the lifetime follows a J-curve pattern, with greater needs at the younger ages (ages 0 to 5), which declines through the middle ages (6 to 24) and tends to increase again thereafter. Figure 3.2 plots the J-curves for outpatient services use, hospitalization, and OOP expenditures for all countries for which data are available. To make comparison across countries easier, the figure plots utilization rates relative to the healthy group of 15-to-24-year-old population. The first pattern to note is that the J-curve for utilization is visible for all countries. Second, in most countries, the curve is steeper for OOP expenditures than for utilization. This is consistent with the fact that the services needed at older ages tend to be costlier. Nevertheless, these patterns are also alarming to the extent that OOP expenditures reduce the well-being of the elderly.

Figure 3.2: Health care utilization patterns and OOPE by age and country, 2014
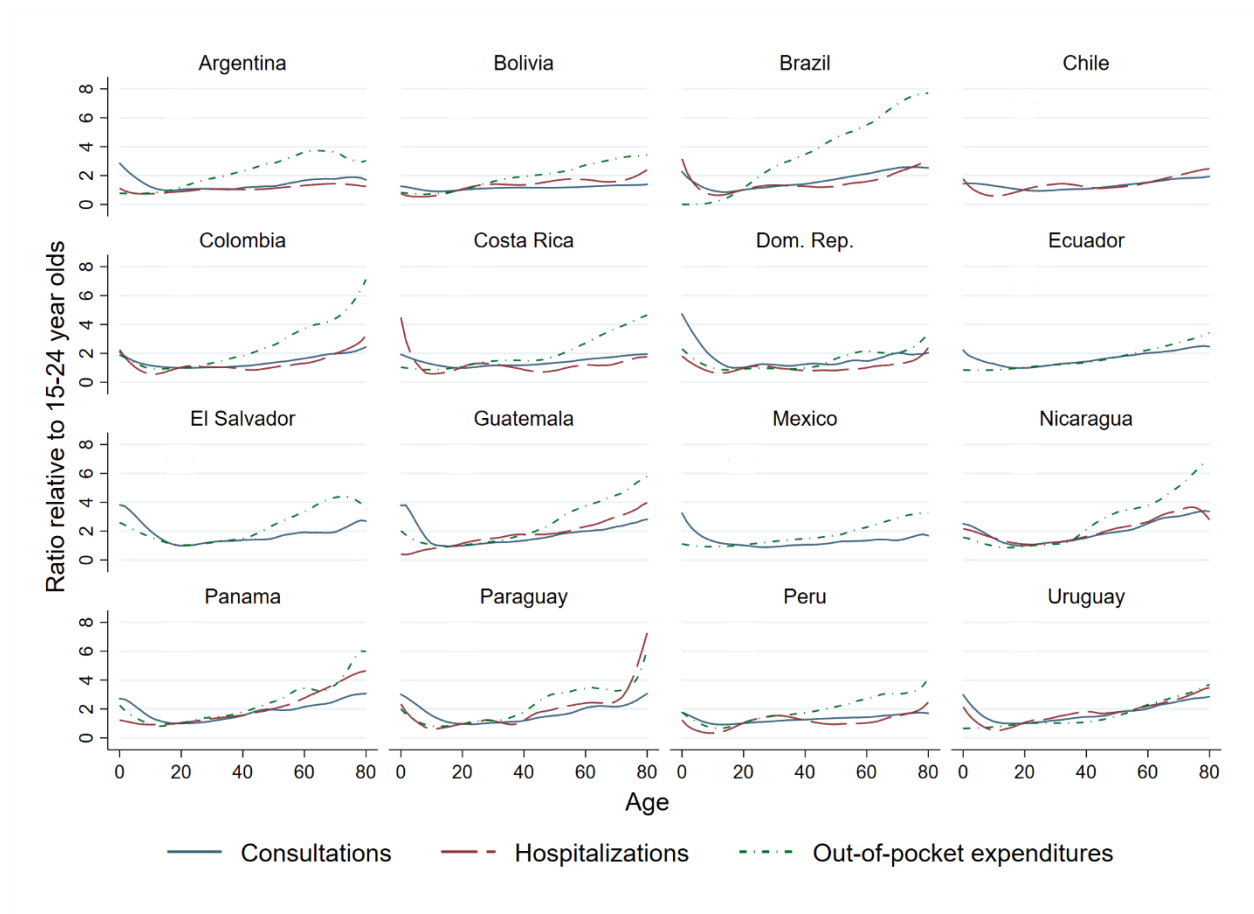
Table 3.4 then reports absolute and relative health care utilization and OOP expenditures levels for the elderly population. At the LAC level, 40.3 percent of the elderly reported using outpatient services' and 7.0 percent reported using inpatient services. This regional measure averages annualized country estimates that are constructed from data using different recall periods and should be interpreted with caution. Across countries that use a one-month recall window for consultations, Argentina and Nicaragua are at the higher end with utilization rates of 53.9 percent and 58.0 percent, respectively. Utilization rate is higher in more developed countries such as Chile (50.6 percent using a 3-month recall period), Costa Rica (82.2 percent using a 1-year recall period) and Uruguay (58.5 percent using a 3-month recall period). The less developed countries are at the lower end of utilization distribution, with a rate of 9.2 percent for El Salvador and 22.2 percent for Guatemala. The patterns for hospitalization are similar. The use of inpatient services is highest for Argentina (12.5 percent), Chile (10.4 percent) Colombia (11.8 percent) and lowest for Guatemala (0.9 percent) and Nicaragua (3.0 percent). Overall, these patterns suggest that access to health care services for the elderly varies greatly across countries, with far greater access in more developed countries.

Table 3.4: Utilization of health care services and OOP expenditures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Out-patient visits			Hospitalization			Out-of-pocket expenditures		
	Recall period	60+	60+/<60	Recall period	60+	60+/<60	Level	60+	60+/<60
Argentina	1 month	53.9	1.4	1 year	12.5	1.6	Ind	539.7	2.3
Bolivia	1 year	78.3	1.2	1 year	3.1	1.6	Ind	171.5	2.4
Brazil	2 weeks	25.0	1.8	1 year	10.2	1.9	Ind	629.3	3.3
Chile	3 months	50.6	1.5	1 year	10.4	1.8	-	-	-
Colombia	1 month	47.0	1.6	1 year	11.8	2.0	Ind	436.1	3.3
Costa Rica	1 year	82.5	1.4	1 year	7.4	1.3	HH	499.6	2.9
Dom. Rep.	1 month	12.2	1.0	6 months	8.1	1.4	Ind	138.8	1.8
Ecuador	1 month	40.1	1.7	-	-	-	HH	363.0	2.4
El Salvador	1 month	9.2	1.3	-	-	-	Ind	68.9	2.8
Guatemala	1 month	22.2	1.5	1 month	0.9	3.3	Ind	248.3	3.5
Honduras	1 month	24.9	1.5	1 year	7.8	1.4	Ind	283.2	3.7
Mexico	1 month	20.0	1.2	-	-	-	HH	508.9	2.2
Nicaragua	1 month	58.0	2.0	1 month	3.0	2.1	Ind	486.2	3.9
Panama	1 month	32.4	1.6	1 month	3.5	3.0	Ind	556.6	3.3
Paraguay	3 months	30.6	1.7	3 months	5.9	3.0	Ind	218.1	2.5
Peru	1 month	39.6	1.3	1 year	7.0	1.6	Ind	215.7	2.4
Uruguay	3 months	58.5	1.8	3 months	6.4	2.2	HH	527.1	2.9
LAC average (unweighted)		40.3	1.5		7.0	2.0		368.2	2.9

Notes: Country averages are weighted by survey weights, LAC average is unweighted and is computed by averaging over country averages.

In relative terms, the elderly population use outpatient services 1.5 times more than the non-elderly population and they utilize inpatient services twice as often as the non-elderly population. In contrast, the elderly face OOPE that are 2.9 times higher than the non-elderly population. Even in more developed countries, and countries with greater levels of insurance coverage, OOPE are relatively higher – 3.3 times in Brazil, 2.9 times in Uruguay. These high OOPE expenditures also pose a high risk of incurring catastrophic and impoverishing expenditures in health for the elderly. Figure 3.3 plots the incidence or catastrophic and impoverishment risk as defined earlier over the age distribution for all 14 countries where data are available. The risk of catastrophic and impoverishing expenditures is higher for the elderly in all countries. On average, the risks are 2.6 times and 2.3 times greater for the elderly population, respectively.

Figure 3.3: Risk of catastrophic and impoverishing expenditures by age and country

Catastrophic risk (25% threshold) — — Impoverishment risk ($3.20 per day)
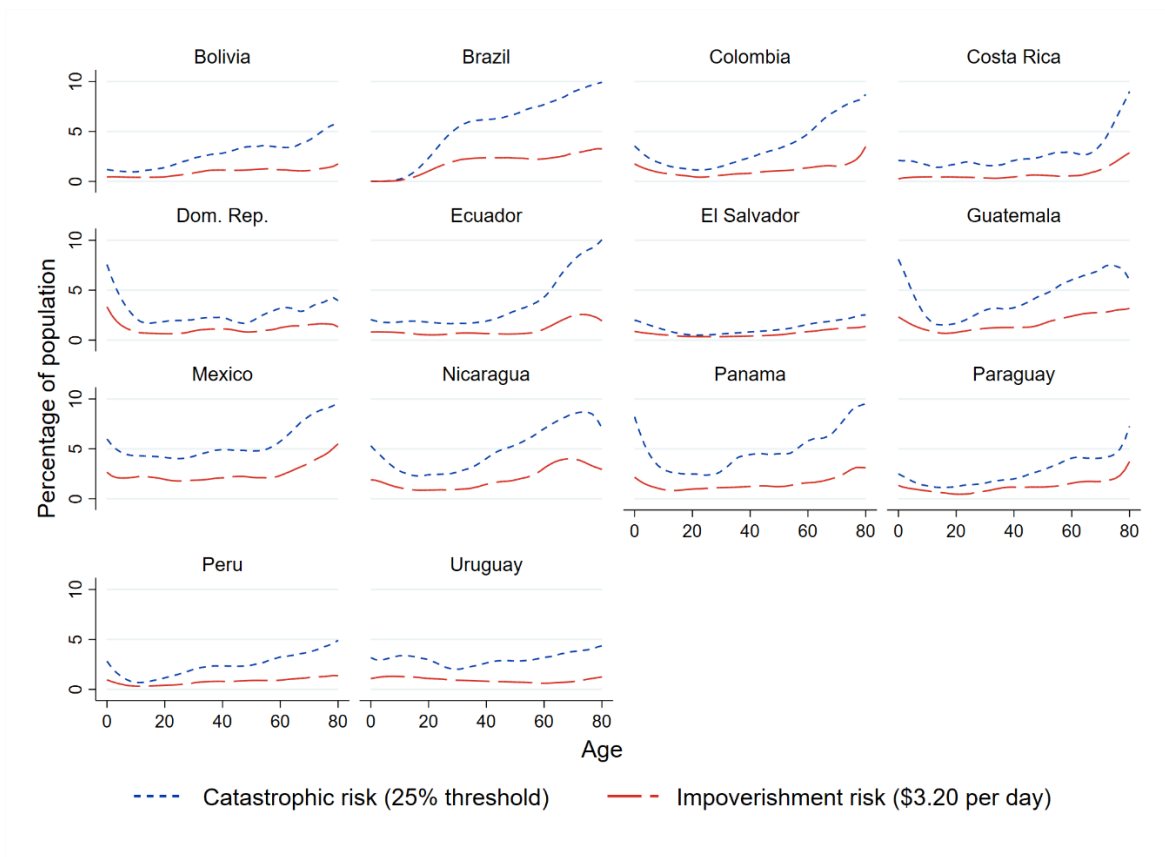
Table 3.5 then examines the absolute and relative levels of catastrophic and impoverishment risk for the elderly population. Using the 25 percent threshold, I find that 6.8 percent of the elderly population in LAC is at risk of incurring health expenditures that exceed 25 percent of their income. These figures vary substantially across countries. In El Salvador, only 2.0 percent of the elderly population are at risk of catastrophic health expenditures, however, this is also due to low use of outpatient services (9 percent) and lack of data on hospitalization. Brazil (10.3 percent) and Nicaragua (14.1 percent) have the highest proportion of elderly population at risk of catastrophic expenditures, as these are also the countries that have among the highest rate of utilization of outpatient services. The fraction of elderly at risk of impoverishing expenditures in health is 2.2 percent for LAC using the $3.20 a day threshold. Once again there is substantial variation across countries with the levels ranging from 0.8 percent in Uruguay to 5.3 percent in Nicaragua.

