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Employability and Productivity among Older Workers: A Policy Framework and Evidence from Latin America

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Abstract

As Latin American and the Caribbean countries face rapid aging transitions, the economic contribution of older workers would need to be strengthened. This paper uses household data from Brazil and Mexico to characterize labor market behavior of older workers, such as participation, sectoral and type of employment, and productivity, to identify critical areas for policy intervention. The paper also discusses other social policy related issues like health, remittances, and family arrangements. This paper suggests three areas for labor policy: (i) adjusting *social security* incentives to extend working life and postpone formal retirement; (ii) adjustments to labor market *regulations* to increase employment flexibility, smoothing the transition into retirement; and (iii) addressing skill needs through (re)*training* to maintain productivity and employability. This paper reviews existing evidence on these policy interventions in industrial and developing countries, and suggests areas for future analytical work.

JEL Classification: J14, J24, J26, O17
Keywords: aging, older worker, retirement, training, labor markets, Brazil, Mexico

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1. Introduction

The next half-century demographic trends in Latin America and the Caribbean (LAC) will consist of rapid aging of the population with varying speeds across countries. LAC countries will need a variety of economic and social institutions to deliver income security, adequate health care and other changing needs of the aging population. The overarching message emerging from regional and country studies on aging is that countries will need to adopt policies to maintain or increase output in order to finance these emerging needs. Previous analytical work in Latin America and the Caribbean identified a number of policy issues to address the implications of aging patterns in LAC: building capacity to address non-communicable diseases (NCD) in the health sector, increasing retirement ages and reducing incentives for early retirement in pension systems, increasing female participation in labor markets, and boosting productivity through enhanced education, among other social policies (Cotlear, 2010). While the emphasis is on the aging population *needs*, relatively little is said about the role the aging and elderly may have in supporting their own financial needs (aside from delayed retirement). Developing countries are different from industrial ones given their large share of employment among the elderly. The Stockholm European Council in 2001 set a goal of reaching employment rates of 50 percent for those between 55 and 64 years of age (European Commission, 2010), in contrast to many LAC countries that are already reaching and some exceeding that target, albeit a large share in the informal sector.

Policies aiming at increasing participation of the older workers focus on three broader areas: (i) extending productive life (through increased retirement age); (ii) increasing the volume of the labor force (mainly, by increasing female participation); and (iii) enhancing the productivity of the labor force (interventions on skills, especially on basic education and among the youth). Relatively little is said about enhancing the *productive labor market participation of those in the transition towards old age*. The policy discussion in the European Union, where aging is a present problem, led to the establishment of a 50 percent target on employment rates for those aged 50 to 64 years, in order to increase their participation. In that setting, most of the discussion has been focused on pension systems addressing changes on pension eligibility (e.g. retirement age) or pensions benefits (e.g. replacement rates). In LAC, the focus on pension system issues is partly relevant but not sufficient because only about 40 percent of the *working population* in Latin America formally retires and receives a pension, even after a decade of intense reforms to pensions systems. Still, many of those *formally* retired individuals continue participating in the labor markets in a gradual disengagement process: about 54 percent of the incomes of males over 60 years of age come from labor sources, compared to only 32 percent from pensions. This gradual and blurred withdrawal from the labor force raises other questions that demand both analytical and policy attention.

This report has two main objectives. First, the report provides a descriptive perspective of labor market outcomes during between 50 years of age till 70, where aging factors like health are closely related to labor market (and non market) outcomes. As working and non-working individuals transit towards old age, they experience revisions on labor market participation, hours worked, and productivity resulting from the interaction between workers and firms, in specific labor policy settings. This descriptive section will provide key stylized facts that need to be accounted in the design of policies that enhance participation and productivity among older

workers. The second objective is to provide a framework for policies to enhance productivity among older workers, by discussing existing labor market policies implemented in other countries (mainly OECD) and assessing these and other options in the LAC context. This review of policies would provide a framework for discussing policies in selected LAC countries.

2. Population aging and labor market behavior

The patterns and speed of demographic transition in LAC countries show a faster aging process that in other regions. The demographic transition in LAC countries reflected in increased in life expectancy by 22 years in the last half century, and declining infant mortality. At the same time, declining fertility rates are changing he demographic composition reducing the number of births which are now growing at half the rate of the mid-20th century (Cotlear, 2010). These demographic changes will result in most of LAC countries experiencing their largest population size between 2050 and 2070, and increasing old age population. While the share of population aged 60 and over increased from 6 to 9 percent between 1950 and 2000, it will increase to 24 percent in the next 50 years. The demographic transition that lasted over a century in developed countries is expected to take place more quickly in LAC due to current available to means to control fertility and reduce mortality. Compared to France that took 115 years to double it elderly population, it is expected that it will take only 21 years in Brazil and even 19 in Colombia.

The speed of demographic transition suggests that countries will need quick responses to manage the increasing demands from an aging population by, first, reducing incentives to retirement. Some studies have identified a number of social policies to mitigate the economic impacts of aging, with relatively modest references to labor market actions. Recent studies on aging in Latin America and in other regions have stressed the message that, while different countries show different stages and speeds of aging, most should be preparing their policies and institutions to address the economic impacts of an aging population (Cotlear, 2011; Chawla et al, 2007; World Bank, 2010). These studies mostly convey that aging implies an increasing share of elderly population that needs to be supported by a smaller share of working individuals. The key policy messages are extensively discussed around three areas: pensions, education, and health. On pensions, the key message is that aging countries need to extend the working life by reforming pension systems in order to increase the retirement age (or reducing eligibility for retirement at earlier ages), and reducing the incentive for early retirement by changes that reduce replacement rates (pension benefits in relation to previous labor earnings). This, typically, involves changes in the eligibility and benefit parameters of pension systems, both public and private. These two changes in eligibility and incentives would postpone retirement till later ages.

As increasing the working life through pension reforms alone is not enough, countries will need to increase the level and productivity of the labor force, including that of older workers. Addressing education and training needs seems to be the answer to productivity challenges. The challenges on education and training differ across regions depending on the state of their systems and student population. In Europe and Central Asia, education challenges reflect first the shrinking student population due to declining fertility and outmigration that, together with the inheritance of a large supply of educational institutions and teaching force, should lead to adjustments in their education systems to the new, smaller, student population

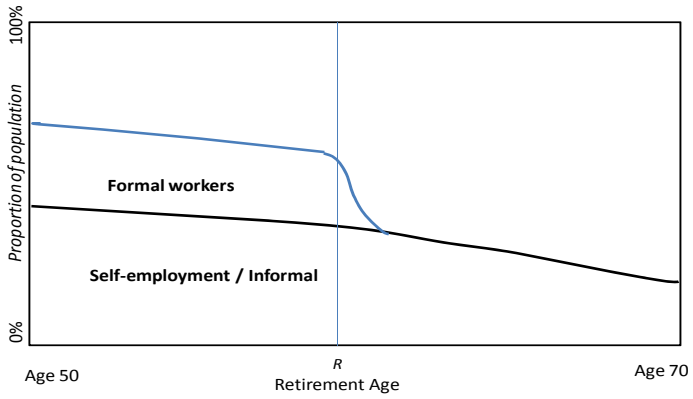
(efficiency objective). Productivity gains are also seen though reforms in the education systems (and curricula) to respond to new labor market demands, and increase secondary and higher education enrolment rates (Chawla et al, 2007). These education sector recommendations are also coupled with recommendation to develop incentives for training older workers due to the large fraction of elderly population. In Latin America, the study by Miller et al (2010) reflects the demographic transition and changing student population in the projection of education public expenditures. The projected reduction in education expenditures is associated to reduction of fiscal costs of about 1-2 percentage points over the next 40 years and, interestingly, they argue that those savings could be used for other emerging fiscal needs such as pensions and health care, although re-investment in education are also mentioned. Cotlear (2010) also mentions the need to develop lifelong learning programs for people in their 50s and 60s, expanding their current audience of adults in their 30s. The proposed measures on training are still tentative since little is known about their potential take up and impact among older workers.

Most studies also provide evidence on the implications of aging on health status of the population, their emerging health care needs, with little emphasis on the impact on labor productivity. Aging would bring changes in morbidity and mortality profiles given the increased life expectancy. Countries would, then, experience increased incidence of non communicable diseases (NCD) associated to aging such as cardiovascular diseases (including hypertension), arthritis, diabetes, among others. This move away from communicable diseases associated to infant and child mortality would need health systems to respond by adjusting their epidemiological services to better monitor NCD incidence, their prevention services to inform the population about the NCD risks and ways to reduce them, and their diagnostic and treatment systems to maintain a timely identify and manage NCDs. The importance of a healthy aging population resides not only on the potential reduction in health care costs but in the sustained employability and productivity as aging takes place. While Chawla et al (2007) discuss the relationship between age and wages, they do not examine the explicit linkage between aging, health status and productivity (wages). Medici (2010) discusses the implication for the health care system and costs, and Cotlear and Tornarolli (2010) do not examine the linkages of labor market outcomes and health. Only Soares (2010) discusses how the increased health status declines during aging are translated to reduced participation and wages among Brazilians, suggesting that interventions to manage NCDs -- to allow workers to maintain a healthy and active lifestyle -- could have a positive impact on productivity, but falls short of estimating the productivity costs (foregone labor income) associated to deteriorating health status among older workers.

In order to better address the question about economic participation among the aging, this report examines first, selective evidence about labor market outcomes and key associated factors. This report builds on the existing analyses by Chawla et al (2007), Cotlear (2010), World Bank (2010), and others, to describe existing patterns of labor market outcomes such as participation, type of employment, hours worked, and productivity, to identify stylized facts about LAC aging transition. In this selective empirical description, other individual factors are brought in to raise possible links to other sectoral interventions, like health, household demographics, and household time demands. In this analysis, it is expected that LAC countries are expected to differ in that they have large informal labor market shares which may persist during the working life of individuals. Perry et al (2007) already showed that while informality

was more prevalent in early working stages, and formal markets prevail during prime age, self employment was more prevalent in Mexico after age 50 and in Argentina and Brazil after age 60. As informality and self-employment are widespread employment choices, a tentative framework for understanding labor behavior after age 50 is proposed in Figure 1.

Figure 1. Labor Market Adjustments for Older Workers



This figure shows the patterns of labor market engagement where the black line describes the participation of individuals in self-employment (and informality). The graph shows a large fraction of the population in self-employment or in the informal sector, as discussed in Perry (2007). This line shows a slow decline between the ages 50 and 70, leaving most workers in this category by age 70. This is also consistent with the evidence in Perry (2007) where transitions across sectors show increasing trends to move to self-employment after age 50. While the graph shows only the fraction of workers in each sector, this could also reflect the gradual adjustments workers may experience on hours and possibly on productivity (if the lines would reflect the value of their participation, or, for instance, the wage bill). The blue line shows the fraction of individuals in formal jobs, which is shown as a smaller fraction after age 50. This fraction shows as constant until retirement age *R*, and dropping as retirement takes place. Assuming hours worked in the formal sector are not adjusted before retirement age, the size (and possibly value) of workers in the formal sector remains that same. Figure 1 provides a conceptual framework for enhancing employability and productivity among older workers. First, employability can be increased with policies aimed at: (i) increasing the level of participation in any sector, and (ii) delaying the drop in participation after retirement age. Both would result in a shift of the participation, lines outwards increasing the fraction of people working. Second, productivity (the value of the area under each of the lines) can be increased by enhancing the skills of those in each sector.

This framework also provides the setting for some empirical questions: How does participation change after age 50? What types of labor market engagement are more prevalent between age 50 and 70 and how they evolve? How are hours worked adjusted during the transition? Is productivity affected by aging? Understanding these changes over the aging transition can help identify policy relevant issues to enhance their participation, their sectoral choice and/or their productivity. These empirical questions are discussed first.

2.1. Labor market participation among the aging population

Economic activity among the elderly is higher in Latin American than in industrial countries and similar to levels observed in other developing countries. Table 1 shows the male economically active population (EAP) as share of the total population in different regions and selected countries in Latin America.[3] Latin American activity rates of the male aging population are between those observed in African and Asian countries, with roughly 90 percent of males aged 50-54 still active in the labor force. After age 65, 45 percent of males are still active in Latin America, higher than in Asia (33 percent), North America (21 percent) and Europe (9 percent), and only lower to the rate observed in Africa (53 percent). This high activity among the aging population in Latin America hides important differences across countries. Mexico, for example, has the highest activity rates for most age groups, but for those males aged 65 or more, rates are higher in South American countries (48 percent) like Peru (56 percent) or Colombia (49 percent).

Table 1. Economic Activity and Aging Population

(% male population active in labor force)

	50-54	55-59	60-64	65+
Africa	93.8	90.4	75.4	53.0
LAC	**89.8**	**83.3**	**69.5**	**45.3**
Asia	92.3	82.1	67.1	32.8
North America	85.9	78.3	60.4	21.5
Europe	86.1	70.9	43.1	9.1
Central America	92.5	87.9	72.4	44.5
South America	88.9	81.7	71.1	48.2
Caribbean	89.3	84.3	48.7	25.9
Mexico	92.3	87.5	71.1	43.1
El Salvador	90.2	85.9	68.7	41.4
Peru	89.6	84.5	80.2	56.3
Colombia	87.9	79.5	72.2	49.4
Brazil	86.6	77.9	65.9	46.2

Source: ILO Laborstat.

Labor Force Participation

Latin America and the Caribbean shows significant variation in labor force participation rates among the elderly, suggesting different typologies for policy design. Table 2 shows labor force participation rates for the population over 65 compared to that of prime age adults (aged 25-64). Three types of countries can be clearly distinguished. First, those countries where the elderly have a much lower participation compared to that of prime age adults. These countries include Costa Rica, Argentina, Uruguay, Chile, Brazil, and Colombia, where

[3] EAP is defined here as the economically active population which comprises all persons of either sex who furnish the supply of labor for the production of goods and services during a specified time-reference period. The time period depends on the survey used which may vary across countries. This includes people involved in the production of all goods that are retained by their producers for their own final use; the production of housing services by owner-occupiers and of domestic and personal services produced by employing paid domestic staff.

participation rates among the elderly is less than 0.30 that of adults. In these countries, less than 23 percent of the elderly are actively participating in the labor market and are characterized by generous pension systems (Cotlear, 2011). A second group of countries show a higher participation among the elderly (between 23 and 39 percent) which represents between a third and a half the participation of adults. Countries in this group include Mexico, Panama, and some Caribbean countries like Barbados, Jamaica and the Dominican Republic. Finally, in the third group the elderly have the highest participation rates (between 40 and 58 percent), that represents more than half the participation rate of adults. This group includes Andean countries like Peru, Bolivia, Ecuador, Paraguay,[4] and other Central American and Caribbean countries like Honduras, and Nicaragua. This labor market typology is roughly consistent with other classifications made on the basis of demographics, pension coverage or stage of demographic transition. Those classifications show that the first group follows closely those with advanced demographic transition (Saad, 2011), and with the highest contributory pension coverage among the elderly (Cotlear and Tornarolli, 2011). Andean countries like Ecuador, Paraguay and Peru, and Honduras and Nicaragua are among those with a full demographic transition and much lower contributory pension coverage.

Table 2. Labor Force Participation in Latin America: Adults and Elderly

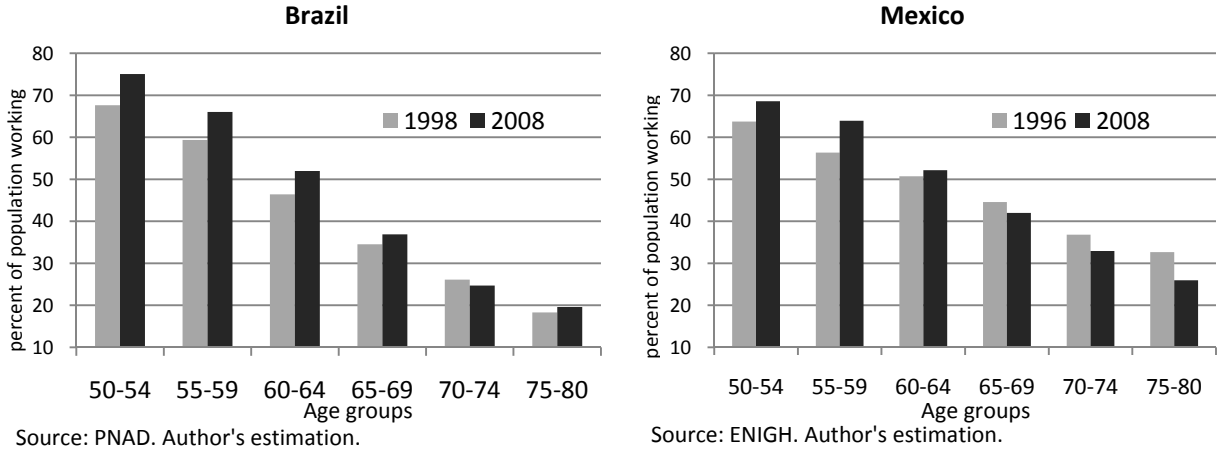
	Adults (25-64)	Elderly (65+)	Ratio Elderly/Adults
Costa Rica	72.8	14.3	0.20
Argentina	77.4	15.5	0.20
Uruguay	82.2	17.3	0.21
Chile	72.3	18.5	0.26
Brazil	77.4	23.1	0.30
Colombia	73.6	22.1	0.30
Barbados	86.7	27.0	0.31
Guyana	70.4	23.0	0.33
Panama	74.7	25.4	0.34
Dominican Rep.	68.4	23.6	0.35
Venezuela	78.1	27.6	0.35
Jamaica	82.5	31.7	0.38
Mexico	72.0	30.1	0.42
El Salvador	73.3	31.0	0.42
Belize	68.7	32.8	0.48
Paraguay	79.2	39.2	0.49
Nicaragua	73.9	37.2	0.50
Ecuador	78.0	39.5	0.51
Haiti	76.2	41.7	0.55
Honduras	68.3	38.6	0.57
Peru	84.9	51.1	0.60
Bolivia	83.1	57.8	0.70

Source: CEDLAS.

[4] Paraguay is included in the third group due to the high elderly participation (39 percent).

Participation rates of the elderly in Latin America are in line with other studies that found a significant role of labor markets in activities of the elderly in developing countries. Despite the limited analysis of labor force participation of the elderly in developing countries, this evidence is corroborated by a number of case studies. For example, Giles et al (2010) examined evidence from the One Percent Population Sample Data in China showing that by 2005 about 38 percent of the incomes of the rural elderly were from labor market sources. In Latin America, labor incomes account for 52 percent of the male elderly population (26 percent among females) (Cotlear, 2010). A survey of individuals of 50 years or more in Mexico shows that 41 percent of them report receiving labor incomes, and that those incomes represent 82 percent among those aged 50-59 (Wong et al, 2002).[5] Similarly, Cameron and Cobb-Clark (2001) analyzed a detailed survey from Indonesia and found very high levels of participation among the elderly (defined as those aged 60 or more): by 1993, around 75 percent of the elderly males worked full time (41 hours per week). Although this contrasts with the level of participation of elderly females (44 percent) and their hours worked (33 hours), it shows that those aged 60 or more in Indonesia remain actively engaged in labor market activities.