Table 3.5: Catastrophic and impoverishing health expenditure risk by age and country

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Catastrophic risk				Impoverishing risk			
	10% threshold		25% threshold		$1.90 per day threshold		$3.20 per day threshold	
	60+	60+/<60	60+	60+/<60	60+	60+/<60	60+	60+/<60
Argentina	-	-	-	-	-	-	-	-
Bolivia	9.8	2.1	4.1	2.2	1.5	2.8	1.3	1.8
Brazil	25.6	2.6	10.3	2.8	1.9	1.9	2.6	1.9
Chile	-	-	-	-	-	-	-	-
Colombia	15.7	2.7	8.0	3.4	1.8	2.9	2.1	2.2
Costa Rica	17.3	2.6	4.8	2.5	0.6	1.6	1.4	3.1
Dom. Rep.	7.6	1.4	3.4	1.4	1.3	1.6	1.7	1.8
Ecuador	18.1	2.8	8.4	4.2	2.2	4.2	2.2	3.2
El Salvador	3.6	1.7	2.0	2.3	0.8	2.6	1.1	2.5
Guatemala	11.3	2.1	8.7	2.7	3.3	2.9	3.4	2.9
Honduras	-	-	-	-	-	-	-	-
Mexico	19.2	1.6	9.1	2.0	2.9	1.7	3.7	1.8
Nicaragua	21.2	3.6	14.1	4.0	4.2	4.1	5.3	4.1
Panama	17.3	2.0	8.6	2.3	2.4	2.3	2.5	2.2
Paraguay	10.7	2.7	5.0	2.9	2.0	2.7	2.1	2.5
Peru	10.0	2.1	4.1	2.4	0.9	2.1	1.2	2.1
Uruguay	18.5	1.8	4.1	1.5	0.6	0.5	0.8	0.7
LAC average (unweighted)	14.7	2.3	6.8	2.6	1.9	2.4	2.2	2.3

Notes: Country averages are weighted by survey weights, LAC average is unweighted and is computed by averaging over country averages

As discussed earlier, countries in LAC differ substantially in the types and levels of health insurance coverage available to the population. Almost all countries operate a contributory public health insurance for the formally employed, and parallelly operate separate insurance systems for police and military institutions. In most countries, there is also the option of private insurance, which is subscribed to by the richer segments of the population. For the non-formally employed population, there are generally two type of schemes available. The first is a tax-funded insurance system, such as the Integral Health Insurance (Seguro Integral de Salud, in Spanish) in Peru and Popular Insurance (Seguro Popular, in Spanish) which provide health services through a network of Ministry of Health or public facilities. In other countries such as Ecuador and Paraguay, there is no provision of insurance and health services are delivered directly by Ministries of Health and public network of facilities. In general, each insurance system within countries operates their own network of facilities, and thus access and quality differ substantially by type of insurance coverage.

To examine the role of insurance on improving access and reducing OOP expenditures across countries, I categorize the insurance schemes available to the population in each country into two categories – contributory, or non-contributory and uninsured. Before I describe the results, it is important to note that all relationships reported are correlational, and therefore should not be interpreted as causal relationships between access to insurance and health outcomes. The key issue in that of omitted variable bias. As it is well established in the literature, those who select into insurance are typically in better health, and any differences in outcomes between the insured and uninsured could reflect selection on the basis of baseline health status (Einav & Finkelstein, 2011; Newhouse, 1993). Similarly, if co-pays are present, access to insurance can also increase OOPE because of increases in care utilization (Bernal et al., 2017). For this reason, I examine the correlation between insurance status and OOP expenditures as a share of income, in addition to outpatient and inpatient care utilization.

Column 2 of Table 3.6 reports the percentage of elderly population enrolled in contributory insurance across countries. The levels of contributory insurance coverage vary across countries ranging from 0.80 percent in Guatemala and 5.79 percent in Honduras to 91.55 percent in Argentina. For the level of progress towards UHC, Chile also has low participation of the elderly into contributory insurance at 9.64 percent. Nevertheless, this is because the elderly is covered through the non-contributory part of Chile's main insurance fund, the FONASA, and have access to similar levels of coverage as those with contributory insurance in the same fund. To investigate the relationship between insurance coverage and outcomes, I estimate the following linear regression:

$$Y_{ij} = \alpha_1 + \beta_1 CI_{ij} + X_{ij}\theta_1 + \epsilon_{ij}$$

where Y_{ij} is the outcome of interest for elderly member j in country i, CI_{ij} is a binary indicator that takes the value of 1 if the elderly member is enrolled in contributory insurance, 0 otherwise. X_{ij} is a vector of individual characteristics including age, gender and a binary indicator for urban living. ϵ_{ij} is the idiosyncratic error term which is clustered at the sampling unit level. β_1 is the coefficient of interest, which represents the average difference in outcome Y_{ij} between those with contributory insurance and those without contributory insurance controlling for individual

characteristics. Of course, for β_1 to be identified, we need CI_{ij} and ϵ_{ij} to be uncorrelated. As discussed earlier, there may be several unobservables that determine enrollment into insurance and thus correlated CI_{ij}. Hence, the coefficients can only be interpreted as correlation.

Table 3.6: Insurance coverage and its impact on health care access and poverty

	(1)	(2)	(3)	(4)	(5)	(6)
				Coefficient on contributory insurance		
	Has contributory insurance (%)	Out-patient visits	Hospitalization	OOP expenditures as share of income	Catastrophic risk	Impoverishing risk
Argentina	91.55	18.16**	3.21	-	-	-
		(7.66)	(5.15)			
Bolivia	27.80	10.17***	-0.10	0.01	1.33	-0.19
		(1.52)	(0.70)	(0.01)	(0.90)	(0.44)
Brazil	26.90	4.67***	2.34***	-0.02	-0.54	-1.62***
		(0.60)	(0.43)	(0.02)	(0.52)	(0.28)
Chile	9.64	6.22***	3.48***	-	-	-
		(0.77)	(0.47)			
Colombia	69.14	8.80***	-0.63	-0.02	-0.53	-0.05
		(0.79)	(0.52)	(0.03)	(0.55)	(0.23)
Dom. Rep.	70.77	4.47***	4.69***	0.01	0.26	0.17
		(1.54)	(1.27)	(0.01)	(0.81)	(0.59)
Ecuador	20.19	2.15*	-	-0.16***	-9.90***	-2.73***
		(1.14)		(0.04)	(0.72)	(0.40)
El Salvador	15.88	-0.72	-	-0.02***	-2.00***	-1.47***
		(0.86)		(0.01)	(0.46)	(0.35)
Guatemala	0.80	-2.46	-0.73	0.15	4.42	0.10
		(7.11)	(1.59)	(2.14)	(5.00)	(3.24)
Honduras	5.79	-1.05	3.84***	-	-	-
		(2.14)	(1.32)			
Mexico	48.90	2.96***	-	-0.04***	-5.50***	-3.60***
		(0.97)		(0.02)	(0.67)	(0.45)
Nicaragua	26.69	10.44***	0.40	-0.76	-4.45***	-1.46
		(2.26)	(0.78)	(0.85)	(1.52)	(0.98)
Panama	61.23	8.53***	0.81	-0.13***	-5.63***	-1.90***
		(1.75)	(0.72)	(0.04)	(1.11)	(0.61)
Paraguay	41.90	-1.58	1.82*	-0.03***	-4.13***	-1.50**
		(2.04)	(1.04)	(0.01)	(0.98)	(0.67)
Peru	32.33	5.89***	4.82***	-0.02***	-1.60***	-1.10***
		(0.82)	(0.42)	(0.00)	(0.32)	(0.18)
Uruguay	68.28	15.74***	0.49	-0.01	-1.01	-0.52**
		(1.64)	(0.81)	(0.01)	(0.67)	(0.26)

Notes: Regressions are weighted by survey weights, robust standard errors in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

Column 2 reports the coefficient on the contributory insurance variable with the likelihood of realizing an outpatient utilization in the given recall period for the country (described in Table 3.4). The coefficient is large, positive, and statistically significant for 12 out of 16 countries. In countries such as Argentina and Uruguay, which have high coverage rate of contributory insurance, the elderly population with insurance coverage are 18.2 and 15.7 percentage points more likely to have utilized outpatient services. Therefore, in these countries, those that are not covered may be at the highest disadvantage compared to their covered counterparts. Conversely, the coefficient is smaller (but still statistically significant) in countries like Brazil and Dominican Republic (4.7 percentage points and 4.5 percentage points respectively). In these countries, the difference in access between those covered and not covered are smaller. In the remaining 4 countries, the coefficient is small and statistically insignificant. These countries are El Salvador, Honduras, Guatemala, and Paraguay, where the health system overall is generally weaker and there are smaller differences between different sub-systems.

Column 3 then reports the coefficients on hospitalization for 13 countries where data is available. Overall, the differences in hospitalization are smaller and statistically significant for 4 countries only. This make sense as hospitalizations typically correspond to acute and emergency care needs and delaying treatment may not be an option. Overall, these patterns suggest that there are substantial differences in access to outpatient care and some differences in inpatient care by insurance status. Note however that these differences only reflect differences in access and not the differences in quality that may be available to the subscribers of the different insurance schemes. Examining the differences in quality care or effective access should be an agenda for future research.

The remaining columns of Table 3.6 report average differences in OOP as a share of income, catastrophic expenditure risk and impoverishing expenditure risk for 13 out of 17 countries for which data are available. I find that the correlation is negative and statistically significant for OOP expenditures as a share of income for 6 countries. These are – Ecuador, El Salvador, Mexico, Panama, Paraguay, and Peru. In the remaining countries, the coefficients are small and statistically not significant. Since the concept of catastrophic expenditure risk and impoverishing expenditure risk builds on OOP as a share on income, and the patterns are similar for those variables. In

summary, the results suggest that the elderly population that is not covered by contributory schemes may face a greater burden of OOP expenditures.

3.5.2 Access to pensions and their impact on poverty

The earlier discussion of poverty we found that poverty incidence among the elderly varies across countries in LAC. In this section, I examine the drivers behind this heterogeneity. Since the concept of poverty is income-based, it is first useful to examine the importance of several sources of income for the elderly, since the heterogeneity in poverty is likely to relate to these. Table 3.14 in the Appendix examines the relative importance of various sources of income – labor and non-labor income. The latter includes pensions, transfers and capital or rents. As people age, labor force participation declines and labor income evidently becomes a smaller contributor of overall income. At the regional level, labor income makes up for 84 percent of all income for those between 24 and 59 years of age (92 percent for males and 75 percent for females). For the elderly population, the figure drops to 33 percent, 44 percent for males and 21 percent for females.

The drop in the labor share of income is compensated by an increase in the share of income from pensions – 31 percent for the elderly population (2 percent of the adult population in comparison).[25] The share of income from private transfers also increases, at the regional level it is 11 percent for adults compared to 30 percent for the elderly population. Table 3.14 also shows the heterogeneity in the shares of pensions and transfers income shares of the elderly population across countries. In Argentina, Brazil, and Uruguay, which arguably have stronger social protection systems for the elderly, pensions as a share of total income for the elderly population are greater than 70 percent. In other countries such as Bolivia, Dominican Republic and Honduras, the share of transfers dominates, exceeding 40 percent of total income. Finally, at all ages, females are more dependent on their family than men, and transfers are also more important for females than for males at all ages.

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[25] In all countries except Chile (53 percent to 44 percent) and Peru (20 percent to 18 percent), the fraction of the elderly receiving pensions has increased between the two reference time periods. The highest increases were in Argentina (59 percent to 75 percent), Costa Rica (36 percent to 56 percent), and Nicaragua (10 percent to 19 percent).

Figure 3.4: Labor force participation by age and gender, 2015
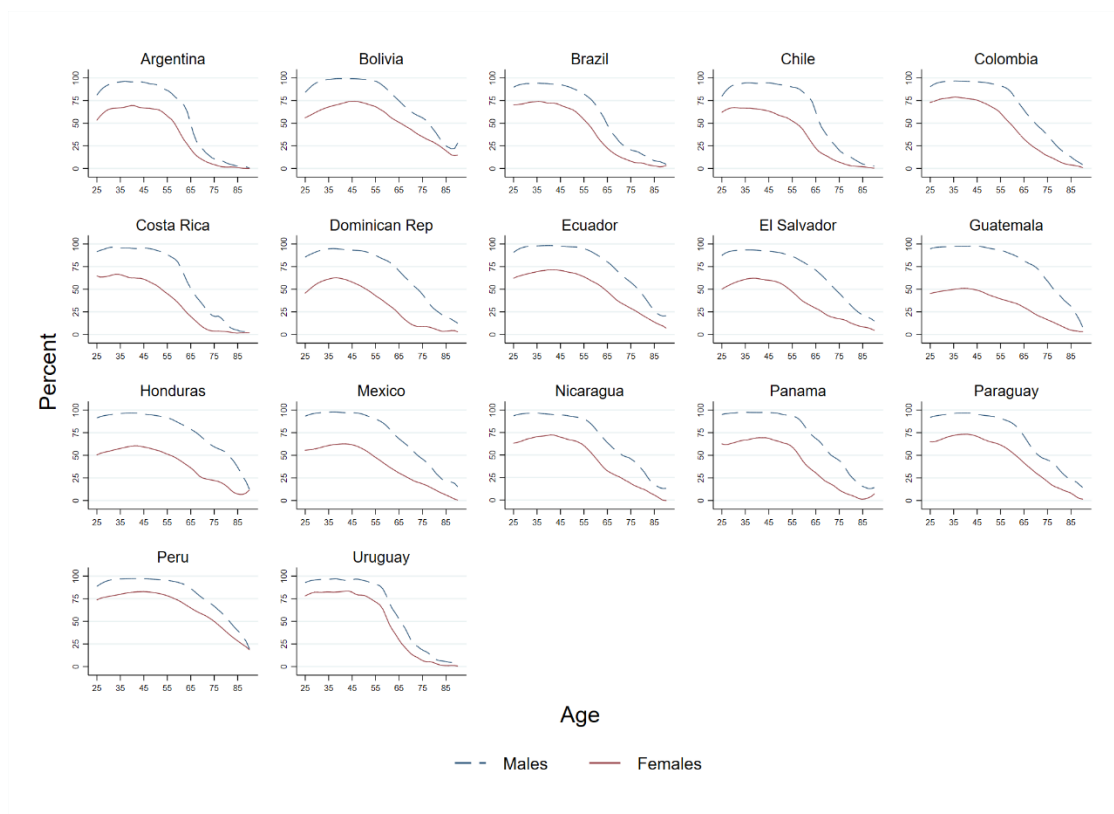
I now analyze in more detail the impact of pensions and private transfers on the incidence of poverty and labor force participation (LFP) among the elderly. While LFP declines with age, the fraction of elderly who are still working is still 38.7 percent at the regional level (25.2 percent for females and 54.4 percent for males). For males, this rate varies across countries and ranges from 36.1 percent in Uruguay to 70 percent in Guatemala. For females, the lowest LFP rate is observed in Argentina (16.9 percent) and the highest in Peru (49.1 percent). To examine the impact of pensions and private transfers on poverty, I estimate and compare poverty rates among the elderly with and without transfers. Column 1 of Table 3.7 reports the percentage of elderly who reported receiving pensions in household surveys. At the regional level, 42.6 percent of the elderly receiving pensions in 2015. The countries with the highest coverage are Bolivia (92.1 percent), Uruguay (77.7 percent) and Argentina (76.9 percent). Columns 2 and 3 then report the incidence of poverty with and without accounting for pensions income, respectively, and Column 4 reports the difference. Across all 17 countries included in the analysis, the incidence of poverty is 8.8 percent

among those who do not receive pensions but falls to 1.9 percent among the elderly population covered by pensions. In all but six countries, poverty rates of aging population who live in pension-earning households are less than 1 percent. One of the exceptions is Bolivia where the poverty rate among those receiving pensions is 8.3 percent despite near universal coverage. This is partly because of the small size of the transfer amount, but also because of high poverty levels in the country. In contrast, the poverty rate among the non-beneficiaries is 15.4 percent. In Table 3.7, Columns 5 and 6 report LFP rates of the elderly with and without pensions, and Column 7 reports the difference. At the regional level, LFP rate for pension beneficiaries is 23.3 percent which increases to 53 percent among non-beneficiaries. The differences are large and statistically significant for all countries. These results suggest that pensions play a significant role in alleviating poverty among the elderly and allowing them to retire.

Table 3.7: Poverty and LFP with and without pensions and private transfers, 2015

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
			Role of pensions							Role of private transfers				
Country	% with pension	Poverty rate			Labor force participation			% with private transfers	Poverty rate			Labor force participation		
		with pensions	without pensions	difference	with pensions	without pensions	difference		with transfers	without transfers	difference	with transfers	without transfers	difference
Argentina	76.9	0.1	1.9	-1.9***	12.1	70.7	-58.6***	3.6	0.8	0.5	0.3	15.6	26.0	-10.4***
Bolivia	92.1	8.3	15.4	-7.1***	56.1	79.9	-23.7***	17.1	7.4	9.1	-1.7	60.6	57.5	3.1
Brazil	75.8	0.3	3.9	-3.6***	20.0	47.4	-27.4***	1.9	9.3	1.0	8.3***	32.3	26.5	5.8***
Chile	73.0	0.3	1.8	-1.5***	18.5	59.9	-41.4***	36.2	0.4	0.8	-0.4***	20.9	34.7	-13.8***
Colombia	24.9	0.2	11.1	-10.9***	21.9	44.6	-22.7***	17.4	10.3	8.0	2.3***	28.0	41.2	-13.3***
Costa Rica	54.8	0.2	2.5	-2.4***	12.6	42.1	-29.5***	15.8	2.0	1.1	0.9**	18.9	27.3	-8.4***
Dominican Rep.	13.6	0.8	4.6	-3.8***	9.1	37.2	-28.1***	54.3	5.0	2.9	2.0***	21.8	47.2	-25.4***
Ecuador	21.3	0.2	6.2	-6.0***	22.7	54.4	-31.6***	41.0	5.2	4.8	0.5	41.5	51.9	-10.4***
El Salvador	12.1	1.0	7.7	-6.8***	18.6	40.0	-21.4***	33.0	5.7	7.5	-1.8***	25.8	43.2	-17.4***
Guatemala	11.8	5.9	19.4	-13.5***	24.2	49.9	-25.7***	35.0	14.3	19.6	-5.3***	46.2	47.2	-1.0
Honduras	11.4	5.2	32.1	-26.9***	24.5	50.6	-26.2***	41.2	27.6	30.1	-2.5	36.2	55.7	-19.4***
Mexico	24.7	0.9	10.2	-9.3***	19.7	44.2	-24.4***	40.2	8.4	7.6	0.8	30.8	43.1	-12.3***
Nicaragua	18.9	1.6	14.0	-12.4***	26.8	44.0	-17.3***	51.1	11.6	11.7	-0.1	47.8	33.4	14.4***
Panama	66.0	0.7	5.7	-5.0***	23.5	54.4	-30.9***	19.0	3.0	2.3	0.7	26.2	35.8	-9.6***
Paraguay	34.0	1.6	5.0	-3.4***	25.2	53.8	-28.6***	31.3	5.5	3.1	2.4***	43.6	44.3	-0.7
Peru	36.4	5.1	8.5	-3.5***	46.7	65.1	-18.4***	18.4	7.4	7.2	0.2	52.5	59.7	-7.2***
Uruguay	77.7	0.0	0.3	-0.2***	14.0	63.7	-49.7***	11.0	0.2	0.1	0.2***	22.9	25.4	-2.5***
LAC average (unweighted)	42.6	1.9	8.8	-6.9	23.3	53.0	-29.7	27.5	7.3	6.9	0.4	33.6	41.2	-7.6

Notes: Country averages are weighted by survey weights, LAC average is the unweighted average of country means. *** Significant at 10%, ** Significant at 5%, * Significant at 10%.

3.5.3 The role of private transfers

The remaining columns of Table 3.7 similarly examine the impact of private transfers on the incidence of poverty and LFP among the elderly. Across the region, 27.5 percent of the elderly received private transfers, with substantial variation across countries. In the Central American countries of Guatemala, El Salvador, Honduras, and Nicaragua, which also have low coverage of pensions, over 40 percent of the elderly reported receiving private transfers. Relative to pensions, the impacts of private transfers are much smaller. The incidence of poverty with and without transfers is similar – 7.3 percent and 6.9 percent, respectively. In only three countries, private transfers are positively correlated with reduced poverty. In five countries, poverty rates are significantly higher for those receiving transfers than those who do not. These patterns suggest that private transfers may be targeted towards the poorer elderly population that is not covered by pensions. Figure 3.5 shows a scatter plot of the share of elderly receiving private transfers for each country against the share of elderly receiving pensions. There is a strong negative correlation between the two variables suggesting that in countries with lower coverage of pensions, private transfers may be filling in the gap.