Figure 2: Labor Force Participation in Mexico and Brazil
(percent by age group)



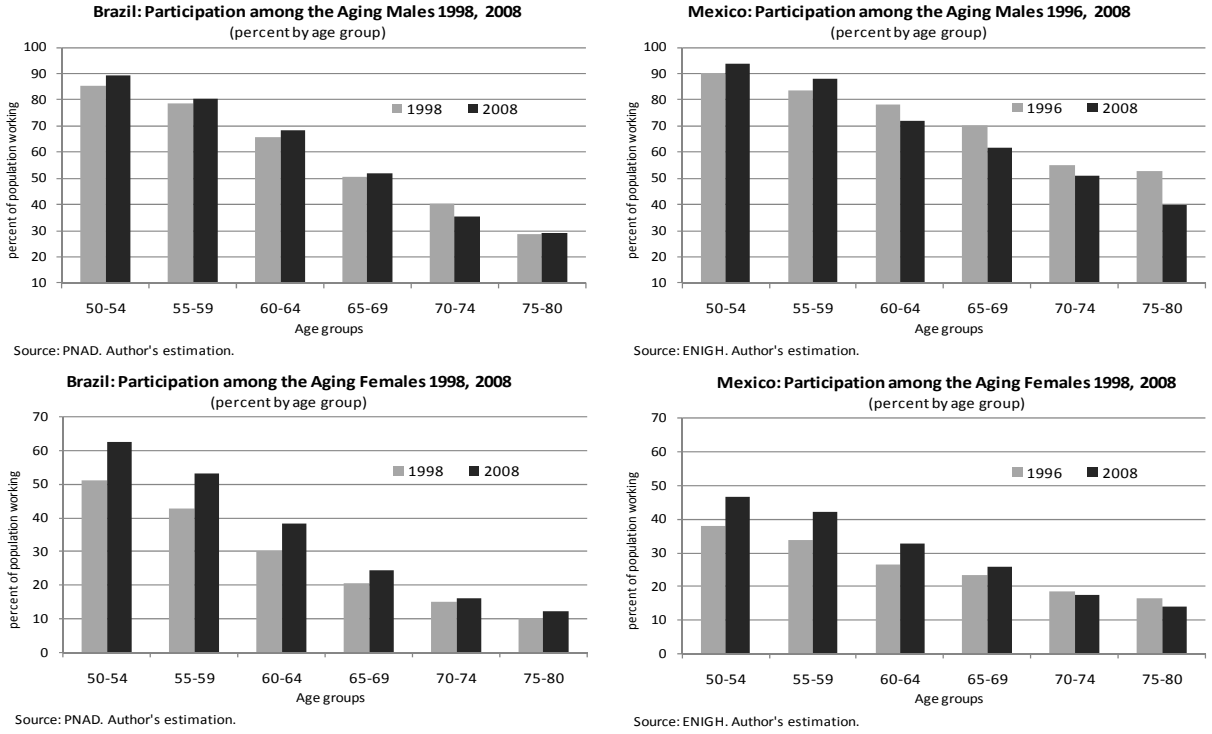
Participation rates among the aging population in Latin America show increasing trends for those aged between 50 and 64. Studies of economic activity among older cohorts found that labor force participation rates in countries like Mexico and the Dominican Republic were higher than those rates observed in the United States or Canada, and that while participation declined significantly in industrial countries, the decline in developing countries was more modest (OIT, 2001; CISS, 2005). The reported decline observed until 2000 is not seen in recent years where the trend actually reverses (Figure 2). In Brazil, participation rates for age groups between 50 and 80 increased between 1998 and 2008. The increase is clearly observed before age 65. Participation rates for age groups 50-54 and 55-59 increased by 7 percentage points, while the increase for other age groups was smaller (and marginally negative for the 70-74 group). In Mexico, participation rates also increased for those aged 50 to 64, but not for older

[5] The importance of labor incomes for this sample declines to 30 percent among those 60-69.

groups.[6]

The increase in participation among older cohorts is partly explained by the increased female participation. The increase in labor force participation among those aged 50 to 70 is being driven by the increased participation of females in the economy. Figure 3 shows participation rates by gender and age groups in both Brazil and Mexico. In Brazil, participation among those aged between 50 and 70 increased by only 2 percentage points among males compared to 10 percent among females. For ages older than 70, females continue showing an increase in participation larger than that of males. In Mexico, male participation increases until age 59 and declines afterwards, while female participation continues increasing until age 69. The increased participation of females in the economy suggests that analytical and policy questions regarding the impact of aging through labor markets would need to address specific conditions of female behavior in labor markets.

Figure 3. Labor force participation between age 50 and 70, by gender

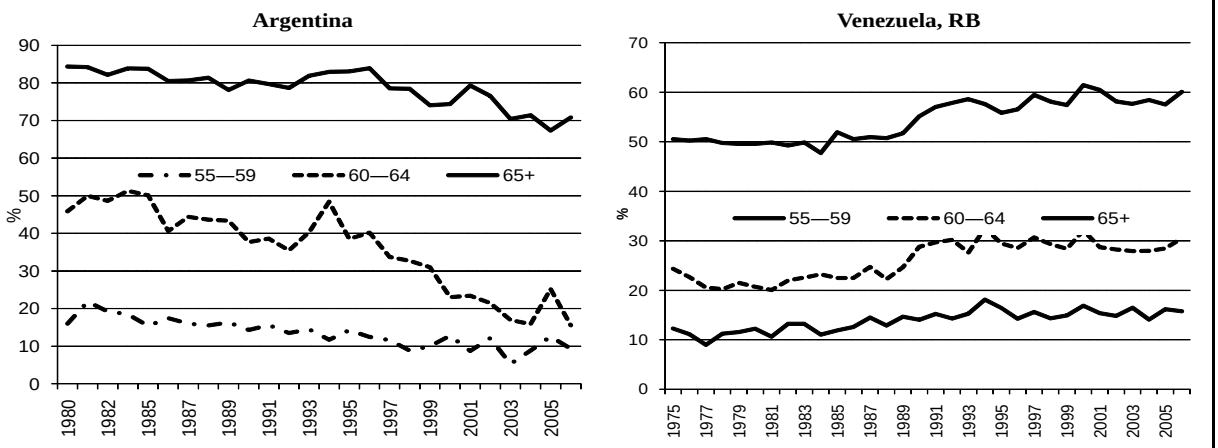


The increase in labor force participation among the 60-64 group is also observed in other Latin American countries like Argentina. In Argentina, retirement rates for males dropped dramatically after the pension reform in 1993, especially for those 60-64 where retirement rates dropped from 40 to 20 percent between 1993 and 2003 (see Figure 4). This decline is partly attributed to the reduction in expected pension income due to the 1993 reform that kept some aging workers in the labor market to compensate the lower retirement income (CAF, 2007). A different perspective is found in countries like Venezuela where retirement rates increased from

[6] These statistics are based on several waves of nationally representative household surveys, Pesquisa Nacional por Amostra de Domicílios (PNAD) in Brazil and Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH) in Mexico.

50 percent in 1989 to 60 percent by 1999, and stayed stable in the coming years. This increasing preference for retirement is associated with increasing an already generous pension benefit (Acosta, 2007).

Figure 4: Retirement rates in Argentina (Buenos Aires) and Venezuela, RB. (Males, by age group)



Source: CAF (2007).

Coincident with the evidence from Argentina and Venezuela, the evidence from Mexico and Brazil suggest an association between pension regimes and participation (and retirement) behavior of older workers. Table 3 shows the labor force status of age groups between 50 and 80 years old for Brazil and Mexico in 2008. Individuals can be categorized into non participants (not employed and not actively looking for a job), formal workers, informal workers, self-employed, unpaid workers, and the unemployed.[7,8] Noticeably, non participation rates in Brazil are lower than in Mexico before retirement age (50- 60), but higher after retirement age (or pension eligibility) triggers (age 60-65) non participation is higher in Brazil. This faster retirement path in Brazil is driven the retirement of dependent workers (formal and informal) that move from 41 percent of the 50-54 age group to 4.2 percent by age 70-74 (and 2.3 after age 75). Mexico shows a slower decline from 44 percent to 12 percent in the same age groups, and stays around 10 percent after age 75. Still these levels of labor force participation and employment represent employment levels equivalent to European Union (EU) goals. The EU, in its effort to increase employment of the aging, established a goal of 50 percent

[7] Formal workers are those working as dependents and have a formal contract or holding a labor registry (having a *carteira assinada*, in the case of Brazil, and having a 'contract' in Mexico). Informal workers are defined as those dependent works without the formal contract. Self-employed are those working on their won and /or owning their own business. Unpaid workers are those reporting some activity without being paid. Unemployed are those who are not working and reported actively seeking for a job in the last week or month.

[8] Definitions of informality vary significantly across countries and even within countries. In Mexico, for instance, informality could be defined based on: (i) non contributors to Social Security (using IMSS data); (ii) without access to health insurance; (iii) reporting self-employment and other similar jobs; among others. In this report, we define as 'informal' as a worker without a written contract for comparability purposes with the Brazilian definition. A separate category for 'self-employment' is also included. Average informality rates using the 'self-employed' proxy are 29 percent in 2008, close the 32 percent (22.4 / 100-31.4) found among those aged 50-54 in Table 3. Informality defined as 'non IMSS contributors' is close to 66 percent in 2008, close to the 67 percent ((23.9+22.4)/(100-31.4)) including 'informal' and 'self-employment', estimated from Table 3 (aggregate informality rates kindly provided by S. Freije-Rodriguez).

employment rate for the 55 to 64 age group. The participation rates observed for Mexico and Brazil represent employment rates of 56.4 percent for Mexico and 49.3 percent for Brazil.[9] This different withdrawal from the labor force is closely associated by the coverage of pension systems in Brazil and Mexico. In Brazil, more than 75 percent of the individuals aged 60 or more receive income from pensions, compared to less than 25 percent in Mexico, and this difference is even larger after age 80 (Cotlear et al, 2011). As shown in Table 3, the patterns of participation are affected by pension incentives, and the impact of those incentives will hinge on the degree of formality and self-employment among older workers, which is discussed next.

Table 3. Labor market participation between 50 and 80 years.
(% of population)

	50-54	55-59	60-64	65-69	70-74	75-80
Brazil						
Non participant	25.0	34.0	48.0	63.1	75.3	80.4
Formal workers	29.0	20.9	11.4	5.0	1.4	0.6
Informal	12.2	11.0	8.0	5.0	2.8	1.7
Self-employed	25.4	24.9	22.5	17.1	12.3	9.8
Unpaid worker	6.0	7.5	8.7	9.3	7.9	7.3
Unemployed	2.5	1.8	1.3	0.6	0.3	0.2
Mexico						
Non participant	31.4	36.1	47.9	58.0	67.1	74.0
Formal workers	20.2	16.9	8.4	4.2	1.8	2.0
Informal	23.9	21.0	17.4	13.6	9.9	7.6
Self-employed	22.4	24.1	25.1	22.4	20.1	15.4
Unpaid worker	0.3	0.2	0.3	0.4	0.2	0.2
Unemployed	1.7	1.8	0.9	1.4	1.1	0.8

Source: PNAD 2008, ENIGH 2008. Author's estimation. For definitions see footnote 4.

2.2. Type of employment and sectoral participation among older workers.

In order to examine the patterns of economic activity among the elderly, this report household surveys for Brazil and Mexico to identify the specific activities being carried out by the aging population, and to provide a first assessment of labor market behavior as the population ages. Table 3 (and corresponding Figure 5) shows the labor force status of age groups between 50 and 80 years old for Brazil and Mexico in 2008. The patterns of type of employment observed in Table 3 corroborate the earlier framework and are shown in Figure 5.

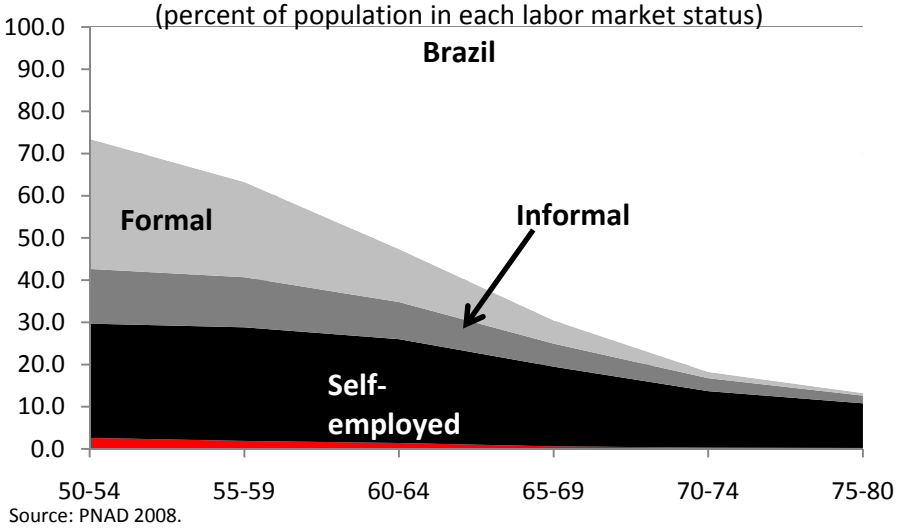
First, formal sector employment shrinks very rapidly after official retirement age, becoming negligible after age 65. Although the fraction of individuals working as formal workers is not small by age 50 (29 percent in Brazil and 20 percent in Mexico) between ages 65 and 69 this declines to 5 and 4 percent respectively. This rapid reduction of individuals working as formal workers in both Brazil and Mexico is both associated to eligibility to pension benefits

[9] These employment rates are close to those observed in some Europe and Central Asia countries like Latvia has 53.3 percent in 2006 (Ingham et al, 2009).

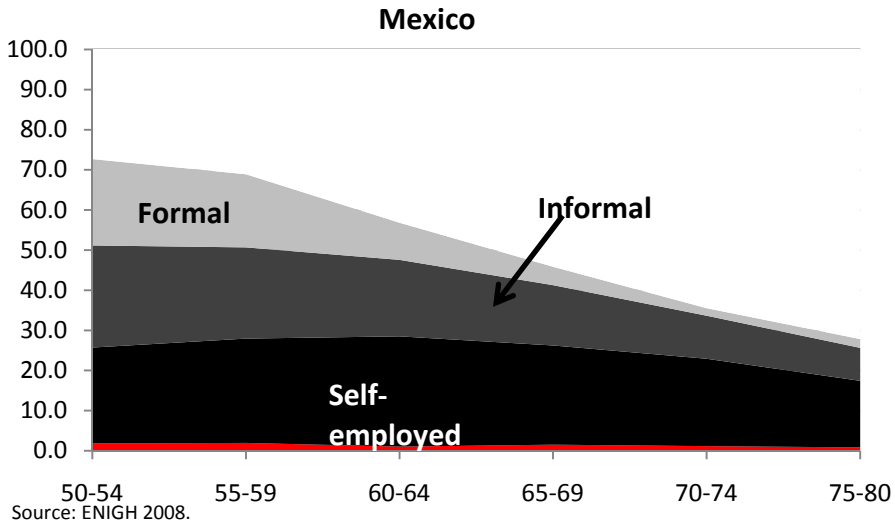
and the incentives to retire and work as informal worker or self-employed. In Brazil the pension and labor market incentives drive retirement from formal jobs (and getting a pension benefit) and continue working informally avoiding inconsistencies with the pension eligibility rule (World Bank, 2006).

Figure 5. Labor market participation among older workers

(percent of population in each labor market status)



Source: PNAD 2008.



Source: ENIGH 2008.

Second, self-employment is the most important and resilient labor market activity among older workers. In both Brazil and Mexico, dependent work (formal and informal) is the most important labor activity in earlier stages of the aging transition (50-59), but by age 60 self-employment becomes the most prevalent labor market activity, even compared to both formal and informal work, combined. In Brazil, almost 23 percent of individuals aged 60 to 64 are self-employed compared to only 11.4 percent in the formal sector and 8 percent in the informal one. A similar pattern is observed in Mexico among the 60-64 age group, where 25 percent are self-employed compared to 17 and 8 percent in the informal and formal sector respectively. Not only self-employment is more prevalent as age progresses, but is the most resilient economic activity, especially in Mexico. Between age 50-54 and 65-69 the fraction of Mexican individuals in self-employment remains unaffected (22 percent), and only declines to 15 percent after age 75. In

Brazil, the decline is also slower up to age 60-64 (from 25.4 to 22.5 percent) and then reaches 10 percent after age 75. The evidence observed for these countries is found in other regions: in Albania and Turkey, more than 75 percent of workers aged 65 to 74 are informal compared to less than 35 percent between 25 and 49 years (World Bank, 2006). This evidence on the role of self-employment and informality suggests that policies addressing labor market conditions for the aging working independently could be an important are for policy action. Still, more detailed analysis of both labor conditions and firm's characteristics are necessary to identify interventions that could enhance the employability of the elderly and the productivity of the firm.

Table 4. Unemployment rates between 50 and 80 years in Brazil and Mexico
(% of active labor force, by age groups)

	50-54	55-59	60-64	65-69	70-74	75-80	**National**
Brazil	**3.3%**	**2.7%**	**2.5%**	**1.6%**	**1.2%**	**1.1%**	**5.9%**
Males	2.9%	2.3%	2.4%	1.5%	1.5%	1.2%	
Females	3.8%	3.2%	2.6%	1.7%	0.6%	1.0%	
Urban	3.7%	3.2%	3.0%	2.2%	1.6%	1.8%	
Rural	1.3%	0.6%	0.7%	0.1%	0.4%	0.0%	
Mexico	**2.5%**	**2.8%**	**1.8%**	**3.3%**	**3.2%**	**3.0%**	**1.9%**
Males	3.8%	3.9%	2.6%	4.8%	4.3%	4.2%	
Females	0.3%	0.8%	0.2%	0.4%	0.4%	0.0%	
Urban	2.7%	3.1%	1.8%	4.3%	4.5%	2.5%	
Rural	2.0%	1.9%	1.8%	1.0%	0.9%	3.8%	

Source: PNAD 2008, ENIGH 2008. Author's estimation

Third, the incidence of unemployment is very low and differences across countries reflect the coverage of pension and unemployment insurance systems. Table 4 shows unemployment rates for different age groups between age 50 and 80 for Brazil and Mexico.[10] These rates average around 2-3 percent and are close to the Latin American mean for those aged 60 or more (3.2 percent).[11] The differences in pension and unemployment insurance coverage may explain the difference between the two countries. In Brazil, unemployment rates for the elderly are lower than the national average (close to 6 percent) and they decline as age groups are covered by the pension system, from 3.3 percent around age 50-54 to 1.1 percent by age 75. The sharpest decline in unemployment rates coincides with the pension eligibility at age 65, where unemployment rate is half that observed earlier. In Brazil, this decline is observed across genders and urban and rural areas with similar levels. Mexico shows a different pattern. Unemployment rates for the aging are slightly lower than the national average and these remain stable around 3 percent during the aging years. In Mexico, unemployment of the aging (red region in Figure 5) is essentially a male and mostly urban phenomenon. Unemployment among females over 50 is negligible and declines rapidly in rural areas. Given the relatively small incidence of unemployment among the aging population this report does not examine specific unemployment design issues for the elderly. Still, in cases like Brazil where UI coverage is

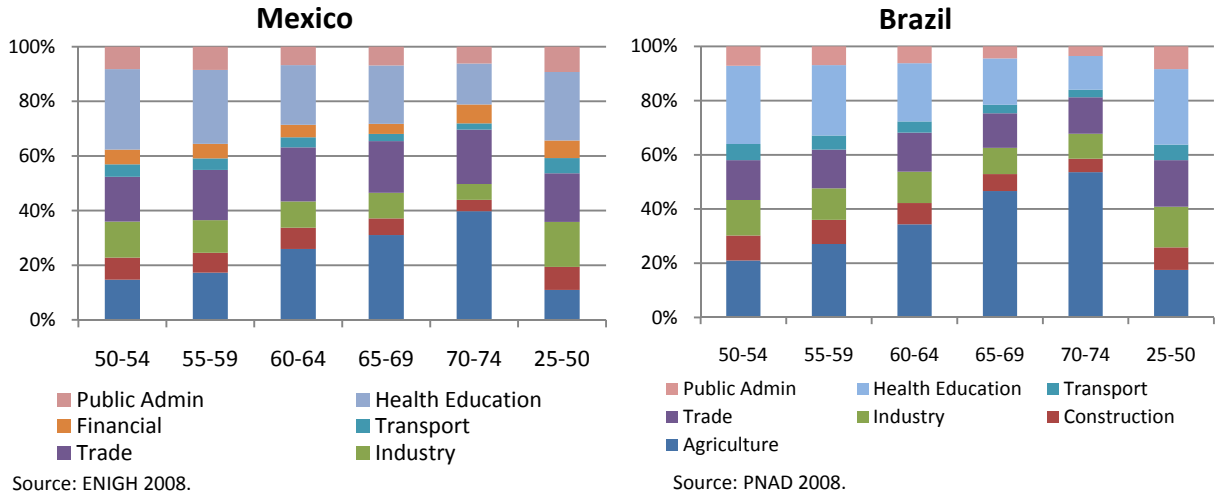
[10] Unemployment rates are defined as those not working and looking for a job during the last week (or last month).
[11] See Cotlear (2011).

larger, especially among those close to retirement, it may be important to address incentives that increase UI utilization and that could speed up retirement decisions.

Sectoral participation

The discussion on type of employment provides a link to the labor market regulatory framework and the role of social security incentives, and how these may affect participation and other labor outcomes. Another important dimension of labor markets among older workers is related to the type of occupations and tasks that individuals need to perform, as these individuals may increasingly face health conditions or other restrictions that can affect their ability to carry out tasks and their productivity. This section does not contain a description of occupations and tasks but of the sector allocation of employment as a proxy for the type of activity performed.[12]

Figure 6. Sector of employment among older workers
(percent of workers in each sector, by age group)



Source: ENIGH 2008.

Source: PNAD 2008.

Workers around age 50 participate mostly in social and personal services but as aging takes place, agriculture becomes the most important activity. Figure 6 shows the sectoral allocation of workers in Mexico and Brazil between ages 50 and 70. In both countries about 30 percent of workers between 50 and 54 years are involved in health, education, and other personal services and these activities remain important until age 70 when 20 percent are still in these sectors. Agriculture and other extractive activities (fishing and mining) occupy 15 and 21 percent of workers in Mexico and Brazil, respectively. These activities become the most important ones by age 60, when 47 percent of Brazilian workers and 31 percent of Mexican carry out these hard tasks. This important and increasing share of workers in extractive activities may pose a challenge for employability since it may demand physically demanding tasks where (deteriorating) health can impose functionality constraints. Trade activities, especially retail trade, represent a significant and resilient activity among older workers. In Mexico, the share of workers in trade increases from 16 percent in their fifties to 20 percent by age 70. In Brazil, it remains stable around14 percent of workers. This partially reflects the resilient share of self-

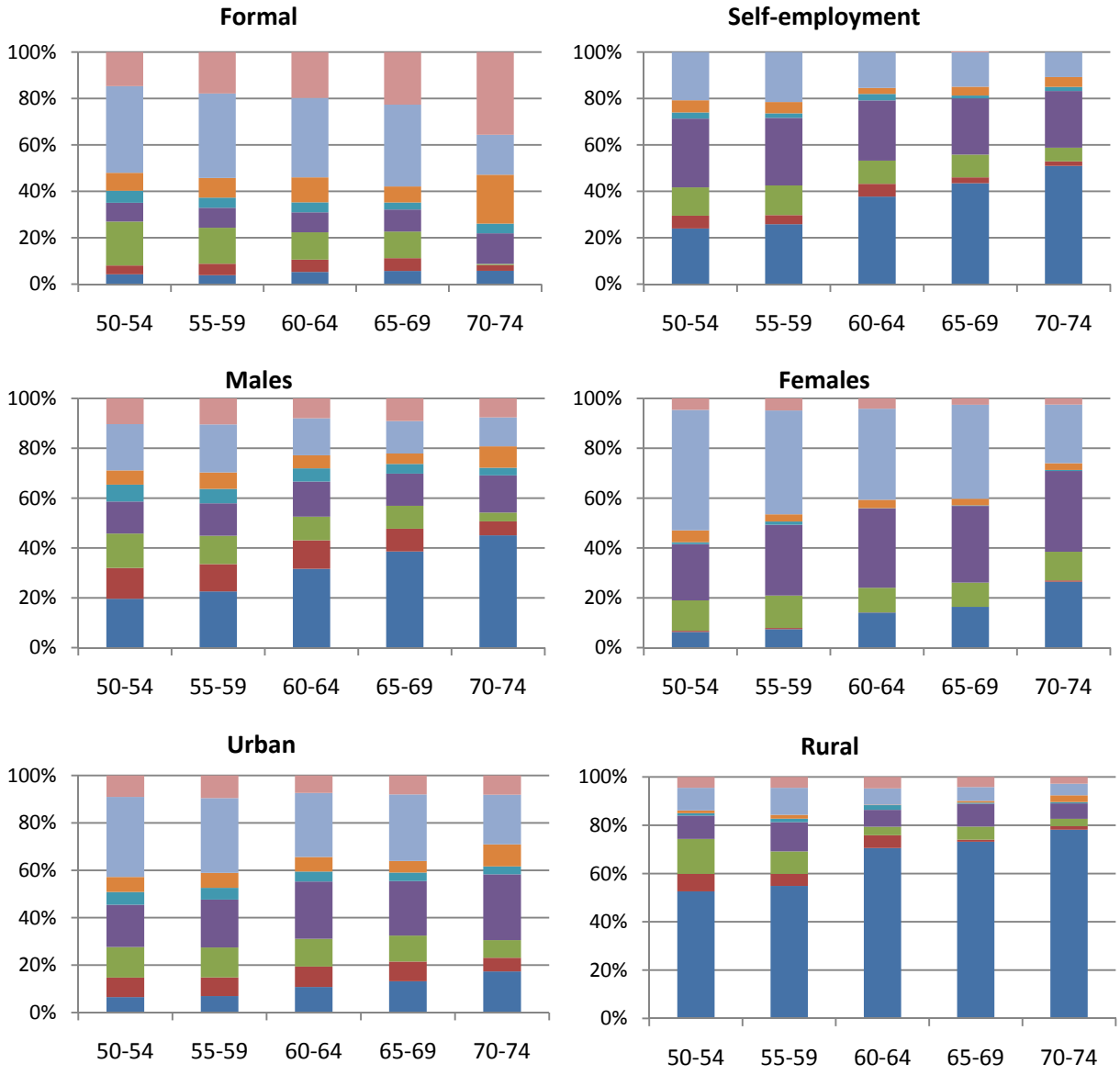
[12] A regional study on skills will shed light on the evolution of skill demands and how the aging population may fit in evolving labor markets.

employment and informality observed earlier. These gross patterns actually hide specific patterns in certain demographic groups, as discussed next.

Most formal sector workers that remain employed, do so in public administration, and social and personal services, underscoring the need to better understand public sector regulations on work and retirement incentives, if different from the private sector. Figure 7 below shows the sectoral allocation of employment for workers in different subgroups: formal, self-employed, males, females, urban and rural for both Mexico (Panel A) and Brazil (Panel B). Among formal workers, public administration and social service provision represent more than half of workers in both Mexico and Brazil. Public sector workers represent more than 10 percent in Brazil and about 17 percent in Mexico, and their retirement incentives must be examined in the context of specific civil service regulations. In addition, a large fraction of health and education workers may belong to public schools and public health care providers, underscoring the need to address public sector regulations on work and retirement incentives. This public sector agenda is more important among females, since a large fraction of them are engaged in social and personal services after age 50. Such assessment of civil service and associated public sector pension schemes should aim at identifying opportunities for maintaining employability, such as providing more flexible working arrangements.[13]

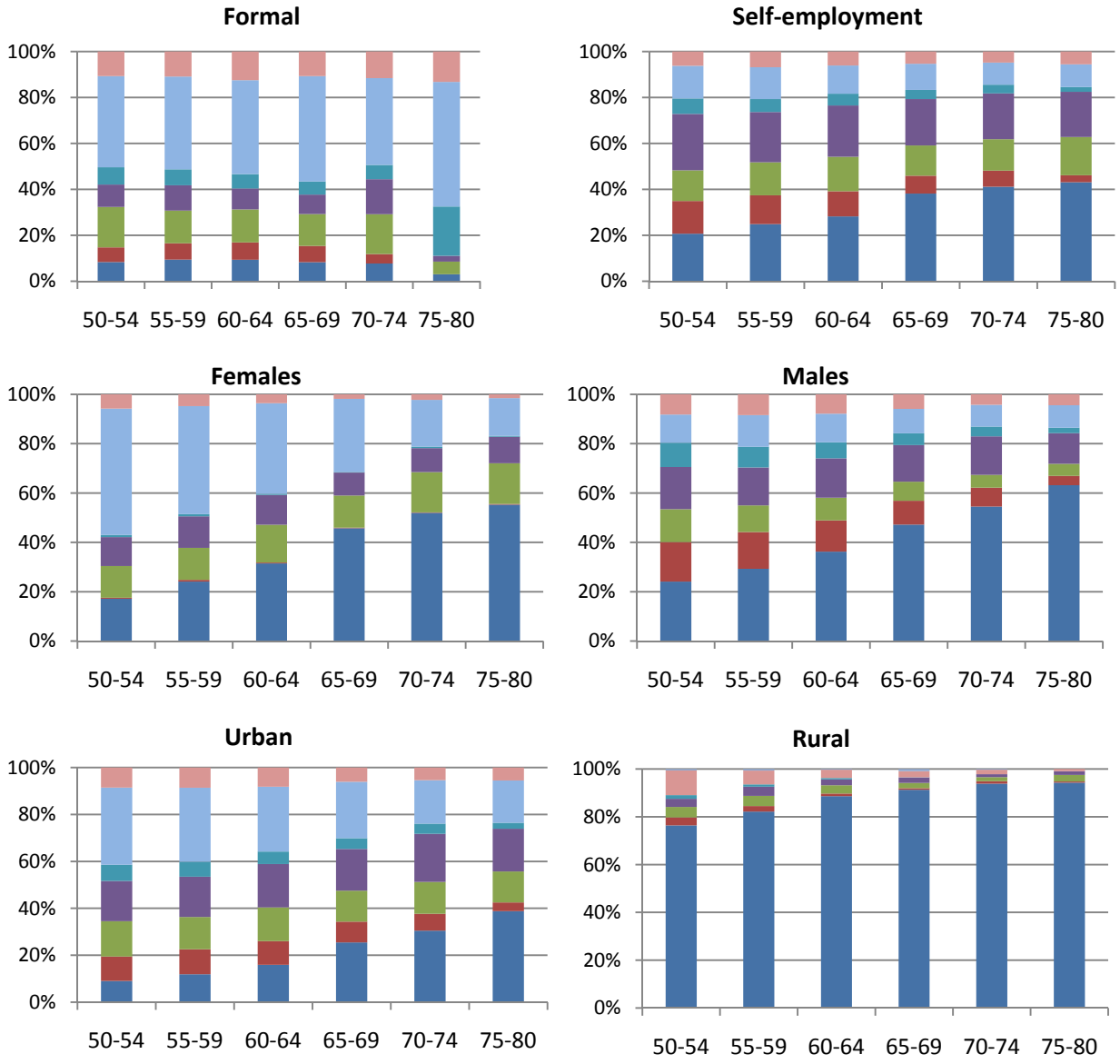
[13] Further insights into public sector labor markets are limited by data constraints. In Mexico's ENIGH 2008, there are only 130 workers in public institutions between 60 and 64 years.

Figure 7. A. Mexico: Sectoral employment of older workers.



Source: ENIGH 2008.

Figure 7. B. Brazil: Sectoral employment of older workers.



Source: PNAD 2008.

The self-employed are largely employed in retail trade activities and in agriculture, with likely lower productivity. Between one quarter and one third of older workers participate in retail and wholesale trade activities, slowly declining in importance after age 60. In Mexico, where trade participation is higher, it declines from 30 to 25 percent between ages 50 and 70. Although retail and wholesale trade may not necessarily involve heavy tasks, some of the responsibilities may impose longer hours in the market. Parallel to the gradual decline on trade, there is an increasing importance of agriculture among the self employed, mostly driven by agricultural rural workers that includes half of those aged 50-54 in Mexico and close to 80 percent of those in Brazil. By age 60, 40 percent of self-employed in Mexico and 35 percent in Brazil are in agriculture (mostly in rural areas). As agriculture and other extractive activities are

likely to be physically demanding, the potential for continuing employment and sustained productivity may be limited. The fact that trade and agriculture become the most important employment sectors for older workers goes against the notion that heavier and more physically demanding jobs should become less prevalent, unless labor can be adjusted by the level of effort (type of task) and time spent (hours). If that is the case, productivity should reflect those adjustments on required effort and hours resulting in lower productivity employment. In rural areas in Mexico, this type of employment largely represents subsistence agriculture with observed low productivity, and in urban areas trade activities mostly include retail trade with low productivity and incomes. Still, trade activities may have offer potential for increased absorption of older workers, especially among females where participation has been increasing faster.

Still, these patterns of employment by sector need to be accompanied by detailed projections of occupations and tasks to assess the suitability for employment among older workers. The fact that older workers participate in the sectors mentioned above, does not imply that those sectors will continue absorbing the coming waves of older workers given the changes in the economic structure and labor supply. First, it will be needed to project the sectoral growth and the resulting labor demand for each sector. Second, it will be needed to project the underlying demand for occupations and tasks in each sector in order to assess whether the resulting labor demand may be a good fit for the older worker. As any other projections, these may suffer from data limitations since the occupation and skills demand in agriculture may be shifting towards less physically demanding tasks, due to technological change, for instance. The ongoing analysis by Luque and Moreno (2011) that projects demands for skills associated to sectoral tasks could provide a solid starting point for this assessment but will need disaggregated projections among older workers.[14]

Income poverty and employment of older workers

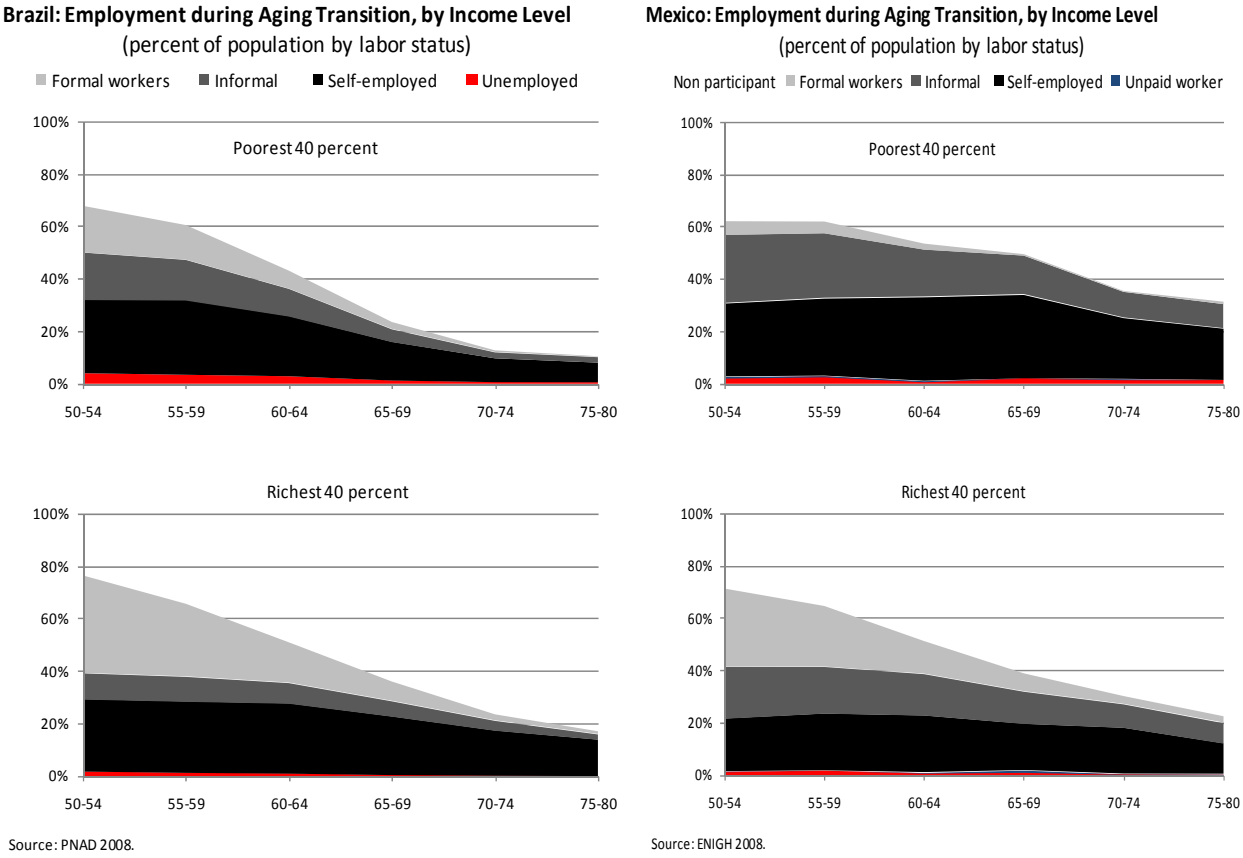
Labor market outcomes for older workers are especially important since they are closely associated to income poverty levels. Figure 8 shows labor market status of older cohorts for Brazil and Mexico for different income groups. The top panel shows the labor transition for those living in the 40 percent lower income households in both countries, while the bottom panels show the transition for the 40 percent better off households (non poor). Noticeably, the labor transitions among the better off (bottom panel) in both Mexico and Brazil are similar: labor market participation at age 50 is around 74 percent and formal workers represent about 40 percent of the working population. Formal workers stay in the labor market but retirement is fast after age 65. In Brazil, half of workers at age 50 are in the formal sector, and this share drops to one fifth by age 65. In Mexico, a similar drop takes place between 43 percent and 18 percent in the same age groups. In both countries, even among the better off older workers, self-employment and informality becomes more prevalent by age 65, when more than 80 percent of workers are in those sectors.