Figure 3.5: Complementarities between pensions and transfers, 2015

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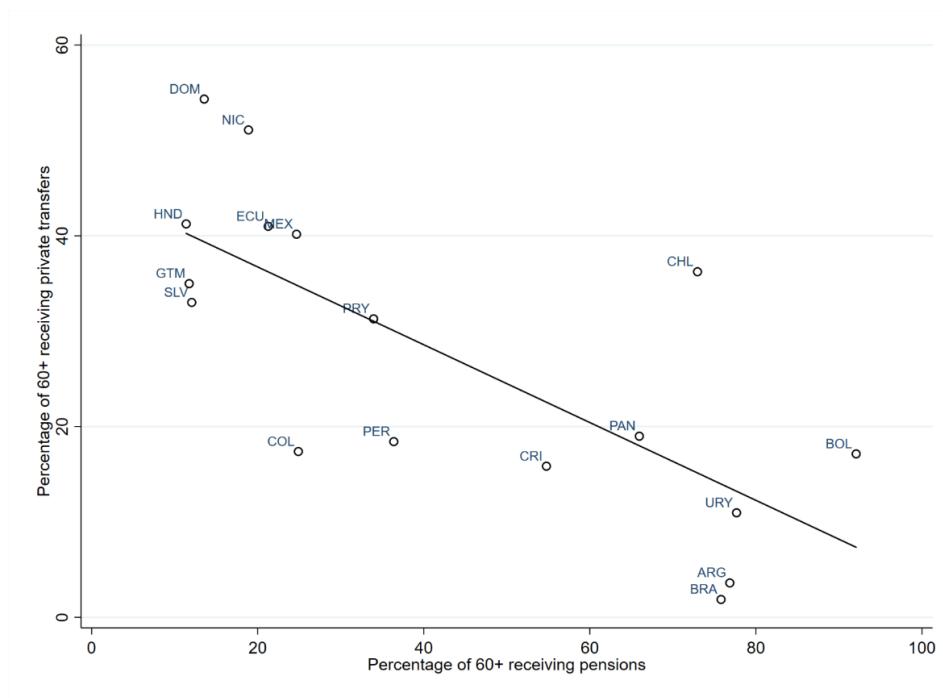
3.6 Living arrangements of the elderly

The final section of this chapter examines the living arrangements of the elderly. Cross-national comparisons of older people's living arrangements reveal substantial differences across countries. One major difference is that older people in more developed countries tend to live on their own (alone or with their spouse), while in less developed countries, living children or with extended family is the norm. The elderly population also relies heavily on family members for their well-being and survival (Bongarts & Zimmer, 2002; Kinsella & He, 2009; Zeng & George, 2000). The living arrangements of the elderly can have a profound impact on well-being and economic behavior. They have been shown to affect life satisfaction, health status, and health care seeking behavior. The choice of living arrangements also depends on individual characteristics including marital status, availability of family, personal wealth and income, health status and preferences. The availability of resources is also a key determinant of this choice (Cotlear & Tornarolli, 2011; Kinsella & He, 2009). In this section, I examine the determinants of the living arrangements of the elderly, focusing on the availability of children, age, gender, income, and access to pensions and transfers.

In more developed countries, the incidence of multigenerational household is on the decline. In LAC, most of the elderly continue to live in multigenerational households, but patterns suggest that there is a trend towards living on their own (Figure 3.6). The fraction of elderly living alone in 2015 is lowest in countries with smallest shares of elderly population – Guatemala (28 percent), Honduras (23 percent), Nicaragua (21 percent). At the other extreme, in older societies, more than half the elderly live alone – Uruguay (67 percent), Argentina (53 percent) and Brazil (53 percent). Notably, older societies, by definition, have a smaller share of population in younger ages, so part of the variation on living choices of elderly could reflect variation in the availability of children to live with. To explore this dimension, in Figure 3.7, I plot the availability of adult population (defined as the ratio of population between 15-59 years and population 60 years or older) and the percentage of elderly living on their own. As expected, the likelihood of living alone increases drastically with the decline in the population ratio of the adults and the elderly. The tendency to live alone also varies by gender. Around 60 years of age, there are no significant differences between men and women, but around 80 years of age, women are less likely to live on their own

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relative to men. This difference is partly due to longevity – women tend to survive their spouses and rejoin the extended family after becoming widows.

Figure 3.6: Percentage of elderly living alone or with a spouse
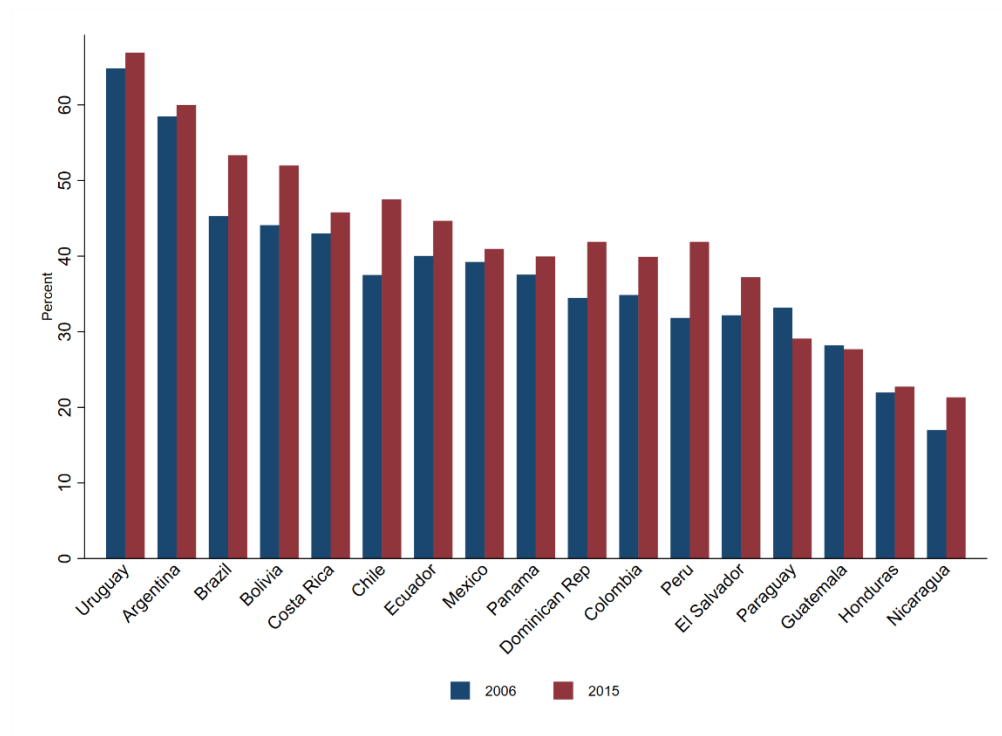
Figure 3.7: Percentage of elderly living on their own and the national availability of children, 2015
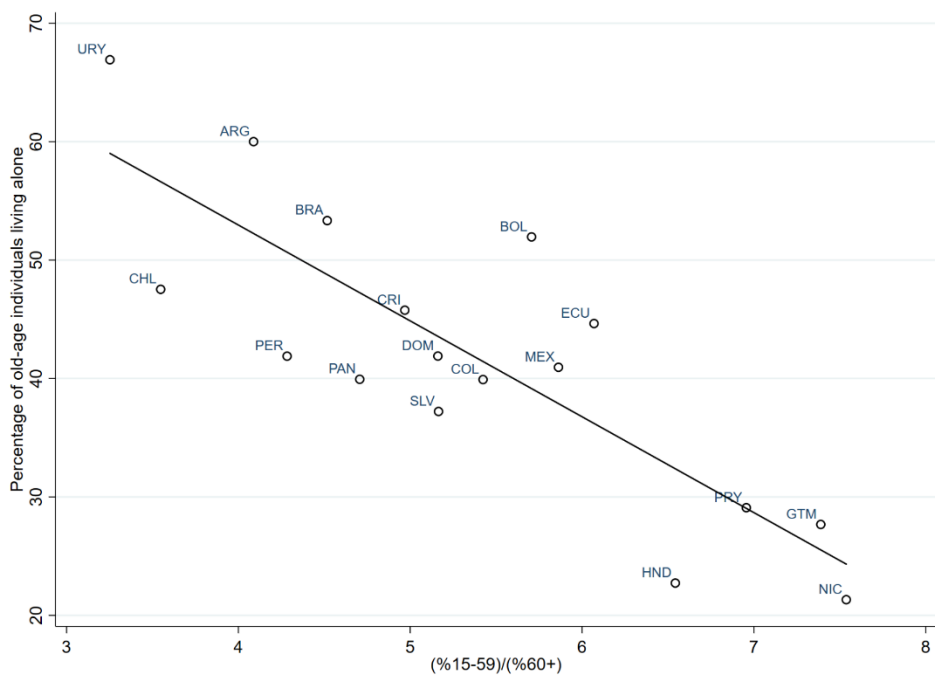
Turning towards the income and wealth dimension, if these factors were to influence the decision of the elderly to live on their own, we would expect personal incomes among those living alone to be higher than that of those who live with their families. This would also suggest that the elderly may prefer to live alone if they had sufficient incomes to do so. In Table 3.8, I report the individual and household per capita incomes of the elderly by living arrangements. In all countries, household per capita income is substantially higher for the elderly living on their own in comparison to those who co-reside with their families. At the regional level, the difference is 31 percent, and the figure varies between 4.4 percent in Peru to 51 percent in Nicaragua. Differences are similar when using individual income. These patterns suggest that more elderly could live on their own if they had the means to do so.

Table 3.8: Average income of the aging, 2015

	(1)	(2)	(3)	(4)	(5)	(6)
	Individual income			Household per capita income		
Country	Co-reside	Living alone	Differential (%)	Co-reside	Living alone	Differential (%)
Argentina	659.7	747.6	11.8***	651.5	1,023.4	36.3***
Bolivia	537.0	453.4	-18.4	484.6	554.8	12.7
Brazil	742.8	806.9	7.9***	669.1	988.5	32.3***
Chile	603.4	660.5	8.6***	614.2	888.5	30.9***
Colombia	506.9	642.8	21.1***	516.0	756.7	31.8***
Costa Rica	691.8	847.6	18.4***	733.7	1,097.5	33.2***
Dominican Rep.	438.5	524.0	16.3***	414.1	603.3	31.4***
Ecuador	475.8	494.2	3.7	497.3	706.1	29.6
El Salvador	324.6	437.7	25.9***	333.8	517.2	35.5***
Guatemala	307.1	346.7	11.4	305.3	475.7	35.8
Honduras	285.9	317.2	9.9	262.6	402.8	34.8
Mexico	356.4	498.9	28.6***	352.2	598.8	41.2***
Nicaragua	399.7	556.5	28.2***	334.2	682.6	51.0***
Panama	761.1	823.0	7.5	793.9	1,077.8	26.3
Paraguay	591.1	604.1	2.1	574.7	747.4	23.1
Peru	472.9	403.1	-17.3	466.2	487.7	4.4
Uruguay	900.7	1,023.5	12.0***	811.8	1,271.4	36.2***
LAC average (unweighted)	532.7	599.3		518.5	757.7	

Notes: Values are in 2011 PPP dollars. Country averages are weighted by survey weights, LAC average is the unweighted average of country means. *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

In countries with well-established pension and social security programs, there is evidence that many older adults provide support to their adult children and grandchildren. This support may include financial help, shelter, and care for spouses, older parents, and grandchildren. In Europe and the United States, older parents are more likely to provide time, money, and shelter to their children than to receive such transfers (Danielsbacka et al., 2019; Duflo, 2003; National Institute of Aging, 2009). In developing countries, it is less obvious if the elderly are net contributors to household income. The data available in the household surveys are not suitable for this analysis as they do not have information on unpaid work (or time-use), and they do not have sufficient information about how income is shared within the household. However, among the elderly that co-reside, a comparison of the individual income and household per capita incomes points to evidence that the elderly are net contributors. Comparing Column 1 and 4 of Table 3.8, in 15 countries, the individual income of the elderly is on average greater than their household income.

Assuming income is shared equally across all members of the household, the elderly appears to be making net transfers to the other generations with whom they reside.