Poorer older workers are mainly in self-employment and informal positions, but in Mexico retirement among the worse off is negligible compared to Brazil. Mexican self-employed workers stay working until their late 70s, showing a small decline from 28 percent of the

[14] As recognized by the authors, these skills demand projections still suffer from data limitations, hence the need to rely on patterns of skills, tasks, and occupations from the U.S.

population in their fifties to 24 percent of those in their 70s. In contrast, in Brazil, the self-employed decline from 24 percent to 8 percent between the same age groups. The fact that all formal, informal and self-employed workers gradually drop out faster of the Brazilian labor market, and even for the poorer population, suggests that it may be associated with the presence of a larger and more generous pension system that provides for both contributors and non contributors alike. In both countries, the income differences in labor market status corroborate that addressing employability for the self-employed and the informal are likely to enhance labor income potential for the poor.

Figure 8. Labor market status between ages 50 and 70, by income level.

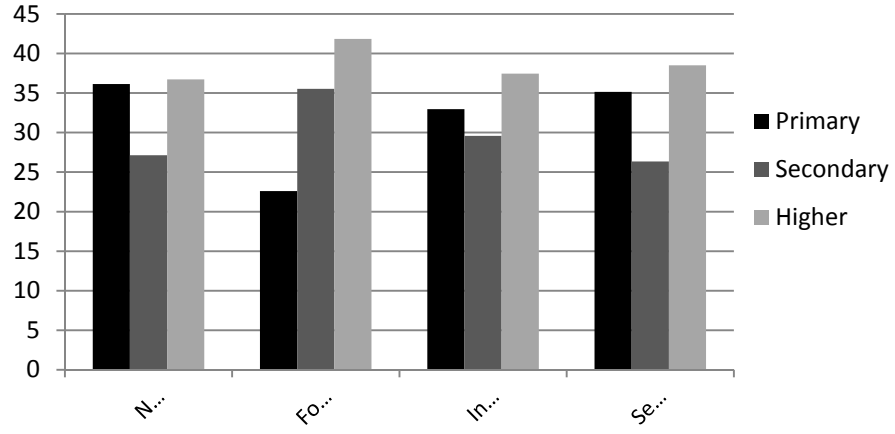


Educational attainment in each type of employment provides additional guidance in identifying employability challenges. Labor market status after age 50 is an outcome of early investments in education and individuals' work history. Figure 9 shows the share of individuals aged 50 to 64 by educational attainment in each of the labor market categories. Formal workers in Mexico, for example, have the largest share of higher educated individuals (about 42 percent) compared to only 23 percent with primary education. Interestingly, the self-employed also have a large share of higher educated workers (about 38 percent) but it is similar to the educational attainment of the age group. The self-employed, on the other hand, have a disproportionate share of primary educated workers, reflecting those in agriculture in rural areas or in trade activities and other low productivity tasks in urban areas. Informal workers follow a pattern similar to the self-employed but reflect closely the distribution of workers in this age group.

The patterns of educational attainment across different types of employment suggest different policy agendas across employment categories. Among formal workers, the larger fraction of higher educated workers poses a challenge for increasing employability since they may also have higher reservation wages and may prefer to withdraw from the labor force given the retirement incentives. It is likely that retirement incentives may be the key factor in extending their working life increasing their labor market participation. Among the self-employed and the informal there is a two-pronged agenda. First, there are the higher educated self-employed, the professionals working independently, with higher incomes and capacity to adjust effort and hours between ages 50 and 70. This group may also have higher reservation wages and willingness to retire given enough accumulated wealth. In any case, this group may not be a priority from a distributional angel since they are likely to have built enough wealth for sustaining during old age. Second, there is the worker with only primary education or less, working longer hours with lower productivity that may benefit from skills updates. In rural areas, workers involved in agriculture may not offer a potential for increased employability, unless it is at very low productivity levels (older worker taking care of a subsistence farm) and subject to a large vulnerability (unless health insurance can be provided). In urban areas, those older workers in retail trade activities may upgrade to more managerial activities depending on the availability of others to carry out the more physical activities. In both cases, the potential for increased employability may depend on external factors like technology changes (that allow a subsistence farmer to depend less on physical strength) or labor supply (to carry out the time intensive activities in urban retail trade activities).

Figure 9: Mexico: Educational attainment and labor market status, ages 50-64

(percent in each sector, by age group)



Source: ENIGH 2008.

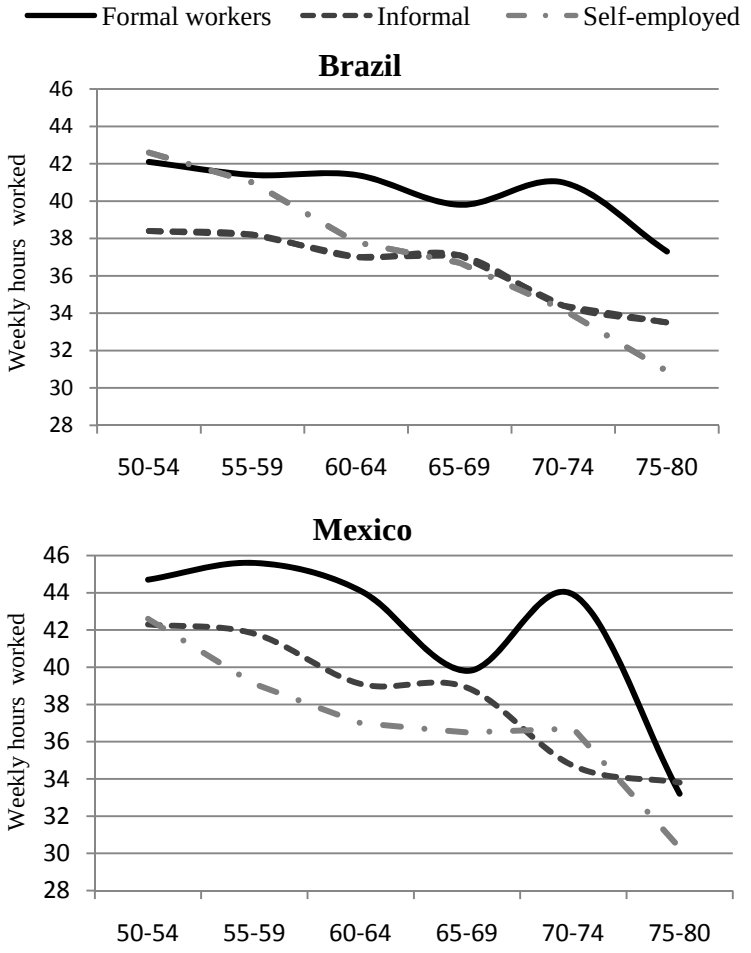
2.3. Intensity of work load: hours worked among older workers.

Older workers that stay active show a large number of hours per week, but different adjustments over time depending on the type of employment. Figure 10 shows the average number of hours worked by different age groups and by type of employment in both Brazil and Mexico. In Brazil, those that continue engaged in the formal sector keep working more than 40

hours per week and only show a slight decrease to 37 hours by age 75, when only 0.6 percent of the individuals are still formal workers. In contrast, informal and self-employed workers show a more gradual adjustment of their hours. The self-employed show the most gradual adjustment from more than 42 hours in the 50-54 age group to 31 hours in the 75-80 group. Mexico shows a similar pattern, where those staying in the formal sector have 40 or more hours till the end of their working life (hours worked decline to 37 only in the 75-80 group when only 2 percent of individuals are formal). The gradual decline among the informal and the self-employed is similar to that of Brazil, although the decline in hours among the informal is more pronounced in Mexico. In Brazil, informal workers at age 55-59 work an average of 38 hours and decline to 34 in the 70-74 age. This 4-hour drop in the informal sector is small compared to the 8-hour drop among informal in Mexico, from 42 hours to 34 hours across the same age groups.

The patterns of adjustment of hours between age 50 and 70 reflect preferences over labor supply decisions that could be better accommodated in the self-employment sector. The evidence presented suggests that while formal workers remain full time employees, those in the informal and self-employed adjust their hours more gradually over time. Whether these formal sector rigidities in hour-adjustments are driven by labor market regulations or by firm and worker preferences is hard to distinguish empirically. Research in industrial countries suggest that, in fact, labor supply preferences during aging tend to decline over time, looking for shorter hours and more flexible time arrangements (OECD, 2007). If the adjustment of hours in the self-employment group reflects preferences over labor supply which are common to other older individuals, these preferences are better accommodated in employments where the workers has more decision power like self-employment. This pattern of increased self-employment with age and reduction in hours is also found in industrial economies like the U.S. where self-employment may be an alternative to labor force withdrawal and offer opportunity to reduce hours (Karoly and Zissimopoulos, 2004).

Figure 10. Hours worked among older workers, Brazil and Mexico 2008

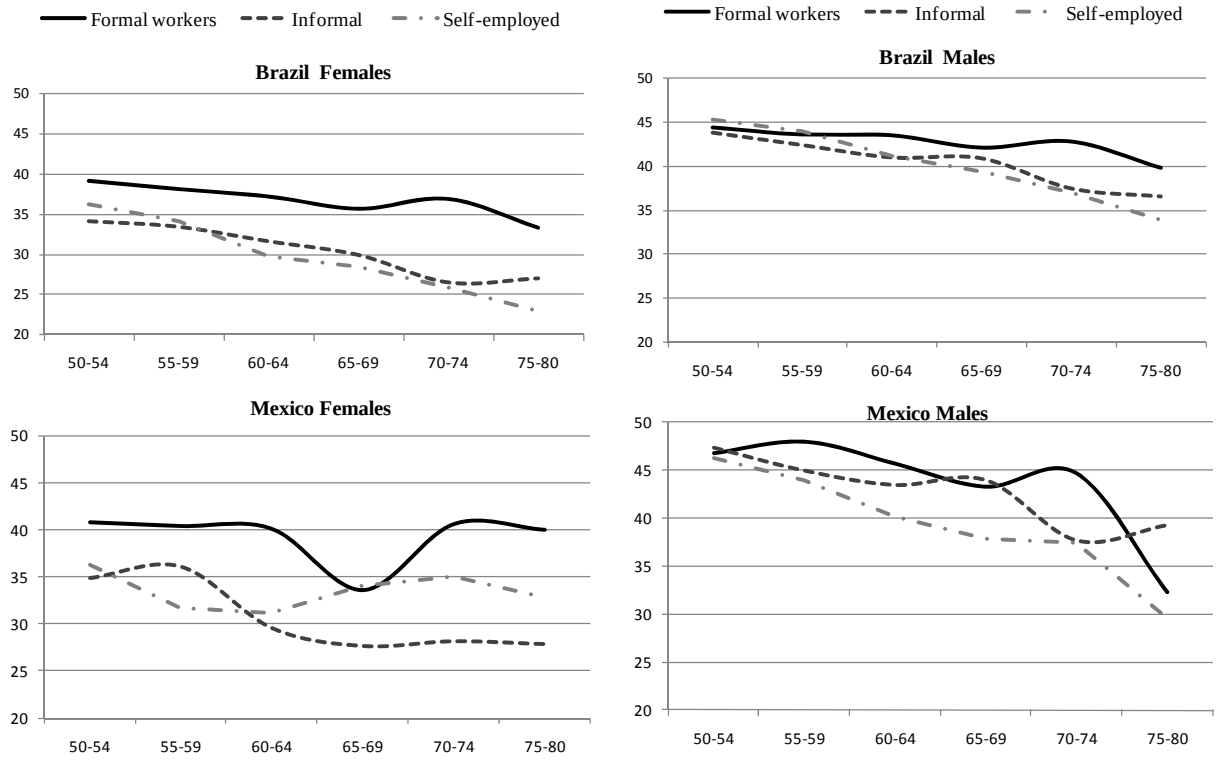


Source: PNAD 2008, ENIGH 2008.

Older males and female workers differ in their work intensity, where females show a gradual adjustment over time, especially in self-employment. Figure 11 shows the average weekly hours worked by age groups by type of employment and gender in Brazil and Mexico. Brazilian males during transition work full time (40 or more hours), and those in the formal sector work full time until advanced aging (after 75). In the informal and self-employed sector, weekly hours are adjusted gradually reaching 33 hours in the 75-80 age group. Brazilian females show a gradual decline in labor supply by reducing hours in the informal and self-employment sectors, but not much in the formal sector. By age 65, Brazilian females in the informal and self-employment are working around 30 hours per week and by age 75 they work half time (23 hours). A similar pattern is observed in Mexico, although the adjustment in labor supply takes place earlier around age 55. Females in the informal and self-employment sector adjust their hours after age 60 dropping from 35 hours by age 50-54 to 30 hours per week by age 60. Afterwards, they remain working at that level or drop from the labor force. Mexican males in the formal and informal sectors work full time (40 hours) till late in the transition and only drop after age 70. Those self-employed males, on the other hand, seem to be adjusting their hours

throughout the transition reducing one hour per year after 50. This evidence corroborates the role of self-employment allowing for greater flexibility in work intensity (hours) and possibly in working conditions.

Figure 11. Hours worked among older workers, by gender and type of employment



Source: PNAD 2008, ENIGH 2008.

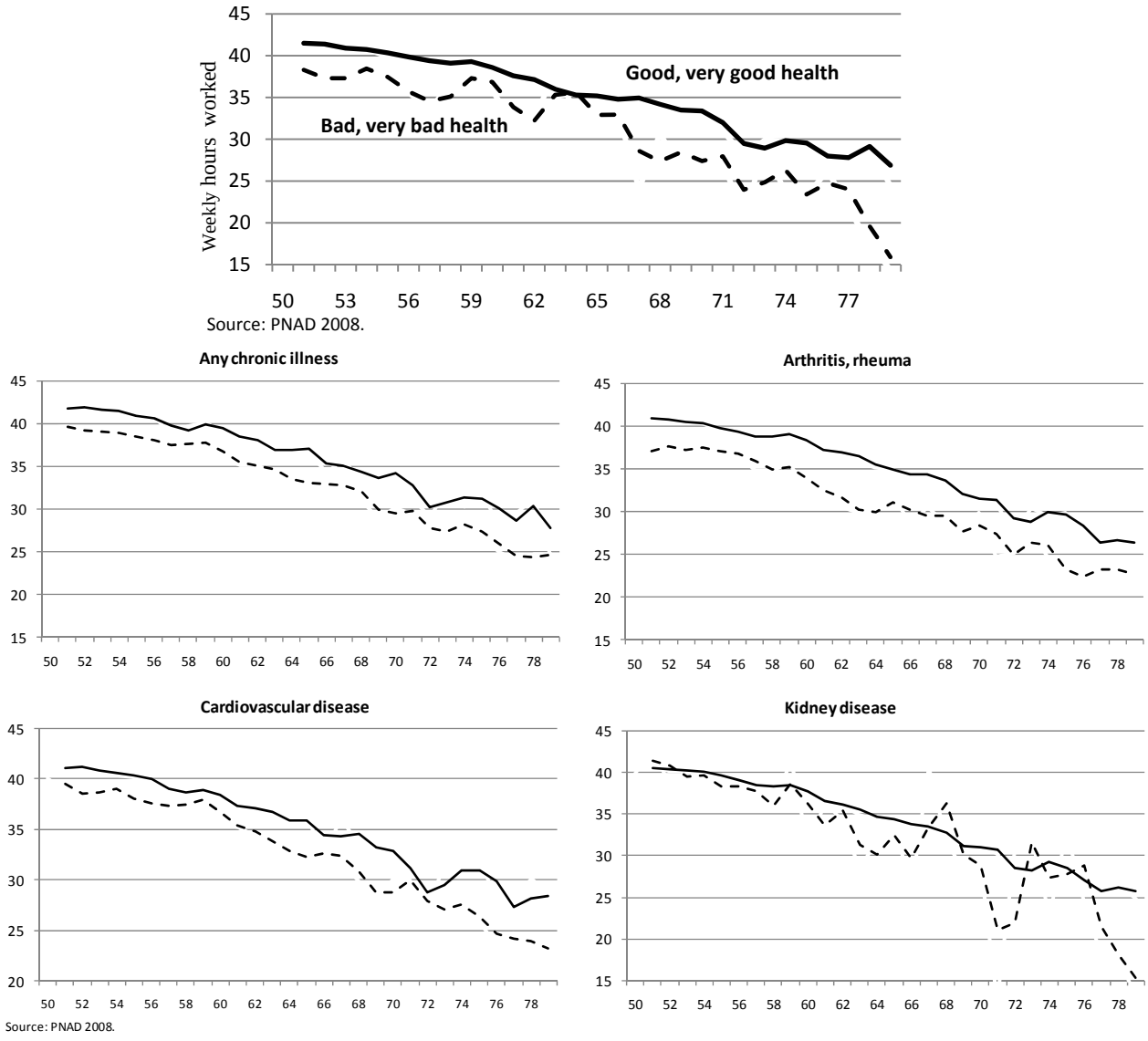
In addition to gender, sectoral participation, and intensity of labor supply, older workers may be affected by other three important changing elements during the aging transition: health status, household demographics, and reliance on remittances. Although the objective of this report is not to examine these in detail, the analysis below shows key patterns to take into account in future analytical work.

2.3.1. Labor supply and health status

An important determinant of labor force participation and hours worked is health status of the individual, which changes rapidly after age 50. A characteristic feature of aging is that health status may start to show signs of vulnerability and illness. Linkages between labor markets and health during old age may reflect the impact of health on lower productivity or the impact of strenuous labor conditions on health. Van Gameren (2010) uses the Mexican Health and Aging Study information on individuals of 50 or older and finds that individuals aged 50 or more increase their labor force participation by 10 percentage points if they are healthier, as measured by objective measures such as diagnosed illnesses or indicators of activities of daily life. A recent study on the effects of aging in Brazil (World Bank, 2010) corroborated that health status was closely related to labor market performance, in particular to participation and wages

(Soares, 2010). The study found that most of the health related impacts took place on the extensive margin (participation) and found no evidence on impacts on the intensive margin (hours worked). Criticism to self-reported health status (SRHS) is based on the subjective perspective of the respondent. Strauss and Thomas (1996) showed that SRHS could mislead the assessment of policy relevant questions since those more exposed to health facilities, for example, are more likely to report a higher incidence of illness. A more objective measure of health is the diagnosis of specific illnesses common among the elderly which is discussed next.

Figure 12. Brazil: Health Status and Intensity of Labor



Source: PNAD 2008.