Finally, I present econometric results to confirm the descriptive results discussed above. To do this, I estimate the following probit regression for each country separately:

$$Living\ Alone_i = \alpha + \beta_1 Income_i + \beta_2 Poverty_j + \beta_3 Pension_i + \beta_4 Transfers_1$$
$$+\ \beta_5 Female + \beta_6 Age + \beta_7 Age\ Squared + \beta_8 Urban + \epsilon_i$$

where the outcome variable is an indicator of whether the elderly person lives on their own (alone or with a spouse). Poverty is dummy variable that takes a value of 1 if the person is in poverty. Pension and Transfers are also dummy variables which take the value of 1 if the person received these transfers. Finally, the Urban variable is also a dummy variable that takes the value of 1 if the elderly person lives in an urban area. Income is measured in thousands of PPP dollars.

Table 3.9: Probability of the elderly living on their own, 2015

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	Probability of living alone (1=yes)																
	Argentina	Bolivia	Brazil	Chile	Colombia	Costa Rica	Dominican Rep	Ecuador	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay
Individual income	0.07***	0.00	0.01***	0.02***	0.03***	0.03***	0.04***	0.02***	0.02**	0.01	-0.00	0.04***	0.01	0.01**	0.01	-0.01	0.02***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Is poor (1=yes)	0.01	-0.15***	-0.18***	-0.28***	-0.02**	-0.21***	-0.24***	-0.21***	-0.24***	-0.09***	-0.08***	-0.15***	-0.20***	-0.28***	-0.26***	-0.12***	-0.21**
	(0.05)	(0.03)	(0.02)	(0.03)	(0.01)	(0.07)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.05)	(0.05)	(0.01)	(0.10)
Receives pension (1=yes)	0.07***	-0.00	0.04***	0.05***	0.06***	0.06***	0.05*	0.10***	0.05***	0.12***	0.06**	0.09***	0.04**	0.04**	-0.01	0.09***	0.05***
	(0.01)	(0.03)	(0.01)	(0.01)	(0.00)	(0.02)	(0.03)	(0.01)	(0.02)	(0.02)	(0.03)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Private tranfers (1=yes)	0.18***	0.20***	0.09***	0.03***	0.19***	0.26***	0.14***	0.13***	0.15***	0.13***	0.13***	0.13***	0.11***	0.12***	0.09***	0.11***	0.11***
	(0.02)	(0.02)	(0.00)	(0.00)	(0.00)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Is female (1=yes)	-0.07***	-0.03	-0.04***	-0.05***	-0.01**	-0.08***	-0.01	-0.04***	0.02	-0.04***	-0.02	-0.03***	-0.04***	0.02	-0.03*	-0.05***	-0.05***
	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Age	0.08***	0.09***	0.06***	0.07***	0.04***	0.06***	0.03**	0.05***	0.03***	0.07***	0.00	0.06***	0.01	0.07***	0.05***	0.09***	0.09***
	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age squared	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00**	-0.00***	-0.00***	-0.00***	-0.00	-0.00***	-0.00	-0.00***	-0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
In urban area (1=yes)		-0.20***	-0.01**	-0.06***	-0.13***	-0.10***	-0.02	-0.04***	-0.00	0.04***	-0.04**	-0.04***	-0.05**	-0.07***	-0.07***	-0.22***	-0.04***
		(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Number of observations	18,564	3,438	48,375	49,030	96,623	4,779	3,320	12,141	10,131	4,218	2,317	7,414	2,416	5,555	3,583	16,144	25,432

Notes: Probit marginal effects reported. Individual income is in thousands of PPP dollars. Observations are weighted by survey weight, robust standard errors are in parenthesis. *** Significant at 1%, ** Significant at 5%, * Significant at 1%

Table 3.9 reports the marginal effects obtained from the probit regression for each country. For the age variable, the signs are as expected in all countries, and the probability of living alone increased with age. The coefficient on age squared is negative confirming the tendency to move back with family at older ages. The coefficients on the age variable are statistically significant in 15 out the 17 countries. The probability of the elderly living on their own is also lower in urban areas, and the result is statistically significant in 11 out of the 16 countries for which data are available. Worldwide, men are more likely than women to live on their own and this pattern also holds for LAC – the female dummy has a positive sign in all countries, and it is significant in 13 of the 18 countries.

Income is also positively correlated with the likelihood of the elderly living on their own. The coefficient of income is positive in most countries (except Honduras and Peru, but not significant) and is statistically significant for 11 countries. The coefficient on the binary indicator of poverty is negative and statistically significant in 13 countries. Finally, the coefficients on the binary indicators of pensions and private transfers are almost always positive and statistically significant suggesting that the elderly are more likely to live on their own when they receive pensions or private transfers.

3.7 Conclusions, policy implications and avenues for future research

Due to the rapid aging process, countries in the Latin America and the Caribbean region are facing new pressures to meet the health care and social protection needs of the elderly. On one hand, health and social protection systems are obsolete, fragmented, and segmented, thereby creating poor quality of access and inequality in access to health services. On the other hand, due to recent economic slowdowns, countries have limited resources to undertake reforms to improve the quality of coverage to the population. These factors have created an urgency for LAC countries to undertake reforms to improve coverage of health and social protection services to improve the well-being of the elderly population.

The results and analysis of this chapter aim to contribute to this reform agenda. In this chapter, I undertook an extensive exercise to standardize and harmonize 44 survey datasets from 17 countries

in LAC and examined patterns in poverty, health care utilization, and the incidence and role of pensions and transfers for the elderly population vis-à-vis the non-elderly population. The results should help policymakers and governments understand better the living conditions and the well-being of the elderly population in their own countries and make case for reforms. In developing the analysis, the chapter also contributes to public goods in research in the form of code and algorithms for survey data harmonization. Most households' survey data used in the chapter are implemented regularly, and thus the code and algorithms can be utilized again for researchers undertaking similar exercise in the future.

This chapter also points to several areas when more research is required in the future. First, my analysis looks at the breadth of issues form a policy point of view, and as such can establish correlations between well-being and health care access, pensions, and private transfers. There exist several research papers from developed countries that examine the impacts of health insurance, social protection policies and social security on poverty and well-being (Engelhardt & Gruber, 2004; Newhouse, 1993). From Latin America as well, there is increasing evidence on the role of health insurance and social protection on pensions (Bando et al., 2020; Bernal et al., 2017; Celhay et al., 2019; Thornton et al., 2010). These studies are more prevalent for higher income countries such as Argentina, Chile, and Peru than for lower income countries such as El Salvador and Honduras. The studies in health also tend to focus on overall population, rather than the elderly, who as we saw are the largest user base of the health systems. In the future, more research estimating causal impacts of social policies on the well-being of the elderly could help shape public policy debates and advance the research agenda.

Finally, measurement is another critical area where more research is required in the future. On the health side, we observed that due to differences in survey methodology and recalls period used, it is not easy to construct accurate estimates of utilization and expenditures for cross-country comparisons. Expenditures data can come from difference avenues (health utilization or household expenditures) and from different levels (individual versus household), which makes it difficult to estimate the burden the OOPE on the elderly accurately. Similarly, while survey data make it easy to comment on health care access, little is known about the quality of care available to the elderly population. On the social protection side, because of limitations in the data that are collected in

household surveys, it is not possible to examine precisely if the elderly are net contributors to the household or not. Resolving these measurement issues in the future is another potentially fruitful area of research.

3.8 Appendix: Additional tables and results

Table 3.10: Description of household surveys used in the analysis

Country	Name of survey	Acronym	Year	Field work	Coverage	Households	Individuals
Argentina	Encuesta Permanente de Hogares-Continua	EPH-C	2006	Second half	Urban-31 cities	37,521	129,410
	Encuesta Permanente de Hogares-Continua	EPH-C	2015	Second half	Urban-31 cities	37,618	120,173
Bolivia	Encuesta de Hogares - MECOVI	EH	2006	November	National	3,962	15,959
	Encuesta de Hogares - MECOVI	EH	2015	November	National	10,060	36,905
Brazil	Pesquisa Nacional por Amostra de Domicilios	PNAD	2006	September	National	116,986	404,589
	Pesquisa Nacional por Amostra de Domicilios	PNAD	2015	September	National	116,478	352,248
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	2006	November	National	72,515	263,910
	Encuesta de Caracterización Socioeconómica Nacional	CASEN	2015	November	National	83,743	266,428
Colombia	Gran Encuesta Integrada de Hogares	GEIH	2008	III quarter	National	220,136	816,298
	Gran Encuesta Integrada de Hogares	GEIH	2015	III quarter	National	230,728	781,558
Costa Rica	Encuesta de Hogares de Propósitos Múltiples	EHPM	2006	July	National	11,130	41,594
	Encuesta Nacional de Hogares	ENAHO	2015	July	National	11,268	37,163
Dominican Rep.	Encuesta Nacional de Fuerza de Trabajo	ENFT	2006	October	National	7,665	28,655
	Encuesta Nacional de Fuerza de Trabajo	ENFT	2015	October	National	7,987	26,730
Ecuador	Encuesta de Empleo, Desempleo y Subempleo	ENEMDU	2007	December	National	18,685	75,878
	Encuesta de Empleo, Desempleo y Subempleo	ENEMDU	2015	December	National	29,919	112,423
El Salvador	Encuesta de Hogares de Propósitos Múltiples	EHPM	2006	Jan-Dec	National	16,350	68,312
	Encuesta de Hogares de Propósitos Múltiples	EHPM	2015	Jan-Dec	National	23,670	88,184
Guatemala	Encuesta Nacional de Condiciones de Vida	ENCOVI	2006	Mar/Sep	National	13,686	68,739
	Encuesta Nacional de Condiciones de Vida	ENCOVI	2014	Mar/Aug	National	11,512	54,707
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	EPHPM	2006	May	National	20,453	96,524
	Encuesta Permanente de Hogares de Propósitos Múltiples	EPHPM	2015	May	National	5,968	26,458
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	2006	Aug/Nov	National	20,532	82,237
	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	2014	Aug/Nov	National	19,191	72,550
Nicaragua	Encuesta Nacional de Hogares sobre Medición de Nivel de Vida	EMNV	2005	Jul/Oct	National	6,862	36,521
	Encuesta Nacional de Hogares sobre Medición de Nivel de Vida	EMNV	2014	Jul/Oct	National	6,777	29,090
Panama	Encuesta de Hogares	EH	2006	August	National	12,865	48,762
	Encuesta de Hogares	EH	2015	September	National	11,705	42,396
Paraguay	Encuesta Permanente de Hogares	EPH	2006	Nov06/Feb07	National	5,292	22,733
	Encuesta Permanente de Hogares	EPH	2015	Oct/Dec	National	8,207	30,829
Peru	Encuesta Nacional de Hogares	ENAHO	2006	Jan/Dec	National	20,541	88,654
	Encuesta Nacional de Hogares	ENAHO	2015	Jan/Dec	National	32,182	119,489
Uruguay	Encuesta Continua de Hogares	ECH	2006	Year	National	85,313	256,861
	Encuesta Continua de Hogares	ECH	2015	Year	National	45,391	121,461

Source: SEDLAC, 2018.

Table 3.11: List of surveys used for analysis of health care utilization and out-of-pocket expenditures

S.No.	Country	Survey Name	Survey ID	SEDLAC?	Year	Level	Sample size	Out-patient visits			In-patient visits		Out-of-pocket (OOP) expenditures		Insurance
								Need	Utilization	Recall period (in months)	Hospitalization	Recall period (in months)	Available	Level	
1	Argentina	Encuesta Nacional de Utilizacion y Gasto en Servicios de Salud	ENUG	No	2010	National	3,128	No	Yes	1	Yes	12	Yes	Individual	Yes
2	Bolivia	Encuesta de Hogares	EH	Yes	2015	National	37,364	No	Yes	12/0.5 for kids	Yes*	12	Yes	Household	Yes
3a	Brazil	Pesquisa Nacional de Saude	PNS	No	2013	National	205,546	Yes	Yes	0.5	Yes	12	No	-	Yes
3b	Brazil	Pesquisa de Orçamentos Familiares	POF	No	2008	National	190,159	No	No	-	Yes*	12	Yes	Individual	Yes
4	Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	Yes	2015	National	266,968	Yes	Yes	3	Yes	12	No	-	Yes
5	Colombia	Encuesta Multiproposito	EM	No	2014	Cudinamarca	142,570	Yes	Yes	1	Yes	12	Yes	Individual	Yes
6	Costa Rica	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	No	2013	National	19,301	No	No	-	Yes†	12	Yes	Household	No
7	Dominican Republic	Encuesta Demográfica y de Salud	ENDESA-DHS	No	2013	National	20,769	Yes	Yes	1	Yes	6	Yes	Individual	Yes
8	Ecuador	Encuesta Condiciones de Vida	ECV	No	2013	National	109,694	Yes	Yes	1/0.5 for kids	No	-	Yes	Household	Yes
9	El Salvador	Encuesta de Hogares de Propositos Multiples	EHPM	Yes	2014	National	80,164	Yes	Yes	1	Yes	1	Yes	Individual	Yes
10	Guatemala	Encuesta Nacional de Condiciones de Vida	ENCOVI	Yes	2014	National	54,822	Yes	Yes	1	Yes	1	Yes	Individual	Yes
11	Honduras	Encuesta Demográfica y de Salud	ENDESA-DHS	No	2012	National	100,555	Yes	Yes	1	Yes	12	Yes	Individual	Yes
12	Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	Yes	2014	National	73,592	Yes	Yes	From dates‡	Yes*	From dates‡	Yes	Household	Yes
13	Nicaragua	Encuesta Nacional de Hogares sobre Medicion de Nivel de Vida	EMNV	Yes	2014	National	29,443	Yes	Yes	1	Yes	1	Yes	Individual	Yes
14	Panama	Encuesta de Niveles de Vida	ENV	No	2008	National	27,162	Yes	Yes	1	Yes	1	Yes	Individual	Yes
15	Paraguay	Encuesta Permanente de Hogares	EPH	Yes	2014	National	20,272	Yes	Yes	3	Yes	3	Yes	Individual	Yes
16	Peru	Encuesta Nacional de Hogares	ENAHO	Yes	2015	National	119,515	Yes	Yes	1	Yes	12	Yes	Individual	Yes
17	Uruguay	Encuesta Nacional de Gastos e Ingresos de los Hogares	ENGIH	No	2006	National	20,772	No	Yes	3	Yes	3	Yes	Household	No

Notes: † Data are available for Caja Costarricense de Seguridad Social (CCSS) beneficiaries only. ‡ In the ENIGH in Mexico, respondents are asked to report the last date of out- and in-patient visits. We use this along with the date of survey to estimate need, utilization and hospitalization in the given recall period. * Instead of directly asking respondents if they were hospitalized in the past 12 months, these surveys instead ask to report expenditures due to hospitalization in the past 12 months. This could lead to underestimation of hospitalization episodes if respondents did not pay anything, (for example, they are fully covered by insurance). For Brazil, we use multiple surveys. The PNS contains utilization variables but not OOP. Here we use the POF for OOP expenditures. Similarly, in Colombia, the nationally representative survey ECV contains utilization variables but not OOP expenditures. Here we use the EM, however this is representative for Cudinamarca only.

Table 3.12: Components of incomes and OOPE variables

Country	Level	Source/Survey Module	Recall for out-patient (months)	Recall for in-patient (months)	Consul-tation	Meds and supplies	Exams	Hospitali-zation	Level	Labor	Pensions	Transfers	Other (rents/capital etc.)
			Out-of-pocket expenditures						Income variables				
Argentina	Ind	Health	1	12	x	x	x	x	Ind	x	-	-	-
Bolivia	Ind	Health	12	12	x	x	x	x	Ind	x	x	x	x
Brazil	Ind	Expenditure	3	3	x	x	x	x	Ind	x	x	x	x
Chile	N/A	-	-	-	-	-	-	-	Ind	x	x	x	x
Colombia	Ind	Health	1	12	x	x	x	x	Ind	x	x	x	x
Costa Rica	HH	Expenditure	1	1	x	x	x	x	Com	x	x	x	x
Dom. Rep.	Ind	Health	1	6	x	x	x	x	Ind	x	x	x	x
Ecuador	HH	Expenditure	3	3	x	x	x	x	Com	x	x	x	x
El Salvador	Ind	Health	1	1	x	x	x	x	Ind	x	x	x	x
Guatemala	Ind	Health	1	1	x	x	x	x	Ind	x	x	x	x
Honduras	Ind	Health	1	12	x	x	x	x	N/A	-	-	-	-
Mexico	HH	Expenditure	1	1	x	x		x	HH	x	x	x	x
Nicaragua	Ind	Health	1	1	x	x	x	x	Ind	x	x	x	x
Panama	Ind	Health	1	1	x	x	x	x	Com	x	x	x	x
Paraguay	Ind	Health	3	3	x	x	x	x	Ind	x	x	x	x
Peru	Ind	Health	1	12	x	x	x	x	Ind	x	x	x	x
Uruguay	HH	Expenditure	1	1	x	x	x	x	Ind	x	x	x	x

Table 3.13: Categorization of contributory and non-contributory insurance across countries

Country	Level	Insurance type	
		Contributory	Non-contributory/uninsured
Argentina	Individual	PAMI, Obra social, Prepago atraves de OS, Programas/planes estatales de salud, Prepaga por contraraction voluntaria y emergencia medica	Uninsured
Bolivia	Individual	Caja nacional de salud, Caja de la banca privada, Banca estatal, COSSMIL, Seguros privados	Seguro universitario, Seguros de salud del gobierno autonomo departamental o municipal, Prestaciones de servicios de salud integral, Uninsured
Brazil	Household	Empresa de orgao publico, Municipal, Estadual, Militar, Private	Sistema unico de saude (SUS), Uninsured
Chile	Individual	FF.AA. Y del Orden, ISAPRE	Sistema Publico FONASA (all groups), Uninsured
Colombia	Individual	Contributivo, Fuerzas armadas, Ecopetrol, universidades publicas, Magisterio	Subsidiado (ARS, EPS-S), Uninsured
Costa Rica	Not available		
Dom. Rep.	Not available		
Ecuador	Individual	IESS general, IESS voluntario, Seguro privado, Seguro ISSFA o ISSPOL	IESS campesino, Seguro comunitario, Uninsured
El Salvador	Individual	ISSS cotizante, ISSS beneficiario, ISSS retirado, privado	Bienestar magisterial, IPSFA, Colectivo, Uninsured
Guatemala	Individual	Seguro privado	IGSS, Uninsured
Honduras	Individual	Seguro privado, Seguro IHSS, Seguro militar	Uninsured
Mexico	Individual	Seguridad social, Seguro privado	Seguro popular, Uninsured
Nicaragua	Individual	Seguro privado, Seguro social y privado, Seguro militar, Seguro social INSS	Uninsured
Panama	Individual	Seguro privado de salud, Caja de seguro social	Uninsured
Paraguay	Individual	Seguro privado individual, Seguro privado laboral, Seguro privado familiar, Sanidad militar, Sanidad policial, IPS	Uninsured
Peru	Individual	EsSalud, Seguro privado de salud, Entidad prestadora de salud, Seguro de FF.AA./Policiales	Seguro integral de salud, Seguro universitario, Seguro escolar privado
Uruguay	Not available		

Table 3.14: Sources of income by age and gender, 2015

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Both sexes		60+				24-59		
Country	Labor		Non-labor		Labor		Non-labor	
		Total	Pension	Transfer		Total	Pension	Transfer
Argentina	21.0	79.0	76.3	1.5	86.2	13.8	4.9	8.4
Bolivia	31.7	68.3	58.0	5.7	90.6	9.4	0.0	7.4
Brazil	16.5	83.5	77.4	1.2	81.6	18.4	7.7	7.9
Chile	24.0	76.2	68.1	5.2	82.3	17.9	4.0	12.3
Colombia	34.4	65.8	26.7	14.3	83.3	16.8	1.5	5.6
Costa Rica	23.0	77.0	58.9	11.9	86.7	13.3	3.1	7.7
Dominican Rep.	33.0	67.0	13.1	49.2	79.5	20.5	1.0	17.4
Ecuador	38.2	61.8	21.5	37.0	84.0	16.0	2.1	12.9
El Salvador	43.8	56.3	12.8	33.7	84.5	15.5	0.7	11.7
Guatemala	50.8	49.3	12.8	33.2	79.5	20.5	0.7	19.1
Honduras	46.5	53.7	8.9	40.0	80.7	19.4	0.3	17.9
Mexico	33.1	66.9	25.6	38.5	84.8	15.2	2.1	12.0
Nicaragua	42.3	57.7	17.5	37.8	85.1	14.9	1.2	13.1
Panama	25.5	74.7	62.5	10.6	87.9	12.2	1.8	8.2
Paraguay	39.2	60.9	33.9	20.3	86.3	13.7	0.6	10.9
Peru	40.1	60.2	27.3	9.3	80.3	19.9	0.6	9.4
Uruguay	18.5	81.5	73.9	3.7	82.8	17.2	4.7	9.9
LAC average (unweighted)	33.0	67.1	39.7	20.8	83.9	16.2	2.2	11.3
Males		60+				24-59		
Country	Labor		Non-labor		Labor		Non-labor	
		Total	Pension	Transfer		Total	Pension	Transfer
Argentina	32.5	67.5	64.6	1.2	95.0	5.0	3.0	1.6
Bolivia	44.2	55.8	47.8	4.5	96.6	3.4	0.0	1.9
Brazil	24.3	75.7	70.7	0.6	91.7	8.4	4.9	1.1
Chile	36.1	64.1	58.1	3.4	92.4	7.8	3.4	3.2
Colombia	46.1	54.2	27.4	7.6	93.3	6.8	1.2	1.5
Costa Rica	31.2	68.8	54.8	8.6	94.0	6.0	2.3	1.8
Dominican Rep.	49.6	50.4	15.8	29.5	91.4	8.6	1.2	5.3
Ecuador	51.0	49.0	22.9	22.8	93.7	6.3	0.8	4.6
El Salvador	56.3	43.7	13.0	20.1	92.4	7.6	0.4	3.2
Guatemala	63.7	36.4	12.0	21.5	94.4	5.6	0.6	4.4
Honduras	66.1	34.0	9.0	21.5	95.2	4.8	0.2	4.0
Mexico	45.7	54.3	30.6	21.3	95.8	4.2	1.5	1.9
Nicaragua	52.7	47.3	17.4	27.5	88.4	11.6	1.0	10.0
Panama	36.5	63.5	57.3	4.3	93.9	6.1	1.4	2.3
Paraguay	50.0	50.0	28.4	15.3	93.4	6.6	0.5	3.9
Peru	47.1	53.2	24.5	3.7	87.1	13.1	0.5	1.1
Uruguay	26.0	74.0	66.7	2.6	89.9	10.1	4.0	3.9
LAC average (unweighted)	44.7	55.4	36.5	12.7	92.9	7.2	1.6	3.3