Using both SRHS measures and reported diagnostics by professionals, this report finds that poor health status (or illness) is associated to lower hours worked.[15] Figure 12 shows

[15] The PNAD includes questions like "Has a medical doctor or health professional diagnosed that you have [illness]?" where illness could be spinal problems, cancer, hypertension, heart disease, kidney disease, and others.

the relation between self-reported health status and hours worked. Those reporting bad or very bad health status (dotted line) have lower hours worked compared to those with good health status (solid line) and this difference in hours worked increases as aging increases.[16] Figure 12 shows also the link between non communicable diseases (cardiovascular, kidney illnesses or arthritis) and hours worked. A composite indicator for any kind of chronic illness is also included. These graphs show that individuals with reported chronic illnesses (dotted lines) reduce their hours worked, compared to those older workers without conditions. This suggests that interventions that help manage those illnesses may help sustain hours worked after age 50.

Health care provision and health insurance may also distort incentives for labor force participation. If health insurance provision is attached to formal employment, then it provides an incentive for older workers to remain employed in order to maintain their insurance coverage. In this setting, publicly provided (and subsidized) health insurance programs may offer incentives for earlier retirement since they could use those insurance programs rather than remain employed. French and Jones (2011) exploit changes in a subsidized health insurance program for the elderly in the United States (*Medicare*) to show that reducing subsidized health insurance (by increasing eligibility age from 65 to 67) increases the number of years worked, corroborating the suggested hypothesis. In Mexico, on the other hand, recent work by Aguilera (2011) shows that *Seguro Popular* -- a free health insurance program for those not covered by other insurance programs -- does not have any effect on formal employment nor in the probability of joining or leaving the formal sector. The paper suggest that the lack of effects found is due to the little knowledge about varying quality of services across health care providers associated to each health insurance program, and to the associated benefits that other programs offer. That is, workers contributing to the national social security (IMSS) that provides health insurance and pensions, are less likely to move to informality (and Seguro Popular) because they have other incentives to remain formal such as pension coverage. Kurowski (2011) reviews the existing literature and suggest that papers that do not find any effect also suffer from limitations in the analysis, focusing only on urban areas, not properly accounting for delays in impacts, and do not cover longer implementation periods. In sum, the evidence seems to be mixed and depends on the population affected by the program (say, the youth) and the parameters of the programs (relative benefits of both pension and health packages).

2.3.2. Another (non market) side of labor supply: hours spent in household chores

Older individuals may devote an important share of time to household chores that needs to be accounted for in policy design. Aging brings a number of changes in labor engagement that are reflected in their intensive margin (hours, as seen in self-employment), or on the extensive margin (work/retire, as seen in the formal sector) of their labor participation. These changes in the market use of labor may be linked to other uses of household labor resources, mostly non market activities at home. These activities range from caring for infants, other elderly, and the sick, to household maintenance activities (cleaning, repairs, gardening). For example, a working 55 year old female may prefer to retire or work fewer hours in order to care for some infants or a sick person at home. The implicit calculation by households compares the foregone income of

[16] The difference with the analysis of Soares (2010) is that Soares grouped SRHS into two groups: very good and good health, and those with regular, bad or very bad health. Figure 12 (first panel) omits those with regular health status to emphasize the difference between the two tails of SRHS.

the 55 year old female compared and the savings in care giving costs for the kids or the sick person, in addition to other non pecuniary benefits from either working of caring for the relatives. The role individuals play at the household will affect the opportunity cost of their labor and should be accounted for in policy design. Otherwise, policies that narrowly focus on incentives to increase employment without accounting for household conditions may be either ineffective (when there is no take up) or too costly (when the incentive needed is too high). Next, this section reviews patterns of household chore engagement after age 50 to provide a first view on the intensity of non market activities and their potential relevance for policy issues.

Females more than double the time spent by males in household chores, even controlling for labor market status or age group. Table 5 shows the average number of weekly hours spent on household chores in Brazil and Mexico across different age groups and labor market status.[17] In Brazil, individuals keep the level of household chores constant after age 50. This does not vary across types of employment since the employed in the formal (9.6 hours) and informal sector (10.3 hours) and self-employed (10.1) roughly spent the same amount of time performing household chores. Those males not working and not seeking for a job (non participants) or those unemployed spent about 14 hours and keep it throughout the transition. Brazilian females, on the other hand, spent a larger number of hours in household chores: even formal workers in full time jobs, spend 20 hours per week in household chores, and those in informal and self-employed positions spent 24 hours. Unemployed females or those non participants spent 35 hours in the 50-54 age group, and it declines to 28 hours only by age 70.

Table 5. Time spent on household chores between ages 50 and 70.

	Brazil						Mexico					
	50-54	55-59	60-64	65-69	70-74	75-80	50-54	55-59	60-64	65-69	70-74	75-80
Males												
Non participant	14.7	16.2	14.3	14.7	14.0	13.7	13.1	20.2	18.4	18.5	16.0	10.3
Formal workers	9.6	9.8	10.8	11.1	12.1	12.4	10.2	10.3	9.7	10.0	7.0	5.5
Informal	10.3	11.4	11.1	11.2	10.7	11.2	11.6	11.3	12.9	12.4	6.3	12.2
Self-employed	10.1	9.9	10.5	10.2	11.0	10.5	13.7	14.1	10.9	9.3	10.5	11.7
Unpaid worker	12.7	12.9	11.8	12.3	11.5	10.8	22.2	2.4	32.3	11.4	7.3	0.0
Unemployed	14.7	14.8	14.1	15.5	12.9	12.4	20.4	24.1	13.9	14.8	17.5	3.6
Females												
Non participant	35.4	33.8	32.4	30.2	27.9	24.2	38.9	39.5	34.3	33.7	26.3	20.4
Formal workers	20.7	21.0	22.7	21.4	25.7	22.2	24.7	20.1	21.3	30.0	14.9	35.1
Informal	24.3	24.7	25.3	23.1	23.2	18.9	29.5	27.0	23.6	23.9	17.4	23.7
Self-employed	24.3	25.0	25.5	25.1	22.9	22.5	35.1	33.0	30.1	27.7	22.2	24.9
Unpaid worker	29.2	29.6	29.6	28.0	27.3	24.4	25.9	33.1	32.9	49.4	21.0	14.0
Unemployed	31.3	33.7	28.0	36.4	12.5		15.1	33.6	28.8	61.1	54.0	

Source: PNAD 2008, ENIGH 2008. Author's estimation

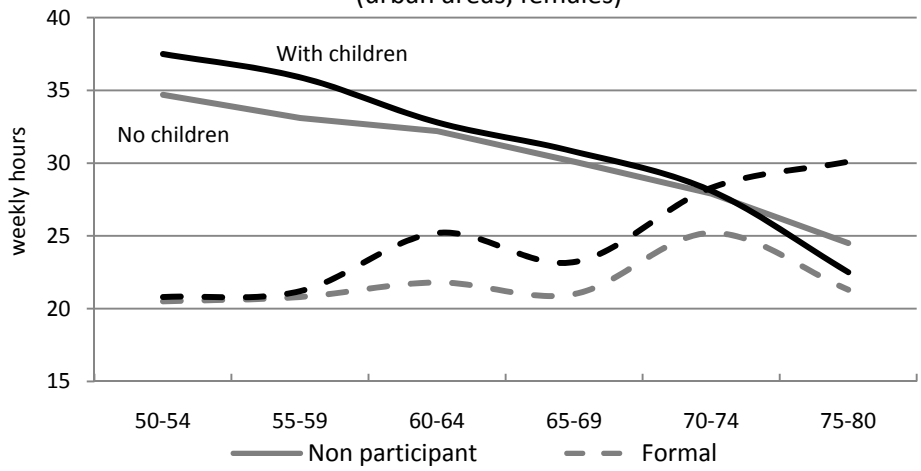
[17] Brazil's PNAD includes information on time spent on household chores for most of their surveys. Mexico's ENIGH started collecting information on time spent on household chores in 2001.

Mexico offers a very similar view but differs in one dimension: Mexican females spent even more hours in household chores than the Brazilians, while males spent roughly the same amount as of the Brazilians. Self-employed Mexican females spent more than 30 hours during their 50s and reduce the load to 23 hours after 70. Non participating females spent as much in household chores as a full time job (40 hours) during their 50s and slightly decline below 34 hours after age 70.

Labor force participation, hours worked and hours spent on household chores are closely related, especially for females. Labor force participation (both on the extensive and intensive margins) are determined by individual characteristics (gender, age), labor market conditions, and household demographics, among other factors.[18] The evidence from Brazil shows that the patterns of time spent on household chores not only varies across genders or labor market status, as discussed before, but varies significantly depending on household demographics. Figure 6 shows the average number of hours spent on household chores for urban females, for four different groups (formal workers, non participants, with and without children in the household). This analysis considers children as those of 12 years or less. Non participants (solid lines) show long hours around age 50, and those females living in household without children (gray line) spent 3 hours less than those in households with children (black line). While these non working females have their household work increased marginally due to the presence of children, they both converge to the same amount of time on household chores (23-24 hours). A different pattern is found among urban females that are in the formal sector (dashed lines). They continued working long hours in their jobs (see Figure 9), dropping from 40 to 35 hours. These same individuals that increase their work load at home (Table 5), spent even more time in household chores if there are children under 12. Figure 13 shows that females working in the formal sector in their fifties spend roughly the same time on chores (20 hours), but by age 60 those with children spent 4 hours more in chores than those without children (25 vs. 21 hours). This difference in changes of time spent at home mirrors the hours at work spent by these groups: formal workers without children reduce their average working hours from 39 to 31 hours, compared to the reduction by those with children from 39 to 21 by age 70. This suggests that among those urban females still working as formal workers the presence of children at home reduced the number of hours significantly. This evidence suggests that the linkages between labor force participation, hours worked, and household chores are closely related and that interventions aimed at releasing female labor supply from mothers (such as day care for children), could also be affecting older females in the household.

[18] See Killingsworth and Heckman (1987) for a survey of the literature on female participation.

Figure 13. Brazil: Hours spent in household chores
(urban areas, females)



Source: PNAD 2008. Author's ellaboration.

The patterns of household chores engagement suggest that labor market interventions addressing the older workers would need to account for these non market activities and that adequate gender distinctions would be needed in the design of interventions. On this issue, more detailed analysis of the specific household chores would be required to better assess the economic value of those non market services. An important aspect in the valuation of time use at home will be closely linked to aging patterns. As Box 1 discusses, the elderly attach a lower negative emotion to household tasks, suggesting a reduced level of dissatisfaction. This underscores the need for analytical research on both the quantity and allocation of time spent at home so that could provide policy makers interested in increasing labor participation, with a better sense of the *emotional* opportunity cost at home which may be valued using detailed information on household time use and labor market outcomes.

Box 1. Recent research on valuation of time use at home

An important dimension of the aging transition is the changing perception of (dis)satisfaction associated to different household tasks which, in turn, affects labor decisions. The perception individuals have regarding certain activities (caring for kids or washing dishes) changes as people grow older. Economic and psychological research on *time use* accounting has found that as aging takes place, the reported level of dissatisfaction of household tasks decreases, and that this reduction is attributed equally to less time spent on certain tasks (e.g. caring for kids) and to a lower emotional stress associated with the task. Krueger, Kahneman, Schkade and Stone (2010) examined this issue in an effort to under establish a National Time Accounting framework, and created a U-Index, a measure the expresses the share of time spent on unpleasant activities.

Their findings over a sample of 4,000 people in the U.S. show that people over 65 are less dissatisfied with household tasks because they do not attach such as a negative emotion to specific tasks. These differences between age groups are not observed across income levels suggesting changes attached to aging. While these results are based on a sample in the U.S. -- and their cultural and social values may differ from those in Latin American countries -- it is plausible that the perceptions that older people have over household chores may differ significantly as well.

Source: Krueger, Kahneman, Schkade, Schwarz, and Stone (2008.

2.3.3. Labor supply and remittances

The impact of remittances on labor supply has been subject of extensive analyses but little has been explored on the impact of the labor supply among *older* workers. The economic analysis of migration and remittances has addressed the question about the labor market disincentive effects of remittances. Conceptually, additional non labor incomes (as remittances) increase the reservation wage and reduce labor supply. In practice, it has been found that remittances are one dimension of a broader household decision making where labor resources are allocated in country and abroad and remittances reflect part of that decision. Empirically, remittances are found to have more complex effects on labor resources, both market and non market labor uses. In Mexico, Pozo (2006) found that households receiving remittances would reduce their wage employment but they would increase their self-employment labor as well. As LAC economies differ in their coverage and generosity of pension systems, they also differ in the way remittances affect households. The analysis on remittances and labor markets has not addressed the specific impacts on labor market decisions among older individuals. This section provides a glimpse of key issues that suggest remittances may be an important driver of labor outcomes in some LAC countries.

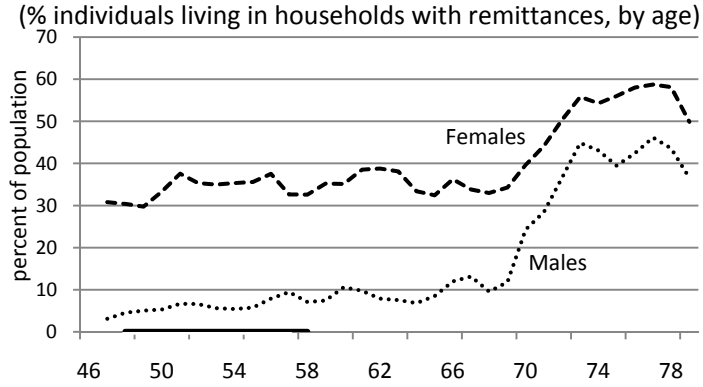
The increased incidence of remittances among older individuals suggests potential large effects on labor market participation, especially for females. In Mexico (Figure 14, panel a), more than a third of females receive remittances during their 50s and 60s and quickly this share rises to close to 60 percent after 70. While males have a lower incidence of remittances, after 70 about a half of them live in households with remittances. Even before getting the increase in remittances at 70, this additional income is related to labor market participation (Figure 14, Panel b). Participation among males without remittances (Male-No in Panel b) is very high (95 percent) and starts to decline significantly at age 60, compared to participation among males with remittances (Male-Yes) that fluctuates around 50 percent and does not change after age 50. These differences are also observed among females. Participation in labor markets among females without remittances is very high and declines from 80 percent at age 45 to close to 30 percent at age 70. Females with remittances, on the other hand, show a very low participation (around 10 percent) over time. These differences in participation, even not controlling for other factors such as family demographics, suggest that remittances may play an important role in labor decisions in the years before age 50, and hence can affect labor market behavior during the transition.

Remittances are also associated to the number of hours worked among males (Figure 14, Panel c), since working males without remittances work longer hours after age 50. The evidence about the incidence of remittances in the Mexican case, their associations to labor force participation, and hours worked, suggest that these linkages need to be better explored to guide the formulation of labor policies in high remittances contexts. Parallel to policy recommendations in the migration and remittances literature, the challenge is how to generate mechanisms that exploit remittances flows to enhance productive potential of workers, especially older workers largely involved in self-employment. If remittances can be used productively (loosening cash constraints in self-employment, for example), the associated labor of the recipient household may increase its productivity and continue working. Conversely, this higher productivity and household income may also reduce the labor supply due to income effects.

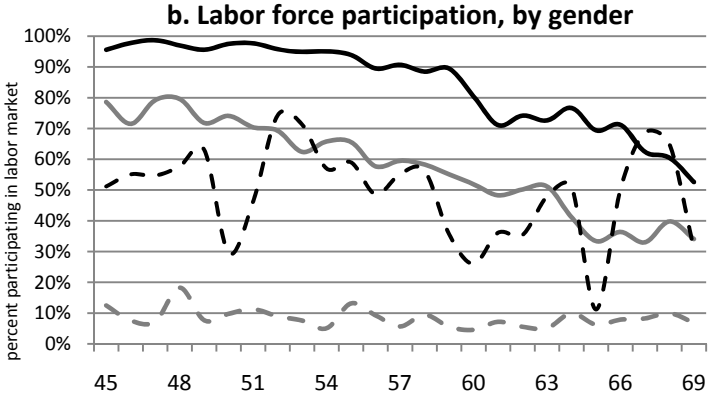
Figure 14. Mexico: Remittances and Labor Supply

a. Incidence of remittances among older workers

(% individuals living in households with remittances, by age)

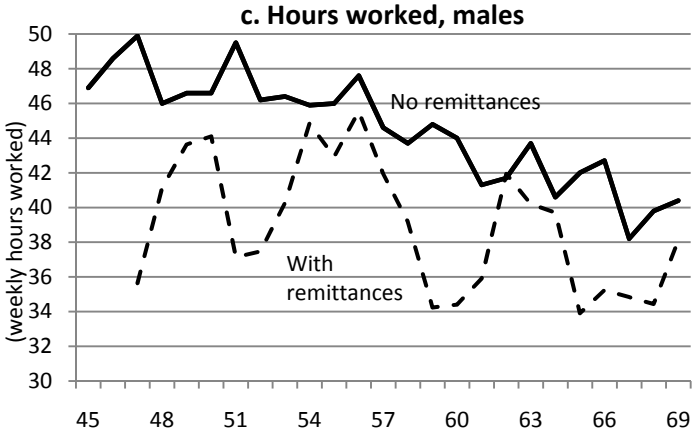


b. Labor force participation, by gender



Source: ENIGH 2008.

c. Hours worked, males



Source: ENIGH 2008.

2.4. Earnings among older workers

As aging progresses, certain abilities tend to decline and this may be reflected in declining productivity and wages. A number of studies have documented the decline in cognitive and non cognitive abilities during the aging process. Skirbekk (2003) reviewed a number of studies

(mostly in the U.S. and Europe) to document the declines in abilities as aging advances and how those declines may affect productivity depending on the type of job being performed. This section describes the wage patterns during the aging transition as a first proxy of productivity among those who stay employed. This may, in turn, serve as a reference for the need of potential interventions to enhance productivity (and wages) among older workers. Table 6 shows the average hourly wages for older workers, across different types of paid employment and gender. Traditional wage analysis is performed based on a standardized hourly wage to control for differences in hours worked. In analyzing wages for older workers, this standardization is even more important due to the significant differences across types of employment and genders discussed before. All hourly wages are measured in local currency (Real in Brazil, Peso in Mexico) of 2008.

In Brazil, earnings for dependent older workers are maintained in contrast to the earnings of the self-employed that decline as aging advances. Hourly wages for formal and informal workers maintain a stable value across age groups, aside from an increasing variance as the number of workers shrinks. Hourly wages in the formal sector was about R$1.31 for the 50-54 age group and it declined to R$1.17 among the 70-74 group. Earnings among the self-employed for the same age groups show a larger decline from R$1.10 to R$0.70 between the same age groups. Among females the pattern is the same, with an identical proportional decline from R$0.77 to R$0.48 among self-employed. In Mexico, the patterns are less clear due to the shrinking number of workers, but still can be observed that formal workers are better off in maintain the hourly wages compared to employment groups. Formal Mexican workers earn around $40 pesos per hour throughout their 50s and 60s, compared to those in the informal sector that show a steady decline from 18 to 10 pesos, and those self-employed that see their wages decline from 11 to 8 pesos per hour. These changes across employment types are found across genders as well. This descriptive perspective on hourly wages corroborates previous findings (references) where wage variation in the self-employment sector may reflect better changes in productivity as the individual can observe productivity directly and there may be less compliance to labor regulations that increase wage rigidities. This analysis shows that formal hourly wages are more likely to suffer from downward rigidities since those staying as formal older workers keep their wages constant. Individuals in self-employment not only adjust their intensity of work (hours) but their compensation as well (wages).