Females	60+				24-59			
		Non-labor				Non-labor		
Country	Labor	Total	Pension	Transfer	Labor	Total	Pension	Transfer
Argentina	12.7	87.3	84.8	1.7	76.1	23.9	7.1	16.3
Bolivia	20.2	79.8	67.5	6.7	82.0	18.1	0.0	15.3
Brazil	9.7	90.4	83.2	1.7	70.7	29.3	10.7	15.2
Chile	14.3	86.0	76.3	6.7	72.1	28.2	4.6	21.5
Colombia	22.5	77.7	26.1	21.1	72.0	28.1	1.9	10.2
Costa Rica	13.6	86.4	63.6	15.7	77.3	22.7	4.2	15.3
Dominican Rep.	15.4	84.6	10.2	70.2	65.7	34.3	0.7	31.3
Ecuador	23.8	76.3	20.0	53.0	71.5	28.6	3.7	23.5
El Salvador	30.6	69.5	12.7	47.9	76.1	24.0	1.0	20.8
Guatemala	32.3	67.9	14.0	50.2	61.0	39.1	0.8	37.5
Honduras	26.2	74.0	8.8	59.2	64.5	35.8	0.4	33.7
Mexico	19.8	80.2	20.2	56.6	71.2	28.8	2.8	24.5
Nicaragua	27.9	72.1	17.7	51.9	80.8	19.2	1.3	17.2
Panama	13.9	86.6	67.9	17.3	80.7	19.6	2.3	15.4
Paraguay	26.6	73.6	40.4	26.1	77.5	22.7	0.8	19.8
Peru	32.4	68.0	30.5	15.5	72.7	27.6	0.7	18.8
Uruguay	12.5	87.5	79.6	4.6	75.3	24.7	5.5	16.1
LAC average (unweighted)	20.8	79.3	42.6	29.8	73.4	26.7	2.9	20.7

Notes: Estimated from household surveys using data from SEDLAC. Country averages are weighted by survey weights, LAC average is the unweighted average of country means.

Bibliography

Acemoglu, D., Johnson, S., & Robinson, J. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review*, *91*(5), 1369-1401.

Adhvaryu, A., & Nyshadham, A. (2017). Health, Enterprise, and Labor Complementarity in the Household. *Journal of Development Economics*, *2017*(126), 91-111.

Alan, S., & Ertac, S. (2018). Fostering Patience in the Classroom: Results from a Randomized Educational Intervention. *Journal of Political Economy*, *126*(5), 1865-1911.

Andrabi, T., Das, J., & Khwaja, A. (2013). Students today, teachers tomorrow: Identifying constraints on the provision of education. *Journal of Public Economics*, *100*(C), 1-14.

Angrist, J. D., & Lavy, V. (1999). Using Maimondides' rule to estimate the effect of class size on scholastic achivement. *Quarterly Journal of Economics*, *114*, 533-575.

Appadurai, A. (2004). The Capacity to Aspire: Culture and The Terms of Recognition. In V. Rao & M. Walton (Eds.), *Culture and Public Action* (pp. 59-84). Stanford University Press.

ASER. (2019). *Annual Status of Education Report (Rural) - 2018*.

Azam, M., & Saing, C. H. (2016). Assessing the Impact of District Primary Education Program in India. *Review of Development Economics*.

Bando, R., Galiani, S., & Gertler, P. (2020). The Effects of Noncontributory Pensions on Material and Subjective Well-Being. *Economic Development and Cultural Change*, *76*(1).

Banerjee, A., Banerji, R., Berry, J., Duflo, E., Kannan, H., Mukerji, S., Shotland, M., & Walton, M. (2017). From Proof of Concept to Scalable Policies: Challenges and Solutions, with an Application. *Journal of Economic Perspectives*, *31*(4), 73-102.

Banerjee, A., Cole, S. A., Duflo, E., & Linden, L. (2007). Remedying Education: Evidence from Two Randomized Experiments in India. *Quarterly Journal of Economics*, *122*(3), 1235-1264.

Banerjee, A., & Iyer, L. (2005). History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India. *American Economic Review*, *95*(4), 1190-1213.

Bardhan, P., Luca, M., Mookherjee, D., & Pino, F. (2014). Evolution of land distribution in West Bengal 1967-2004: Role of land reform and demographic changes. *Journal of Development Economics*, *110*, 171-190.

Barrett, P., Treves, A., Shmis, T., Ambasz, D., & Ustinova, M. (2019). *The Impact of School Infrastructure on Learning*. The World Bank Group.

Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India. *Science*, *335*(6068), 582-586.

Bernal, N., Carpio, M. A., & Klein, T. (2017). The effects of access to health insurance: Evidence from a regression discontinuity design in Peru. *Journal of Public Economics*, *154*, 122-136.

Bernard, T., Dercon, S., Orkin, K., & Taffesse, A. S. (2019). Parental Aspirations for Children's Education: Is There a "Girl Effect"? *American Economic Review Papers and Proceedings*, *109*, 127-132.

Berry, J., Karlan, D., & Pradhan, M. (2018). The Impact of Financial Education for Youth in Ghana. *World Development*, *102*(C), 71-89.

Bongarts, J., & Zimmer, Z. (2002). Living Arrangements of the Elderly in the Developing World. *Journal of Gerontology*, *57B*(3), 5145-5157.

Brown, A., & Gartner, K. (2007). *Early Intervention and Credit Cardholders*. Retrieved March 15, 2013 from http://cfsinnovation.com/system/files/imported/managed_documents/earlyintervention.pdf

Bruhn, M., & Gallego, F. (2012). Good, Bad and Ugly Colonial Activities: Do They Matter for Economic Development? *Review of Economics and Statistics*, *94*(2), 433-461.

Bruhn, M., Ibarra, G. L., & McKenzie, D. (2014). The minimal impact of a large-scale financial education program in Mexico City. *Journal of Development Economics*, *108*, 184-189.

Carlana, M., La Ferrara, E., & Pinotti, P. (forthcoming). Goals and Gaps: Educational Careers of Immigrant Children. *Econometrica*.

Carpena, F., Cole, S., Shapiro, J., & Zia, B. (2019). The ABCs of Financial Education: Experimental Evidence on Attitudes, Behavior and Cognitive Biases. *Mangement Science*, *65*(1), 346-369.

Celhay, P. A., Gertler, P., Giovagnoli, P., & Vermeersch, C. (2019). Long-Run Effects of Temporary Incentives on Medical Care Productivity. *American Economic Journal: Applied Economics*, *11*(3), 92-127.

Chandra, B., Mukerjee, M., Mukherjee, A., Panikkar, K. N., & Mahajan, S. (1988). *India's Struggle for Independence*. Viking.

Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K., & Rogers, F. H. (2006). Missing in Action: Teacher and Health Worker Absence in Developing Countries. *Journal of Economic Perspectives*, *20*(1).

Cobb-Clark, D. A. (2014). Locus of Control and the Labor Market. *IZA Discussion Paper No. 8678*.

Cole, S., Sampson, T., & Zia, B. (2011). Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets? *Journal of Finance*, *66*(6), 1933-1967.

Cotlear, D., & Tornarolli, L. (2011). Poverty, the Aging, and the Life Cycle in Latin America. In D. Cotlear (Ed.), *Population Aging: Is Latin America Ready?* The World Bank.

Dalton, P., Ghosal, S., & Mani, A. (2016). Poverty and Aspirations Failure. *The Economic Journal*, *126*(590), 165-188.

Danielsbacka, M., Tanskanen, A., Coall, D., & Jokela, M. (2019). Grandparental childcare, health and well-being in Europe: A within-individual investigation of longitudinal data. *Social Science & Medicine*, *230*, 194-203.

Das, J., Hammer, J., & Sanchez-Paramo, C. (2012). The impact of recall periods on reported morbidity and health seeking behavior. *Journal of Development Economics*, *98*(1), 76-88.

Das, J., Holla, A., Mohpal, A., & Muralidharan, K. (2016). Quality and Accountability in Health Care Delivery: Audit-Study Evidence from Primary Care in India. *American Economic Review*, *106*(12), 3765-3799.

Das, J., & Zajonc, T. (2010). India shining and Bharat drowning: Comparing two Indian states to the worldwide distribution in mathematics achievement. *Journal of Development Economics*, *92*(2), 175-187.

Deaton, A., & Paxson, C. (1997). Poverty Among Children and the Elderly in Developing Countries. *Research Program in Development Studies, Princeton University*.

Deaton, A., & Paxson, C. (1998). Economies of Scale, Household Size, and the Demand for Food. *Journal of Political Economy*, *106*(5), 897-930.

Deaton, A., & Zaidi, S. (2002). Guidelines for Constructing Consumption Aggregates for Welfare Analysis. *LSMS WOrking Paper No. 135*.

Dmytraczenko, T., & Almeida, G. (2015). *Toward Universal Health Coverage and Equity in Latin America and the Caribbean: Evidence from Selected Countries*. World Bank.

Duflo, E. (2003). Grandmothers and Granddaughters: Old-Age Pensions and Intrahousehold Allocation in South Africa. *The World Bank Economic Review*, *17*(1), 1-25.

Duflo, E., Hanna, R., & Ryan, S. P. (2012). Incentives Work: Getting Teachers to Come to School. *American Economic Review*, *102*(4), 1241-1278.

Dyer, C. (1994). Education and the State: Policy Implementation in India's Federal Polity. *International Journal of Education Development*, *14*(3), 241-253.

Easterly, W. (2007). Inequality does cause underdevelopment: Insights from a new instrument. *Journal of Development Economics*, *84*(2), 775-776.

Einav, L., & Finkelstein, A. (2011). Selection in Insurance Markets: Theory and Evidence. *Journal of Economic Perspectives*, *25*(1), 115-138.

Eker, T. H. (2005). *Secrets of the Millionaire Mind: Mastering the Inner Game of Wealth*. Harper Business.

Engelhardt, G. V., & Gruber, J. (2004). Social Security and the Evolution of Elderly Poverty. *NBER Working Paper 10466*.

Engerman, S. L., & Sokoloff, K. L. (1997). Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies: A View from Economic Historians of the United States. In S. Haber (Ed.), *How Latin America fell behind: Essays on the economic histories of Brazil and Mexico, 1800-1914* (pp. 260-304). Stanford University Press.

Evans, D., & Yuan, F. (2019). Equivalent Years of Schooling: A Metric to Communicate Learning Gains in Concrete Terms. *World Bank Policy Research Working Paper No. 8752*.

Farzana, A. (2005). Midday Meals in Two States: Comparing the Financial and Institutional Organization of the Programme. *Economic and Political Weekly*, *40*(15), 1528-1529.

Fernandes, D., Lynch, J., & Netemeyer, R. (2014). Financial Literacy, Financial Education and Downstream Financial Behaviors. *Management Science*, *60*(8), 1861-2109.

Field, E. (2007). Entitled to Work: Urban Property Rights and Labor Supply in Peru. *Quarterly Journal of Economics*, *122*(4), 1561-1602.

Field, E., Jayachandran, S., & Pande, R. (2010). Do Traditional Institutions Constrain Female Entrepreneurship? A Field Experiment on Business Training in India. *American Economic Review: Papers and Proceedings*, *100*, 125-129.

Frenk, J., & Gomez-Dantes, O. (2018). Health Systems in Latin America: The Search for Universal Health Coverage. *Archives of Medical Research*, *49*, 79-83.