Table 6. Median hourly earnings among older workers, Brazil, Mexico.

	50-54	55-59	60-64	65-69	70-74	75-80
Brazil (Real)						
Formal workers	1.23	1.21	1.21	1.26	0.91	1.51
Informal	0.68	0.68	0.70	0.70	0.75	0.77
Self-employed	0.98	0.91	0.83	0.71	0.73	0.71
Males						
Formal workers	1.31	1.29	1.15	1.22	1.17	1.41
Informal	0.71	0.71	0.73	0.63	0.69	0.71
Self-employed	1.10	0.99	0.91	0.79	0.70	0.77
Females						
Formal workers	1.12	1.12	1.19	1.23	0.83	1.78
Informal	0.76	0.77	0.71	0.83	0.59	0.83
Self-employed	0.77	0.76	0.63	0.55	0.48	0.54
Mexico (Pesos)						
Formal workers	39.4	34.1	29.4	41.8	31.2	40.2
Informal	17.6	18.1	15.2	13.3	14.5	10.4
Self-employed	11.8	10.2	8.5	5.5	9.1	7.7
Males						
Formal workers	38.8	34.3	29.7	38.5	32.6	43.2
Informal	18.6	18.0	15.2	13.8	14.4	13.4
Self-employed	12.4	12.0	7.9	7.1	14.2	8.2
Females						
Formal workers	38.4	33.4	27.5	28.3	19.8	17.6
Informal	15.6	16.5	13.7	9.1	13.2	5.4
Self-employed	13.7	5.5	9.5	1.2	3.0	1.3

Source: PNAD 2008, ENIGH 2008. Author's estimation

The analysis on the different patterns of labor market adjustments among older workers show at least four key stylized facts. First, labor market participation in older cohorts is higher than in industrial economies, and declines much slower than in those economies underscoring the importance of labor markets (and labor incomes) after age 50. Poverty implications of labor outcomes for the aging may play a critical role in policy issues. Second, formal workers that are expectedly facing more rigid labor arrangements may retire from the formal sector into non participation (or possibly the informal sector or self-employment). Those that stay working would continue working full time with little changes in their wages. This reflects that formal labor market rigidities may be imposing outcomes that may not be preferred by workers (who, may in turn, would prefer working part time or even with lower wages).[19] Third, self-employment quickly becomes the most important labor market choice among older workers. In contrast to formal workers, those in self-employment can adjust their intensity (hours) during transition and even accommodate for changes in productivity (wages) enabling them for longer productive participation during transition. By age 70, 92 percent of Brazilian and 94 percent of

[19] This is in contrast to other developing country experience like Sri Lanka where formal workers can adjust their hours while those self-employed maintain their full time hours (Vodopivec and Arunatilake, 2008).

Mexican paid workers are self-employed or informal. Fourth, gender differences in labor market behavior suggest that uniform policies to enhance female participation and productivity may not be efficient in maximizing the impact across genders. The different participation rates, sectoral employment, hours worked, and household responsibilities will affect the opportunity cost across genders and will need to be accounted for. This underscores the need to incorporate household variables in the design of labor interventions. Similarly, other policies affecting household dynamics and welfare (mainly health care, child and elderly care, and income transfers) may need to be examined at the light of the potential effects on labor market behavior for older workers.

One important weakness in assessing labor market outcomes is the limited availability of longitudinal data. Labor market outcomes are highly dependent on previous labor market history, hence the need to observe individuals as they make decisions on their labor market and retirement choices. Individuals in certain sector (say, formal sector) may have different patterns of retirement than others (say, in self-employment). For example, this report cannot state whether the reported decline in formal work is due to retirement or to transitions into self-employment or informal work since surveys do not follow the individuals over time. Recently, several countries and institutions are building sound longitudinal surveys to address questions on household behavior or specifically on health and retirement patterns (see Box 2).

Box 2. Assessing labor market patterns after age 50: Critical need for more longitudinal surveys

Assessing the patterns of labor market transitions during aging requires detailed longitudinal surveys where individual, household, and community conditions can be followed over time in order to understand the nature of labor market decisions.

One important effort is the **Mexican Health and Aging Study (MHAS).** The MHAS is a prospective panel study of health and aging in Mexico, with national and urban/rural representation. The baseline survey was conducted in the Summer of 2001 and includes a nationally representative sample of Mexicans aged 50 and over in 2001 and their spouse/partners regardless of their age. A direct interview was sought with each individual, and proxy interviews were obtained when poor health or temporary absence precluded a direct interview. The MHAS collects detailed data on household characteristics, migration, health, labor markets, and other characteristics.

The **Mexican Family Life Survey (MxFLS)** is another type of longitudinal survey that could serve for analytical and policy issues. The MxFLS is a multi-thematic and longitudinal database which collects, with a single instrument, a wide range of information on socioeconomic indicators, demographics and health indicators on the Mexican population. The MxFLS is the first Mexican survey with national representation departing from a longitudinal design, tracking the Mexican population for long periods of time regardless of migration decisions with the objective of studying the dynamics of economy, demographics, epidemiology, and population migration throughout this panel study of at least, a 10-year span. The base-line (MxFLS-1) was conducted during 2002. The second wave of field work (MxFLS-2) was conducted during 2005-2006 with a 90 per cent re-contacting rate at household levels. The 3rd and 4th waves of the survey are programmed for the years 2009 and 2012, respectively.

Source: MxFLS (http://www.ennvih-mxfls.org/) and MHAS (http://www.mhas.pop.upenn.edu/).

In Mexico, for instance, longitudinal data could be used to better assess the patterns of transition. Both surveys have only two waves that are still very close to serve for an assessment

of outcomes around ages 50 and 70. The Mexican Health and Aging Study survey (MHAS) has released waves for 2001 and 2003 and the Mexican Family Life Survey (MxFLS) has released data for 2002 and 2005 waves. A program aimed at better understanding the labor market and other dynamics taking place during the aging transition would require an additional effort in investing in well designed longitudinal surveys targeting this demographic group.

These findings are critical for the design of programs aimed at enhancing participation and productivity and allow addressing policy questions: Should policies for the elderly focus more on productivity (wages) or employability (participation)? Should interventions addressing the self-employed address the declining productivity (and wages) or other non monetary dimensions (working conditions)? What kind of labor regulations are needed to keep those in the formal sector working longer in their lifetime rather than letting retire or move to informality? These issues are discussed in the next section on policies and interventions to enhance productivity and labor market efficiency among older workers.

In an attempt to organize these questions, the next section uses the framework to organize the discussion on broader policy areas.

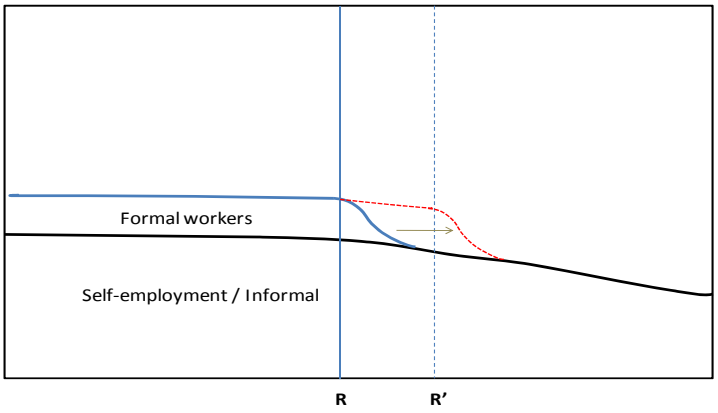
3. Policies to enhance employability among older workers

The description of labor market outcomes showed that as individuals transit from age 50 to age 70, their adjustments to labor markets depends on their status at the beginning of transition (around age 50). While this suggests that policy actions need to be addressed earlier, there are a number of policy actions that can be adopted in order to increase their participation of those between 50 and 70 years, and the economic value of their labor. The challenges posed by the two case studies, Brazil and Mexico, are similar, but not limited to those faced in other aging countries. The European Union, for example, with more advanced aging profiles and more formal labor markets, adopted a comprehensive and sustainable approach known as 'active ageing' to address the need for increase participation among the elderly. The 'active ageing' strategy includes actions on four fronts: (i) removing disincentives for workers to work longer; (ii) discouraging early retirement; (iii) stimulating lifelong learning to avoid skills obsolescence; and, (iv) improving working conditions and maintaining health status of the mature population (OECD, 2007). These issues are also relevant for the country cases, may be for the formal sector works, and may need further adaptation to the specific labor patterns of older workers, such as the prevalence of self-employment.

The framework proposed earlier suggest that there are two broader ways of enhancing employability among older workers: addressing incentives for extending working life, and targeting interventions for increased productivity. As discussed earlier, the economic value of labor resources among older workers can be increased by extending the working life of those working around age 50, and/or enhancing their productivity. Clearly, policies that increase productivity for a worker may also increase her employability if her wages are maintained over her reservation wage, so she decides to stay in the labor force. First, there are a set of policies addressing the incentives for extending working life that affect the decision to retire later. The objective of policy changes on pension systems may be to increase the retirement age, R, and this can be done by either imposing a new minimum retirement age (from R to R'), or by adjusting

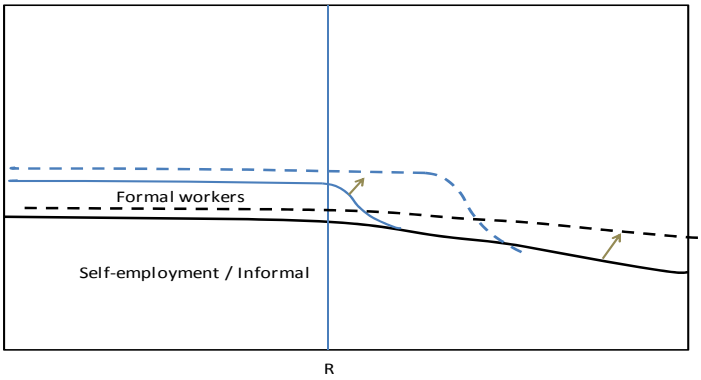
other retirement parameters that result in workers postponing their exit of labor markets until age R' by say, reducing the replacement rate or the generosity of pension benefits (see Figure 15).

Figure 15. Labor Market s for Older Workers: Increasing Formal Working Life



Alternatively, employability can be also increased by boosting workers productivity to compensate for the likely changes in labor and skills demand not matching that of those in the transition. In Figure 16, enhanced employability through productivity could be depicted as outward shifts in the lines of both the formal and the self-employed as they both could benefit from improved chances of employment. The figure shows only shifts after retirement age but these productivity enhancements can take place earlier was well. Assuming formal labor market participation is mainly led by retirement (and pension) decisions, the graph shows a limited impact on them. Under a different policy scenario where these increased employability options are accompanied by reduced retirement incentives, it is possible to expect larger impacts on formal participation.

Figure 16. Increasing Employability through skills



These two types of outcomes – extending working life and increasing productivity – are examined through a number of policy options discussed below. A third type of policy options, addressing changes in labor regulations, is also discussed although its potential impacts may be constrained to formal sector workers only.

3.1. Addressing retirement incentives

The key variables for addressing retirement decisions are related to parametric changes in pension eligibility and level of social security benefits. The aging population challenge faced by industrial countries and the retirement of workers at earlier and earlier ages raised the attention of social security incentives that could create disincentives for labor force participation. Gruber and Wise (1999) provide a review of experiences in eleven industrial countries examining the linkages between the falling labor force participation observed until the nineties and social security provisions. Their analysis included a number of labor force and social security parameters and found that there are strong linkages between the age at which benefits are available (not only the normal retirement age but especially the *early* retirement age) and departure from the labor force. Furthermore, they found that provisions of these social security programs often imply large financial penalties on labor earnings beyond the social security early retirement age, magnifying the disincentives for continued work. Finally, other benefits like disability and unemployment programs also provide early retirement benefits before the official social security early retirement age. A number of reforms in industrial and developing countries moved pension systems into more financially sustainable ones providing more adequate benefits and if not, providing minimum pension benefits (Holzman et al, 2005). The key parametric reforms to extend working life are: (i) increasing the eligible age for *early* retirement; and (ii) changing key parameters to avoid overgenerous pension benefits (reducing replacement rates). The emphasis on the first one is on reducing early retirement options that is found to provide clear retirement incentives, especially among females.

A number of potential options are available to reduce the generosity of the pension benefit (replacement rate). The second parametric reform is on changing the parameters that determine the pension benefit in relation to the contribution level, or replacement rate. A lower replacement rate reflects lower benefits compared to the previous earnings, reducing the incentive to retire. Reductions in replacement rate can be achieved by changes in three key parameters of a contributory pension system. First, adjustments to the *accrual rate*, that is, the rate at which benefits increase as workers accumulate pensions over time. If accrual rates are too high, a worker may find motivated to keep accumulating by contributing more (and working longer). A lower accrual rate is an indication that an additional year of work (and contribution) would not add much to the pension benefit and hence may retire earlier. Second, *actuarial adjustments* of the pension benefit would directly change pension payments if the individual decides to retire before the official retirement age. Thirdly, some pension systems also include a provision of a *minimum pension*, in case the worker has not accumulated enough for subsistence. In case the minimum pension is too high, workers may perceive no additional gain in working additional years, as their pension benefit would be the same (the result is equivalent to very low accrual rates). Additional non contributory pension are also established for those lacking a contributory history like in El Salvador,[20] Mexico, and other countries. In the same fashion as the minimum pension effects, these non contributory pensions may affect retirement behavior for

[20] El Salvador established the *Pensión Básica Universal* (Universal Basic Pension, PBU) for those of 70 years of age or more living in the poorest municipalities. While the intention is to gradually increase its coverage up to universal eligibility, the PBU is delivered to the 32 municipalities with severe extreme poverty and that in 2011 will be extended to 21 municipalities in High Extreme Poverty. Overall, 19,534 elderly will receive the PBU by the end of 2011.

those non-formal workers. In contrast, the introduction of private pension funds with defined contribution plans also created incentives for delayed retirement age since the individual's pension fund would increase with additional contributions from longer working life.

In the U.S. context, policies affecting parametric changes in retirement had an effect that catalyzed the impact of other secular changes. Maestas and Zissimopoulos (2010) found that the changes in pensions systems from defined benefit plans (DBP) to defined contributions plans (DCP) changed incentives and reduced early retirement incentives. They found that changes in pension incentives, compared to other major secular changes, played a smaller role in explaining the increased participation of the elderly. Major changes like the increased educational attainment, technological change, and the increased incidence of working couples also explain to a large extent the increased participation of the elderly in the U.S. These three factors explain more the increased participation of the elderly due to the growing availability of less physically demanding jobs, which are more suitable for older workers. Latin American countries are also experiencing some of the changes like increased educational attainment or increased female participation, but the magnitude of these changes is still not observed among the elderly. For instance, as a result of the increased educational attainment in the U.S. both the elderly (population over 60 years) and the prime aged males have similar education attainment (and the education gap reduced over time). In Latin America that education gap is not only large but still increasing. In Mexico, for example, the educational attainment among those aged 30 to 40 years was 6.7 years in 1989, compared to only 2.8 years for those aged 61 or more. This 3.7-year education gap across cohorts was actually increased over time to 4.8 by 2008.[21] This suggests that the impact of parametric changes in the pension and social insurance systems in LAC may provide a larger opportunity for increased participation of the elderly.[22]

In Brazil, the evidence suggests that parametric changes could play an important role since the current pension system creates significant incentives for early retirement or for working in the informal sector after retirement. The Brazilian social insurance system includes a number of programs, both contributory and non contributory, addressing different population groups.[23] Besides the contributory pensions in Brazil, there are two other pension programs with significant impact on retirement decisions: the *Benefício de Prestação Continuada da Assistência Social* (BPC) and the rural pension. Analyses exploiting policy changes show that the set of incentives in the Brazilian system encourages early retirement and increased informality after retirement. The reform to the *rural pension* scheme in 1991 -- driven by the changes in the Constitution in 1988 -- reduced the minimum eligibility age, increased benefits, and extended the program to non-head of households, increasing the number of

[21] Even the education gap with a closer cohort (those aged 40 to 50 years old) was almost doubled from 2.3 in 1989 to 4.2 in 2008.

[22] In addition, changes in the economic structure of Latin American economies may not resemble that of the U.S. that shifted to a service oriented economy, easing the participation of older workers in the economy.

[23] A detailed discussion of the system and how it relates to the elderly can be found in World Bank (2010) and World Bank (2006). These programs include: a means-tested benefit (BPC), a program for rural workers, a minimum pension program, and the traditional pension benefits including old age, survivor and disability, as well as short run sickness benefits. In the Benefício de Prestação Continuada da Assistência Social for the elderly (BPC-LOAS) managed by the Ministério da Previdência Social (Ministry of Social Prevision, MPS) individuals are eligible if they are 65 years of age or older, do not receive any other benefit, and that the per capita household income is lower than one fourth the existing minimum wage. The minimum pension is partly subsidized to ease the eligibility of workers who do not have all required contribution years.

beneficiaries aged 60 to 64 from 207,739 in 1992 to 723,857 in 1997. De Carvalho (2008) assessed the impact of this reform on labor market outcomes and found that it caused major retirement of rural workers: a decline of 38 percentage points of participation, and a 22-hour/week reduction in labor supply. This significant reduction in labor supply among rural workers shows that for older workers, expansions in pension eligibility can generate a significant reduction in labor supply. The impact of the BPC has been examined by Camargo and Reis (2007) who found that that the introduction of the social pension with a minimum transfer equivalent to a minimum wage, increased the probability of not contributing to social security for those earning lower wages. The rationale is that if workers would get a pension equivalent of a minimum wage, there would be no incentive to contribute and that they would be better off working as an informal worker where no contributions are made. This study suggests that social pensions not only may reduce participation in labor markets, but that they may also distort participation into informal markets. Other studies also found important effects on early retirement and increased informality for Brazil despite reforms that reduced the expected benefits (and replacement rate) like the *Fator Previdenciario*.[24] These studies also found that many pension programs under the social insurance system are actually designed and implemented as social assistance programs as they do not have any contributory requirement like the rural pension and the means-tested benefits, finally acting as an income transfer mechanism.

In Mexico, contributory pension coverage is smaller and benefits are lower compared to Brazil, creating incentive for longer, but precarious working life. The low pension benefit explains the continuing employment after they are eligible for pensions (CISS, 2005). The critical issue in Mexico is that those still active older workers (and after "formal" retirement age) are working full time in self-employment or informal sector where limited social insurance is provided. Also, more than 43 percent of workers of 65 years or older work in agriculture, compared to only 23 percent in services (CISS, 2005). In addition to the contributory pension system in Mexico, several non contributory pension schemes are also in place. First, the conditional cash transfer program *Oportunidades* developed a component for older adults (*Oportunidades Adulto Mayor*) that live in beneficiary households. In 2009, about 81,400 individuals of age 70 or older would receive a monthly transfer of US$23. This number of beneficiaries is a small fraction of the one observed in 2007, when more than 800,000 individuals received the benefits from *Oportunidades Adulto Mayor*. The reduction in the number of beneficiaries was due to the creation of a new national program. Second, the program "*70 y Más*" (Seventy and more), run by the Secretaría de Desarrollo Social (SEDESOL), provides a monthly transfer of 500 Mexican pesos (US$38.5) to individuals of 70 years of age or more that live in places with less than 30,000 people, and are not beneficiaries of *Oportunidades Adulto Mayor* (SEDESOL, 2010). This program also provides information and assistance on issues like mental and physical health, and links to services from institutions like the Instituto Nacional de Adultos Mayores (National Institute for Older Adults, INAPMA) and the Popular Insurance (Seguro Popular). In 2009, *70 y Más* covered 1.9 million beneficiaries (Presidencia, 2010). Finally, there is the *Pension Alimentaria Ciudadana para Adultos Mayores* (Older Resident Adults Food Pension, PACAM) that transfers US$63 every month to all those who have resided in Mexico City for the last three years (Rubio and Garfias, 2010). This program covered 470,000 elderly in 2009. In sum, Mexico has expanded the number of non contributory

[24] The *Fator previdenciario* is a factor that adjusts the pension benefit to better reflect the contribution history of the worker. These studies are detailed in World Bank (2010).

pensions (transfers) to the elderly, in both targeted and non-targeted ways. The question is how these non-contributory programs affecting labor market behaviors of older workers.

Box 3. Social Pensions and Conditional Cash Transfers: Demanding Policy Consistency

Social pensions are motivated to provide old age income protection for those not covered by the contributory pensions, with or without eligibility conditions. In fact, these transfers are seen as instruments to reduce the coverage gap existing in traditional pension systems (Holzmann, 2009). These *non contributory* transfers are typically addressed to the poor and are currently implemented in Brazil, El Salvador, Mexico, Argentina, Paraguay, among other countries. While social pensions to the elderly poor are well motivated by equity and efficiency principles, the impact on the overall economic behavior of the household, and especially on labor market outcomes, raises a number of analytical questions. While this type of income transfers has resulted in poverty reduction and better human capital investments in the family, there is emerging evidence about the potential effects on labor market disincentives. In contrast to the CCT literature, evidence of the impact of social pension on labor markets is much less common since these have not been accompanied by substantial evaluation efforts. Martinez (2004) analyzes evidence for Bolivia's Bono Solidario targeted to elderly in rural areas, who invested part of the transfer into productive assets resulting in increased production and better consumption levels, but does not examine impacts on labor market outcomes. Other evidence discussed in Grosh et al (2008) supports the notion that income transfers can be used productively, especially in rural areas where transfers can loosen cash constraints in highly informal economies. Evidence from the old age pension transfer in South Africa (Ranchhod, 2006) shows an impact on reduced labor supply in both the extensive margin (participation) and in the intensive margin (hours), through increased share of older workers in flexible time positions. Other evidence like the one discussed for Mexico City (Juarez, 2010) and Brazil, points in the same direction. This emerging evidence underscores the need for increased awareness by social pension policy makers about the potential trade-off between the income support and employment objectives among older workers and the elderly. In addition, a number of social pensions are closely linked to existing conditional cash transfer programs, either directly or implicitly. In Mexico, *Oportunidades Adulto Mayor* (OAM) is still a subcomponent in the *Oportunidades* CCT, and the larger "*70 y más*" received most of the OAM beneficiaries in its early stages. In El Salvador, the *Pension Basica Universal* covers the same settlements as the *Comunidades Solidarias Rurales* CCT, and in Brazil, an estimated 70 percent of households participating in *Bolsa Familia* in Brazil have an elderly of 65 years or more, that is, eligible for BPC. This large potential overlap between social pensions and CCTs provides an opportunity for increased policy alignment between different social protection instruments. Key issues for consistency involve at least program design (targeting and monetary incentives), implementation (administrative arrangements), and impact evaluation of simultaneous programs.

The social pension for the elderly in Mexico City seems also to reduce labor supply not only from elderly workers, but also among prime-age adults. The City of Mexico provides a generous grant to individuals older than 70 to improve their living conditions. Juarez (2010) evaluated the impact of the so called *Demogrant* on the labor supply of beneficiaries and non-elderly family members who live with them. While this study does not find an impact on beneficiaries (over 70), it finds early retirement effects for males after 60, and a reduction of household chores among elderly women living with a beneficiary. Furthermore, among prime-age adults the effects are very distinct depending on the gender of the beneficiary. Adults living with a male beneficiary would increase their labor supply and would be reduced if it is a

woman.[25] This impact on labor supply has also been found in other experiences like in South Africa where the old age pension is associated to a decrease in prime working age women (Edmonds et al, 2005).

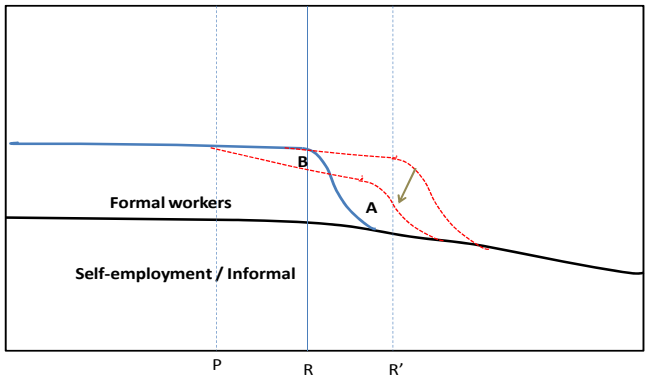
These findings suggest that social old age pensions, even if they were not having a negative labor supply impact on the direct beneficiary population, can still affect the behavior of other household members, and especially that of workers aged 50 or more. These programs may act primarily through income effects on household members.[26] Income effects on retirement decisions are part of major preoccupation in the European Union in their effort to increase participation among the elderly (OECD, 2007), but in the Latin American context these concerns may also affect other household members as the evidence is showing. See Box 3 for a discussion about the linkages to other social transfer programs.

Still, one potential reverse outcome for the increasing retirement age is the response from households adjusting their labor supply before retirement. As the working life is extended, individuals may reduce their labor supply earlier than the retirement age as the lifetime leisure decreases as retirement age increases. Workers, then, may reduce their hours worked (intensive margin) increasing leisure in the working years (Jensen and Jorgensen, 2010). Retirement age policies may need complementary policies to offset these potential reversals behavioral responses. This behavioral response is also possible under a policy reform that increases flexibility for combining pension and labor income sources. If pension eligibility can be combined with continuing work, such as phased retirement options, it may lead some workers who would have been full-time to choose partial retirement sooner (Gustman and Steinmeier, 2008). This option is actually available in Latin America as there is either no restriction to work while receiving a pension or that the legal restriction cannot be monitored. In either case, pre-retirement reduction in labor supply (reducing the number of hours) is an event that needs to be weighed against the gains from increased retirement age (and working and contributing life). Figure 17 shows the reversal of policy where workers adjust on the intensive margin (hours) are early as age *P* (pre-retirement) while they extend their working life. The net benefit in terms of labor income and tax contributions is the difference between the gains (region A) and the losses due to backlash (region B).

[25] The study suggests that this finding corroborates the idea of females sharing a larger part of their income within the household.

[26] See for example, Friedberg (2000) and Gruber and Orszag (2003).

Figure 17. Increasing Formal Working Life and Policy Backslash



3.2. Enhancing productivity among older workers: (re)training interventions

Another option to enhance the market participation of older workers is to adjust their skills in order to maintain the jobs they currently hold, or increase their productivity in current or new jobs. Policy options to postpone retirement age are important but affect a small fraction of the working population in Latin American countries (between 10 and 40 percent depending on the country). Alternative policies may need to be developed to enhance the employability of those in self-employment and the informal sector as well by enhancing the benefits (productivity) from work. One immediate strategy is the introduction and or strengthening of training interventions of workers of age 50 or more so they could both increase their productivity and stay in the labor force with better incomes, or acquire new skills and keep maintain employability, even at a lesser productivity.

Training is critical among older workers because several factors may negatively affect this group differently compared to the youth. First, technological change may be shifting labor demand away from those occupations where the aging are more prevalent. More service oriented jobs, and intensive in the use of information technologies may require older workers to acquire specific (new) skills to be applied in their current occupations. The youth may not suffer from this skill obsolescence given their more recent (and higher) educational training (Box 4 discusses some of the literature on technical change and skill obsolescence). Second, older workers may need to shift sectors of occupations due to changing health status, family needs, and other restrictions. The increased prevalence of chronic diseases and their impact on mobility and physical capacity, the changing household demand for caregiving and the resulting needs for flexible work arrangements, and other factors, may affect labor market decisions of older workers. This implies that older workers may need to shift sectors and occupations to accommodate these restrictions (for those who can accommodate). Training, then, may play a role to facilitate shifts across occupations and sectors. These factors not only define the need for training interventions for older workers but could also shape the design of those interventions. This section revises some of the literature on training interventions and draws tentative messages for this agenda in LAC.

Box 4. Technical change and older worker retirement

The relationship between technical change and skill obsolescence (and retirement) has been examined in the literature and found that adult training could compensate part of the declines in abilities due to technical change. Studies of job inflows and separations show an unambiguously negative impact of technological change on the employment prospects of older workers. For instance, Bartel and Sicherman (1993) find that workers in US industries with a high average rate of technological change tend to retire later, but unexpected shocks to the rate of technological change force workers to anticipate their retirement. These findings suggest that, although workers self-select into industries according to their capacity to cope with the pace of technological change, technological innovations, when introduced, induce some skill obsolescence. Similarly, Givord and Maurin (2004) find that the risk of job loss for French high-seniority workers was higher in the 1990s in industries with above median computer- or Internet-intensity. Finally, Aubert et al. (2004) find that the adoption of new technologies has a negative impact on the employment of older workers at the firm level. In conclusion, adult education and training might be required to maintain the employment prospects of workers far beyond school age.

Source: OECD (2004)

First, there is need to understand the impact of aging on productivity in LAC economies as it is critical for the design of training interventions. Studies from industrial countries show how specific abilities may decline faster than others and that, together with the changing nature of tasks, may have an impact on individual productivity. Skirbekk (2003), in a review of evidence from industrial countries (Europe, Israel, and the U.S.), found a range of linkages between aging and individual productivity in studies using different data sources, from general aptitude to other psychometric tests. The study identifies different abilities that decline (faster or slower) with age, concluding that cognitive abilities, reasoning speed and episodic memory decline starting at age 20, and faster after age 60. Verbal abilities and other abilities that require judgement, on other hand, peak later in the early fifties. The discussion presented here has exploited education information and this may certainly differ from actual skills used in the labor market. However, despite extensive research done on education issues (including outcomes like test scores) very little has been done in understanding the actual skills among workers, and in particular that of older workers.[27]

Second, part of the impact of aging on productivity and employment may be led by increases in the relative demand for skills in LAC economies. In industrial countries, the relative demand for work tasks that involve certain cognitive abilities has shifted dramatically, increasing the demand for interactive skills, compared to the demand for mathematical aptitude (not to mention the reduction in physically demanding tasks). The shift of the economic structure in industrial countries, from manufacturing to service oriented economies has led analysts to believe that the working force of the elderly could be adapted to the new demands through training (Maestas et al, 2010; OECD, 2007, World Bank, 2011). In fact, in some European countries, like Poland or Latvia, there is evidence of increased employment of the aging and elderly due to their high educational attainment and the increased demands for skilled labor (World Bank, 2011). There is a pending analytical agenda in documenting the changing structure of LAC economies and the associated demands for skills to better assess the gap between the unsatisfied demand for skills and the potential supply from those in the aging

[27] Recent developments include the regional study on Skills, and previous work by Arias (2010) and the skills assessment in Chile (2010).

transition. The preliminary evidence presented for Mexico in the sectoral participation section, where the elderly are heavily involved in agriculture, suggests that this still not the case.

Those individuals early in their 50s in LAC may offer an opportunity for training investments given their relatively higher educational attainment. Training older workers could result in potential productivity gains if their educational attainment is similar to that of the prime aged adults (that is, they have the same basic literacy and numerical skills). The current educational attainment of the elderly (60 or more) lags significantly behind that of prime age adults in Mexico, suggesting that older workers may not be able to fully catch up with the average prime age adults (see evidence in retirement section). A similar picture is observed in Brazil where the average elderly (aged 65 or more) in 1981 had 2.1 years of education compared to 4.6 among those aged 30 to 40 years and by 2009, the elderly had 4.1 years and the 30-40 people 8.2 years. Brazil shows an increasing education gap between cohorts from 2.5 to 4.1 years (similar to that of Mexico from 2.9 to 4.8 between 1989 and 2008). The educational attainment gap between those in the early aging transition (ages 50 to 60) offers a slightly different picture where gaps are starting to shrink. The education gap in Brazil between those 30-40 and those aged 50-60 is reducing from 2.4 years in 1990 to 1.7 years in 2009, and in Mexico this is also dropping from 2.8 in 1989 to 2.3 in 2008. Some countries, like Argentina, show a more stable pattern across cohorts, where the inter-generational gap has been constant across groups and between 0.6 and 1.6 years for those in their 50s compared to the 30 to 40 group. This suggests that if the educational attainment criteria will to be used in targeting training programs in LAC, the population in their fifties may be more suitable given their higher educational attainment.

A first option in enhancing employability is strengthening or updating workers skills during their aging transition but targeting is critical for take up. Training programs targeted to the aging population can reduce or even halt age-related declines in certain cognitive abilities, and other interventions could enhance the role of experience and job knowledge that can outweigh the decline in abilities. Still, labor market training is an area of intense policy debate due to the unclear outcomes in terms of employment and productivity.[28] As training programs significantly differ in their design (target population, duration, content, and monetary incentives for both trainees and trainers) evaluations on this show very different outcomes. An important feature found in the preliminary review of the literature is that there are very few interventions explicitly targeted at workers in the aging transition since most of the evidence on training programs – and much of the labor policy debate, for that matter -- has been focused on younger population. One program partially targeted to older workers is a voucher for adult education in Switzerland. Schwerdt et al (2011) used longitudinal data in evaluating the impact on wages and employment and found that individuals with low levels of educational attainment might benefit from participating in adult education, but these groups are the ones with lower take up rates compared to adults with more education.

[28] In OECD countries, the concern about training of the aging population lies on the fact that wage profiles at later age exceed the productivity of workers, especially after 50. This wage-productivity gap needs to be financed, hence the need to close the gap by increasing productivity. In the country cases discussed here, the evidence suggests that this is an issue only for formal workers, since those self-employed are, in fact, adjusting their wages to (seemingly) underlying productivity levels.

The limited evidence for training programs for the aging population suggest positive impacts of training, but most interventions have not been evaluated. There is very little evidence of training programs for older individuals (or the elderly) and most general training programs shows that training has an impact on youth's *productivity* (wages), compared to impacts on the elderly *employability* (employment). Some training programs appear to have a stronger impact on both subjective and objective measures of employment security in the case of both older and low-educated workers. In Spain, Arellano (2005) found that the Spaniard National Plan of Training and Reemployment had a positive impact for older and better-educated workers in terms of shorter duration of unemployment, but with a low take-up. In South Korea, there are programs for older worker who have difficulties in adapting to new technology, human resource management methods, and show declining productivity, or weak physical function. These programs are run by the Ministry of Labor or local governments and in both cases, government institutions contract civil society organizations to deliver the training.[29] In Singapore, the Government has a Skills Development Fund (SDF) that is part of a strategy to restructure the economy towards a more capital intensive production system that has a differential treatment of older workers. Interestingly, the system levies are imposed only on the lower-wage workers. The Skills Development Levy is imposed on employers with workers earning S$2,000 or less, in order to provide financial incentives for training those in the workforce, those preparing to join the workforce, and those re-entering the workforce. SDF supports a training leave scheme for older workers and on-the-job training consultancy services for accelerating skills development in the Knowledge Economy. These interventions in Korea and Singapore, however, have not been evaluated.

Other combined skills-and-wage subsidy interventions to enhance employment show some positive effects for older workers but at very high costs. In Argentina, the *Programa de Inserción Laboral* (labor market insertion program, PIL) provides a wage subsidy to encourage labor market insertion with a differentiated schedule for those *older than 45*. The program is originally aimed at those beneficiaries of the unemployment and training insurance (*Seguro de Capacitacion y Empleo,* SCyE).[30] The PIL provides a wage subsidy equivalent across age groups but for those aged 45 or more it extends the benefits for an additional 3 months. Still, take up among those aged 50 or more is small and no evaluation of the program is available. In Bulgaria, the Temporary Employment Program provides temporary work for a maximum of five months in public or private sector projects and has found to be effective for disadvantaged workers, and the older unemployed but at a very high cost (Walsh et. al., 2001). These effects, however, are confined to the duration of the programs and their sustainability has not been assessed.

Other interventions aimed at supporting the self-employed could involve credit lines for self-employed to technical assistance but, again, little evidence is available. Existing evidence on interventions aimed at supporting micro and medium enterprises show high

[29] Local governments finance training courses offered for the aged by the Training and Employment Centers for the Aged (Ra and Shim, 2009). The Ministry of Labor, through commissions with the Human Resources Development Service (HRDS) of Korea, provide short term (less than one month) training courses for women and the old aged and then facilitate their employment, also contracting civil society organizations.

[30] Beneficiaries of the Youth Training Programa (*Programa Juvenil de Capacitacion para más y Mejor Trabajo,* PJCmyMT) are also eligible for this program (information from P. Jones and Project Documents).

deadweight losses, and high business mortality (Betcherman, et al, 2000). Some of the evidence has shown positive impacts on the elderly like in the case of Poland or Hungary where women and older workers generally had better outcomes than individuals in other sub-groups (Fretwell, Benus and O'Leary, 1999). In the country cases examined here, there is no program explicitly targeted to those aged 50 or more. In Brazil, the *Ministério do Trabalho e Emprego* (Ministry of Labor, MTE) runs the *Programas de Geração de Emprego e Renda* (Income and Employment Generation Programs, PROGER) that provides credits to finance a range of activities from micro-entrepreneurship to investment on infrastructure. Interestingly, the only program targeted for the elderly population is a line of credit to finance internal tourism activities of the retired individuals (MTE, 2008).[31] Otherwise, older workers face the same conditions as other population groups. In Mexico, existing interventions by the Secretaria de Trabajo y Previsión Social (STPS) only distinguish young workers but otherwise those in aging transition are treated equally.