Furnham, A. (1986). Economic Locus of Control. *Human Relations*, *39*(1), 29-43.

Galiani, S., Gertler, P., & Undurraga, R. (2018). Aspiration Adaptation in Resource-Constrained Environments. *NBER Working Paper 24264*.

Galor, O., Moav, O., & Vollrath, D. (2009). Inequality in Landownership, the Emergence of Human-Capital Promoting Institutions and the Great Divergence. *Review of Economic Studies*, *76*(1), 143-179.

Genicot, G., & Ray, D. (2017). Aspirations and Inequality. *Econometrica*, *85*(2), 489-519.

Genicot, G., & Ray, D. (2020). Aspirations and Economic Behavior. *Annual Review of Economics*, *12*, 715-746.

Giné, X., & Mansuri, G. (2020). Money or Management? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan. *Economic Development and Cultural Change*, *forthcoming*.

Glaeser, E. L., LaPorta, R., Lopes-de-Silanes, F., & Shleifer, A. (2004). Do Institutions Cause Growth? *Journal of Economic Growth*, *9*, 271-303.

Gottschalk, P. (2005). Can work alter welfare recipients' beliefs? *Journal of Policy Analysis and Management*, *24*(3), 485-498.

Haider, S., & Stephens, M. (2007). Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations. *The Review of Economics and Statistics*, *89*(2), 247-264.

Hambleton, R. K., Swaminathan, H., & ROgers, H. J. (1991). *Fundamentals of Item Response Theory*. Sage Publications.

Hanushek, E. (2003). The Failure of Input-Based Schooling Policies. *The Economic Journal*, *113*, F64-F98.

Hanushek, E. (2008). Education Production Functions. In S. N. Durlauf & L. E. Blume (Eds.), *The New Palgrave Dictionary of Economics, Second Edition*. Palgrave Macmillian.

Ibarra, G. L., McKenzie, D., & Ortega, C. R. (2019). Estimated Treatment Effects with Big Data When Take-up is Low: An Application to Financial Education. *The World Bank Economic Review*, *forthcoming*.

IHME. (2015). *GBD Compare*. http://vizhub.healthdata.org/gbd-compare

ILO. (2018). *Presente y futuro de la proteccion social en America Latina y el Caribe*. Organizacion Internacional de Trabajo.

Iyer, L. (2010). Direct Versus Indirect Colonial Rule in India: Long-Term Consequences. *The Review of Economics and Statistics*, *92*(4), 693-713.

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, *83*, 693-710.

Karlan, D., & Validivia, M. (2011). Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions. *Review of Economics and Statistics*, *93*(2), 510-527.

Khanna, G. (2020). Large-scale Education Reform in General Equilibrium: Regression Discontinuity Evidence from India. *Working Paper*.

Khera, R. (2006). Mid-Day Meals in Primary Schools: Achievements and Challenges. *Economic and Political Weekly*, *18 November*.

Kingdon, G. G. (2007). The progress of school education in India. *Oxford Review of Economic Policy*, *23*(2), 168-195.

Kingdon, G. G. (2020). The Private Schooling Phenomenon in India: A Review. *The Journal of Development Studies*, *56*(10), 1795-1817.

Kinsella, K., & He, W. (2009). *An Aging World: 2008 International Population Reports*. Government Printing Office.

Kiyosaki, R. T. (2017). *Rich Dad Poor Dad: What the Rich Teach Thier Kids About Money That the Poor and Middle Class Do Not!* Plata Publishing.

Knowles, J. (2018). *A Meta-Analysis of the Take-Up and Utilization of Formal Savings Accounts*.

Kourtellos, A., Stylianou, I., & Tan, C. M. (2013). Failure to launch? The role of land inequality in transition delays. *European Economic Review*, *62*, 98-113.

Kremer, M., Chaudhury, N., Rogers, F. H., Muralidharan, K., & Hammer, J. (2010). Teacher Absence in India: A Snapshot. *Journal of the European Economic Association*, *3*(2-3), 658-667.

Kremer, M., & Muralidharan, K. (2008). Public and Private Schools in Rural India. In P. Peterson & R. Chakrabarti (Eds.), *School Choice International*. MIT.

Krueger, A. B. (1999). Experimental Estimates of Education Production Functions. *Quarterly Journal of Economics*, *114*(2), 497-532.

Li, Z., & Dalaker, J. (2019). Poverty Among Americans Aged 65 or Older. *Congressional Research Service*.

Lusardi, A. (2001). Explaining Why So Many Households Do Not Save. *Center for Retirement Research Working Paper*.

Macours, K., & Vakis, R. (2014). Changing households' investment behaviour through social interactions with local leaders: Evidence from a randomised transfer programme. *The Economic Journal*, *124*(576), 607-633.

Mbiti, I. (2016). The Need for Accountability in Education in Developing Countries. *Journal of Economic Perspectives*, *30*(3), 109-132.

Mehrotra, S., & Panchamukhi, P. R. (2007). Private provision of elementary education in India: findings of a survey in eight states. *Compare: A Journal of Comparative and International Education*, *36*(4), 421-442.

Mondal, A. (2017). Free and Compulsory Primary Education in India Under the British Raj: A Tale of an Unfulfilled Dream. *SAGE Open*, *July - September*, 1-12.

Mukherjee, P. (2017). The Effects of Social Identity on Aspirations and Learning Outcomes. *International Growth Centre Working Paper S-35120-INC-7*.

Muralidharan, K., Das, J., Holla, A., & Mohpal, A. (2017). The fiscal cost of weak governance: Evidence from teacher absense in India. *Journal of Public Economics*, *145*(January 2017), 116-135.

Muralidharan, K., Romero, M., & Wuthrich, K. (2021). Factorial designs, model selection, and (incorrect) inference in randomized experiments. *NBER Working Paper 26562*.

Muralidharan, K., Singh, A., & Ganimian, A. J. (2019). Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India. *American Economic Review*, *109*(4), 1426-1460.

Muralidharan, K., & Sundararaman, V. (2011). Teacher Performance Pay: Experimental Evidence from India. *Journal of Political Economy*, *119*(1).

Muralidharan, K., & Sundararaman, V. (2013). Contract Teachers: Experimental Evidence from India. *NBER Working Paper No. 19440*.

Musacchio, A., Martinez Fritscher, A., & Viarengo, M. (2014). Colonial Institutions, Trade Schocks, and the Diffusion of Elementary Education in Brazil, 1889-1930. *The Journal of Economic History*, *74*(3), 730-766.

National Institute of Aging. (2009). *Growing Older in America: The Health and Retirement Study*. National Institute of Health, US Department of Health and Human Services.

Newhouse, J. P. (1993). *Free for All? Lessons from the RAND Health Insurance Experiment*. Harvard University Press.

Ng, T. W. H., Sorensen, K. L., & Eby, L. T. (2006). Locus of control at work: a meta-analysis. *Journal of Organizational Behavior*, *27*(8), 1057-1087.

North, D. C. (1991). Institutions. *Journal of Economic Perspectives*, *5*(1), 97-112.

O'Donnell, O., van Doorslaer, E., Wagstaff, A., & Lindelow, M. (2008). *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. The World Bank.

OECD/IDB/The World Bank. (2014). *Pensions at a Glance: Latin America and the Caribbean*. OECD Publishing.

Pandey, P. (2010). Service Delivery and Corruption in Public Services: How Does History Matter? *American Economic Journal: Applied Economics*, *2*(3), 190-204.

Pederson, P., Sogaard, H. J., Labriola, M., Nohr, E. A., & Jensen, C. (2015). Effectiveness of psychoeducation in reducing sickness absence and improving mental health in individuals at risk of having a mental disorder: a randomised controlled trial. *BMC Public Health*, *15*(1), 763.

Pew Research Center. (2016). *Global Attitudes and Trends*.

PRS. (2013). The Mid Day Meal Scheme. *PRS Legislative Research*.

Riley, E. (2020). Role Models in Movies: The Impact of Queen of Katwe on Students' Educational Outcomes. *Working Paper*.

Rofman, R., & Apella, I. (2020). *When We're Sixty-Four: Opportunities and Challenges for Public Policies in a Population-Aging Context in Latin America*. World Bank.

Rotter, J. B. (1954). *Social Learning and Clinical Psychology*. Prentice-Hall.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*, 1-28.

Salamanca, N., de Grip, A., Fouarge, D., & Montizaan, R. (2020). Locus of Control and Investment in Risky Assets. *Journal of Economic Behavior & Organization*, *177*(548-568).

Salazar-Xirnachs, J. M., & Chacaltana, J. (2019). *Polticas de Formalizacion en America Latina: Avances y Desafios*. Organizacion Internacional de Trabajo.

Seshan, G., & Yang, D. (2014). Motivating migrants: A field experiment on financial decision-making in transnational households. *Journal of Development Economics*, *108*, 119-127.

Shoji, M. (2020). Early-Life Circumstances and Adult Locus of Control: Evidence from 46 Developing Countries. *Working Paper*.

SSA. (1999). Sarva Shiksha Abhiyan: Framework for Implementation. *MHRD, Government of India*.

Thornton, R., Hatt, L., Field, E., Islam, M., Solis Diaz, F., & Azucena Gonzalez, M. (2010). Social security health insurance for the informal sector in Nicaragua: a randomized evaluation. *Health Economics*, *19*(S1), 181-206.

UNESCO. (2020). *UNESCO Institute of Statistics*

Vollmer, S., Harttgen, K., Subramanyam, M., Finlay, J., Klasen, S., & Subramanian, S. V. (2014). Association between economic growth and early childhood undernutrition: evidence from 121 Demographic and Health Surveys from 36 low-income and middle-income countries. *The Lancet*, *2*(4), e225-e234.

Wagstaff, A. (2007). The economic consequences of health shocks: Evidence from Vietnam. *Journal of Health Economics*, *26*(1), 82-100.

Wagstaff, A., Dmytraczenko, T., Almeida, G., Busiman, L., Eozenou, P. H.-V., Bredenkamp, C., Cercone, J. A., Diaz, Y., Maceira, D., Molina, S., Paraje, G., Ruiz, F., Sarti, F., Scott, J., Valdivia, M., & Werneck, H. (2015). Assessing Latin America's Progress Towards Achieving Universal Health Coverage. *Health Affairs*, *34*(10).

Wagstaff, A., & Lindelow, M. (2014). Are health shocks different? Evidence from a multishock survey in Laos. *Health Economics*, *23*(6), 706-718.

Wagstaff, A., & van Doorslaer, E. (2003). Catastrophe and impoverishment in paying for health care: with applicaitons to Vietnam 1993-1998. *Health Economics*, *12*, 921-934.

Wankhede, G. G., & Sengupta, A. (2005). Village education commitees in West Bengal, India: Planned vision and beyond. *International Journal of Education Development*, *25*, 569-579.

WHO. (2019). *Primary Health Care on the Road to Universal Health Coverage*. World Health Organization.

World Bank. (2003). *World Development Report 2004: Making Services Work for Poor People*. World Bank.

World Bank. (2016). *Financiamiento de la Salud en el Peru: Analisis de Politica de la Situacion Actual y Desafios de Politica al 2021*. World Bank.

World Bank. (2020a). *World Development Indicators* https://datatopics.worldbank.org/world-development-indicators/

World Bank. (2020b). World Development Indicators.

Zeng, Y., & George, L. (2000). Family Dynamics of 63 Million (in 1990) to More than 330 Million (in 2050). *Demographic Research*, *2*.