Training interventions for older individuals are subject to debate due to the (competing) alternative use of training among the youth, but evidence suggests there is no crowding out. A question posed in the policy debate is whether the marginal public resources should be used in training a youth or an older person, and how training one group (elderly) may displace the others (the youth). Empirically, it is difficult to measure the relevance of crowding-out effects amongst different groups of workers but preliminary results found no evidence that intra-group crowding out effects are strong (OECD, 2007). This limited evidence suggests that lifelong learning policies, if well-targeted on specific groups that are less successful in the labor market, can be effective in improving the relative labor market performance of these groups and therefore be part of a general strategy to reduce non-employment traps as well as to increase participation rates among older workers. Still, the cost of these policies for the public budget and the possible deadweight losses associated to them need to be carefully evaluated and taken into account in their design (OECD, 2003). There is emerging evidence about the potential impact of increasing employment among the aging population and the impact on the youth that can be reviewed for an early assessment of the impact of training (and increased employment) for older workers. The question of reduced retirement and the impact on youth employment has been examined in a number of industrial country cases in Gruber and Wise (2009). The cases of Spain (Boldrin et al, 2009) and Italy (Brugiavini et al, 2009) are particularly relevant for LAC economies since they have larger informal sectors (more independent work) compared to France, Germany and others.[32] These studies find that increased employment for the elderly is not associated to lower employment for the youth, in fact, early retirement and youth unemployment are correlated over the business cycle.

A short term measure of income changes due to training shows larger gains among older male workers. Table 7 shows the immediate income gains from training assuming labor earning gains of 16-18 percent among young females and 8-10 percent among young males (Attanasio, et al, 2010; World Bank, 2007), and slightly lower earnings gains but increases in formal employment among older workers. Older male workers have larger gains up to age 59

[31] This program called *FAT Turismo Senior* is aimed at retired and pensioners (*aposentados* and *pensionistas*) who can borrow up to R$ 3,000 for internal tourism activities.

[32] The Italian case may not be the most suitable due to their very low fertility rate. Spain may be a better comparison despite the large coverage and benefit level of its unemployment programs.

because they have higher wages and their participation is still high. After age 60 the impact on earnings of the youth (even those aged 20-24) is larger due to the decline in participation after 65 due to retirement. Among females the gains among older workers are lower due to their low participation in the formal sector, and lower wages. These results if aggregated over the duration working life would still result in larger impacts among the youth.

Table 7. Brazil: Short run effects of training on labor earnings
(additional R$ per month)

	Age groups					
	20-24	25-29	30-34	50-54	55-59	60-64
Males	10.1	12.9	14.4	17.4	14.9	11.6
Females	15.2	17.8	18.6	16.7	13.6	9.3

Source: PNAD 2008, author's estimates. Assumes training increases earning of females by 18 percent and that of males by 8 percent. Impact among older workers combines an increase in wages (15 and 5 percent for females and males) and an increase in formal employment from non participation by 2 percentage points.

World Bank projects addressing lifelong learning activities are motivated by the labor market of the elderly but their activities do not have explicit programs for those in the transition. Recent World Bank projects have addressed the need to strengthen adult education as part of the labor and occupational training systems. In their motivation, these projects raise the importance of a mechanism to continue updating skills of the population from the early school-to work transition throughout working life, and in the case of Chile the project is explicit in stating the need to provide "opportunities to acquire the general and sector-specific skills and knowledge necessary for them to adapt to different stages in life, including […] life as an older adult, during which time individuals withdraw from the workforce and enter retirement" (World Bank, 2002). Both the projects in Chile and Argentina (World Bank, 2007) describe the activities for adult education without further explicit treatment of the "older adults". This lack of explicit treatment may reflect the little policy interest of Governments on this population compared to other groups (the youth), and may require detailed analytical work to raise their attention.

The limited evidence on training interventions suggests that, for older workers, training may allow maintaining the competences required to bring their productivity in line with *formal* market wages, thereby sustaining employment prospects of these groups. Among the self-employed, the role of training would be to increase productivity above their reservation wage (associated to household chores). In this sense, training among older workers should be aimed at maintaining employability and not necessarily to expect an increase in productivity or labor incomes. Still, lifelong learning can be an effective way to improving employment prospects over the long-run, thus easing trade-offs between efficiency and equity objectives given the negligible displacement effects found on other groups (OECD 2004).

Training for older workers, however, also shows a number of weaknesses that need to be addressed at the design stage. Training efforts would require explicit and differentiated interventions for older workers as their education deficits, types of labor market participation, and, presumably, their opportunity costs, may differ significantly from those prime aged adults. Training, then, may be beneficial to workers who are especially vulnerable to adverse shocks and

often move from work to unemployment or inactivity, and may also improve the ability and willingness of older workers to extend their career (see Box 5 below for the challenges of training among older workers).

Box 5. Training for Older Workers: Rationale and Critical Issues for Program Design

Public interventions for training services are commonly argued on the basis that market failures such as imperfect labor and capital markets, or information asymmetries, can create externalities resulting in underinvestment on training (Almeida et al, 2011). Neither workers nor firms are likely to invest in training if they cannot capture the benefits from the additional time and financial effort. With these arguments, most training activities take place in the form of technical and vocational education and training programs (TVET) or, on-the-job training programs (OJT). Additional training efforts have been oriented also towards the youth, the low-skilled, and those in transition between jobs (Kluve et al 2011).

Labor market characteristics of older workers suggest that training efforts need to be put first on ***employer-provided training*** like OJT since older workers have very short unemployment spells and may drop out of the labor force if they cannot find jobs quickly. OJT efforts may need to focus on employability targets that focus on *firm productivity* rather than *individual productivity* (and wage) gains. Training, then, may offer the possibility for older workers to shift across occupations within the firm if those options are available, even at the cost of reduced productivity. Still, firms' incentives to train workers in order to maintain their employability may not be large enough to opt for training effort and may require public interventions. LAC older workers offer an additional challenge since most of them are self-employed. In such as case, individual and firm productivity are not separable and interventions may be broader than individuals' training, including other dimensions of the firm business (finance, marketing, production). In such cases, horizontally integrated programs that involve microfinance instruments, technical assistance, and workers training would be required.

Another set of interventions where OJT may not be suitable are ***training for workers in transition between jobs*** *that require changes in firm and/or sectors.* As older workers are likely to shift occupations or sectors, and reduce working hours due to health, family needs, and other competing demands for their time, they may be suitable for training that allows them to change sectors, jobs, or occupations. As mobility takes place across firms or sectors, firms may not have the incentive to invest in their training. This creates information failures as older workers and their skills maybe still demanded in other sectors. Training in this case will demand not only the skills upgrade (or update) efforts but also labor market intermediation programs to match workers with new employers. This type of training, however, hinges on the fact that dependent workers (formal and informal) are staying in the labor market and will require policy coordination with other labor market regulations.

Design of training programs for older workers need to be cautious in their objectives and design, since this population presents a number of challenges. First, older workers have a very short time horizon where program gains are to be observed. Compared to other groups, such as the youth, the gains for older workers may be larger in each period over a fewer number of years. Still, accounting for savings from, say delayed pension transfers, may result in program aggregate gains. Second, older workers will need customized programs due to their lower take up rate and heterogeneity of preferences and constraints. Older workers have a wider range of work experiences and health conditions compared to younger workers, and they may face binding time constraints for training attendance. Conditions of training programs, in both content and format, are likely to affect older worker take up.

Training for older workers, then, poses additional challenges and may weaken the argument for public interventions, underscoring the importance of earlier and more integrated interventions to enhance their employability.

3.3. Labor market regulations and other services

The demographic changes due to aging of the population are expected to have an impact on labor supply (both participation and hours), labor productivity, and demand for alternative time use (household or leisure). These changes are accommodated in labor markets depending on specific labor market policies. Research on how labor market policies (regulations) will need to adjust to demographic ageing is very limited, despite the message from industrial ageing countries on the need to create more appropriate work environments and increase flexibility in jobs due to the more limited mobility of the elderly. This section discusses key policy areas found in the literature that may serve in the Latin American context.

Policies to protect older workers are likely to have mixed effects due to the associated costs for employer and employee, but may not be a priority in LAC. Age discrimination is a critical factor in labor policy in industrial countries due to the higher incidence of firing, and lower rates in hiring and promotions in this demographic group. In the U.S. several legislations have been passed protecting the older workers. The most important is the 1968 Age Discrimination in Employment Act (ADEA) that imposed constraints on employers in hiring, firing, laying-off and compensating older workers, among other changes. The impact of this policy is under debate and some argue that while it worsened employment outcomes for older workers due to the associated non wage costs (Newmark, 2001), other suggest that it may have played a role in increasing participation al older ages due to the elimination of the elimination of mandatory retirement in 1986 (Maestas et al, 2010). In a regulated labor market environment, it is also found that the ADEA may have facilitated the establishment of long-term incentive contracts where firms cannot fire workers when old serving this way as precommitment devices (Neumark and Stock, 1999). The use of antidiscrimination laws in the LAC labor market context may be of cautious use given the small share of formal (regulated) labor market participants at age 50 and the high job turnover in formal jobs. In countries with large formal sectors (Argentina, Chile, Uruguay) and with a higher aging population some of these measures could play a role in reducing the burden on older workers during a crisis. Still, it has been observed that during the recent international crisis, employment of older workers suffered much less than other population groups (youth) as in Box 6.

Box 6. Older workers and the international financial crisis

The international financial crisis triggered job losses that have been disproportionately large for certain workforce groups and industries. In most cases, these patterns are similar to past recessions (e.g. employment losses have been far above average for construction, temporary and low-skilled workers, and youth). However, the 2008-09 recession has been unusual in that employment has fallen significantly more for men than for women, and that there was continued employment growth for older workers during the recession. This different pattern in job losses in the recent crisis are partly related to the sectoral profile of the recession, with especially large employment losses in mining, manufacturing, and construction.

As in past recessions, job losses have been relatively larger for some workforce groups than for others. In the OECD, youth and workers with temporary employment contracts have been hit particularly hard by the 2008-09 recession. Employment for both of these groups fell by around 8 percent, nearly four times the decline in overall employment. Youth unemployment rates always tend to be relatively high, but they have reached very high levels in some countries. For example, more than 40 percent of Spanish youth, who were active in the labor market in 2009, were unemployed. In marked contrast to the situation for youth, employment for prime-age workers fell by a little over 2 percent in the OECD area, while employment for older workers **rose** by nearly 2 percent. The difference in the risk of job loss between temporary and permanent workers was also very large, while employment for the self-employed fell by about as much as overall employment. The employment of older workers was about as cyclical as overall employment in past recessions, so it is a notable departure from historical patterns that employment has increased for this group this time. This difference reflects, in part, labor supply responses in some countries to sometimes large losses in retirement savings associated to the financial crisis (Coile and Levine, 2009; Gustman et al., 2010; OECD, 2009).

Source: OECD Employment Outlook 2010 "Moving beyond the Jobs Crisis."

Evidence from OECD countries on labor market regulation suggests that increasing employment protection legislation (EPL) brings additional protection for older workers due to the labor adjustment costs. Analyses on hiring and firing rates across demographic groups show that for older workers the reduction in hiring rates might be compensated by a decrease in firings due to the EPL. The cost of firing someone with a long tenure is very high and employers tend to retain these workers. On the other hand, the estimated effects of EPL on hiring decisions may not have much effect on older-workers, many of whom are close to retirement age (OECD, 2004). In fact, these high costs of employment adjustment are an additional factor explaining the resilience of employment of older workers during the recent financial crisis (see Box 4 for a discussion on the employment effects of the crisis across age groups).

Still, further analysis is needed to assess the role of labor regulations on employment dynamics among older workers. Existing analyses of the impact of labor market regulations on non wage costs and labor flexibility in Latin America did not provide a detailed analysis of those patterns among older workers (Heckman and Pages, 2004). Since older workers may face other opportunity costs (preference for household time) and incorporate other work related factors (such as health status), their labor supply elasticities (price and income) are likely to vary significantly from other groups. The high responsiveness of labor supply to social pensions documented here suggests that these elasticities could be large. An assessment of these elasticities is critical for the design of both, labor market policies that entice participation, and for other related policies (CCT and social pensions) in order not to reduce labor supply in this population group.

Finally, other labor market regulations easing flexible work arrangements and part time jobs may offer an opportunity to break the rigidities observed in formal sector employment. The evidence shown in section 2 indicated that formal workers had less flexibility in both hours and wages, thus choosing between working as formal workers full time, or leaving (as retired or self-employed). The policy discussion in Europe, OECD countries and the U.S. point to the direction of increased flexibility in labor supply and allowing for mechanisms to introduce flexibility in wages (World Bank, 2006; OECD, 2004, 2007, Meastes et al, 2010). The introduction of these flexibilities in formal jobs may reduce the rate of early retirement and smooth the transition from formal work to retirement, increasing the gains in outputs, fiscal revenues, reduced pension payments.

4. Analytical and policy issues for further work

This report addresses the challenge of increasing economic participation of the aging population by, first, identifying stylized facts of labor market outcomes after age 50. This report examined repeated surveys from Brazil and Mexico to identify patterns of labor market outcomes among older workers, defined here as the ages between 50 and 70. The analysis shows that labor force participation after age 50 is higher in LAC countries than in industrial countries, and that variation within LAC seems to be related to the coverage and benefit level from social security. Second, the adjustments in labor supply and productivity reflect both formal labor market rigidities and economic structure with a larger share of employment in subsistence agriculture. When examining the formal sector, the adjustment is on the extensive margin (withdraw from formal sector) while those who stay keep hours worked and wages constant. Among those in self-employment the adjustment is across labor dimensions: hours worked decline, hourly wages reduced, and some reduction in participation. By age 70, most workers are self-employed and labor incomes represent an important share of their incomes. Third, gender differences in participation, type of employment and use of time suggest differential policies for male and female older workers.

The review of evidence identifies critical analytical areas for future work. First, there is need to assess the relative importance of the determinants of transition across labor market states during aging. This document provided a descriptive view of those changes and the likely explanatory factors, but the lack of longitudinal data remains an analytical constraint. In this agenda, some of the key issues to be addressed are: (i) the impact of labor market regulations -- and the magnitude of the formal work rigidities -- and their impact on transitions across states (and retirement); (ii) the interaction between health status, health care policies (insurance), and labor market decisions to assess the consistency between labor and health care policies and maximize the impact on increased participation and productivity; (iii) the impact of remittances on labor market outcomes for older workers, especially for high remittance incidence countries like Mexico, and other Central American countries; and, (iv) the joint decision making of household labor demand (time use) and labor market outcomes to better assess the household constraints in releasing labor from older adults. Second, there is need to carry out a detailed review of interventions for older workers, and /or review the age-specific impact of general interventions. This report discussed a number of interventions but is not a comprehensive review of interventions. Detailed outcomes for age groups can provide further insights into the impact of those interventions (whether income transfers, training, employment services, or regulations).

Third, there is need to assess the evolving nature of occupation and skill demands in LAC economies to better assess the potential employability of the aging cohorts. A better understanding of the potential demand for different occupations (and their associated tasks) can provide a sense of the scope for engaging older workers and their needs for skills update or accommodations. Finally, there is need to support the expansion of data collections through longitudinal surveys for older cohorts, as initiated by the Mexican surveys MHAS and MxFLS. A detailed assessment of labor market transitions could distinguish the impacts of temporary shocks (crises, for instance) from secular trends in labor participation, and link these transitions to individual and household characteristics.

The report provided a framework to organize interventions to increase employability and productivity of older workers. The framework structures interventions into three interconnected groups: (i) extending working life (social security); (ii) increasing flexibility of work (regulations); and (iii) increasing or maintaining productivity (training). On the first set of policies, this report reviewed existing knowledge and recommendations aimed at parametric changes to increase retirement age and to reduce the over-generosity of pension benefits. In addition, the report reviewed new evidence on the impact of non-contributory or *social pensions* on labor supply, finding that these transfers may have negative effects on labor supply, not necessarily among those direct beneficiaries (typically aged 65, 70 or more) but among other household members aged 50 or more. This concern is important given the increased emphasis among policy makers in expanding these social pension policies. Evaluations of social pensions should examine the impact on household labor supply and not only on direct beneficiaries. On labor market regulatory issues, the report reviewed some of the evidence on policy impacts of employment protection legislation and other anti-discrimination rules. The evidence shows that older workers can be protected through legislation but these regulations apply only to formal employment and the non wage cost of labor they represent could potentially increase the transition into informality or even reduce their employment.

The discussion of training interventions proposed that training may have as an objective the increased employability of older workers, and not necessarily the increase in productivity and wages. The evidence suggests that those aged 50 or more are underrepresented in training programs and that the impacts are expected to be found on the employability dimension (e.g. maintain their jobs due to skill update), rather than on increases in productivity. The review examined industrial country policies and evaluations. Compared to LAC countries, industrial countries have economies that are more service oriented and where their elderly population has an educational attainment similar to that of prime aged adults. These two features pose questions for the design of training interventions in LAC. First, LAC countries may still have a high demand for physically demanding jobs (e.g. agriculture) where older workers may not be fully employable. Second, the educational attainment of the elderly (60+) is very distant -- on average -- from that of younger cohorts, posing higher challenges for training interventions. While these challenges are relevant for the average population, there could be target populations (in urban, more educated settings) where training could offer an opportunity for the elderly (60+). This report also identified that the population between 50 and 60 in LAC is a more suitable candidate for training given their higher educational attainment. Still, interventions for this age group should acknowledge a number of features associated to the mobility, heterogeneity, plasticity, and expectations of the target population.

This report identifies potential synergies across key dimensions of well being between ages 50 and 70: income, health, and labor. Among key *income* policy issues are social pensions (and pensions itself), remittances, and other household transfers. The evidence reviewed shows that during the aging transition, income effects may be large and policies that affect incomes can have significant effects on other behaviors like health and employment. Given the expansion of other social protection programs, like the conditional cash transfers, these different income support policies need to be examined jointly in order to assess the impacts on the aging individuals. Health is the second key driver of labor market decision after age 50, as most individuals may face health-related restrictions. Policies that prevent or address those impediments would have an impact on employability but most aging studies doe not examine the foregone income associated to illness and mostly focus on the increasing health care costs due to NCDs. Health care (and insurance) interventions will need to be taken into consideration in the design of policies to enhance employability, either as part of the potential benefits (reduced foregone income), or as incentives for type of labor participation (health insurance as part of the job compensation package). Use of labor resources is the third element that needs careful examination, especially the non-market uses, as those older cohorts may place different values on certain household activities compared to younger cohorts. Policies that address household time constraints (like child care centers) may also affect behaviors of the older individuals.

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Summary Findings

As Latin American and the Caribbean countries face rapid aging transitions, the economic contribution of older workers would need to be strengthened. This paper uses household data from Brazil and Mexico to characterize labor market behavior of older workers, such as participation, sectoral and type of employment, and productivity, to identify critical areas for policy intervention. The paper also discusses other social policy related issues like health, remittances, and family arrangements. This paper suggests three areas for labor policy: (i) adjusting social security incentives to extend working life and postpone formal retirement; (ii) adjustments to labor market regulations to increase employment flexibility, smoothing the transition into retirement; and (iii) addressing skill needs through (re)training to maintain productivity and employability. This paper reviews existing evidence on these policy interventions in industrial and developing countries, and suggests areas for future analytical work.

HUMAN DEVELOPMENT NETWORK