

# **SOCIAL SECURITY AND RETIREMENT IN LATIN AMERICA: RELATION TO YOUTH UNEMPLOYMENT**

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There are two less studied factors that are normally brought into the discussion of trends in the labor supply of the elderly. First, as mortality declines individuals with worse health reach older ages and are less able to stay in the labor force. In a recent paper, De Souza, Queiroz and Skirbekk (2019) showed that health has clearly improved in all Latin American countries in the past 30 to 40 years. The result observed for several countries in Latin America is in line with what has been observed in recent decades for more developed economies (Coile, Milligan and Wise, 2016) and indicates that a large share of those not working beyond age 60 have increasingly good health, and that health variation is therefore not the key reason for current retirement trends. The second point is that changes in the elderly labor force participation have an important impact on the jobs available for the youth (Bertoni and Brunello, 2017; Mohnen, 2017; Munnell and Wu, 2012). In this sense, the labor market functions as a “closed-box” and new workers would only be able to find work if older workers leave the labor force. The aim of this paper is to analyze the former theory in the context of the Brazilian and Latin American economies. In this paper, we use different data sources for a series of Latin America countries since the 1990s to investigate the relation between older adults’ employment and youth unemployment, informal employment and inactivity rates. We also investigate the relation across regions within countries to capture the effects of local labor markets.

keywords: elderly labor force, youth unemployment, Latin America, pension programs

## 1 Introduction

Changes in population age structure poses an important challenge to economic growth, economic development, and public transfer programs across the world (Lee and Mason, 2011). More specifically, there is a huge concern on how population aging can impact on the public pension programs in different developed and developing countries. The impact of population aging on public pension programs is amplified by the patterns of labor force participation of the elderly (Coile, 2018a). As mortality declines and life expectancy and health conditions improve, one could expect that individuals would stay longer in the labor market, thus reducing the impact of population aging in the public pension programs. However, historically it is observed a long-term trend decline in the labor force participation of older workers (Costa, 1998; Burtless & Quinn, 2001; Gruber & Wise, 1999; 2004). In more recent years, for more developed countries, there is an upward trend in labor force participation of older adults, specially more educated ones (Coile, 2018a; 2018b).

In Latin America, Queiroz (2017) showed similar trends from 1990 to 2010. The author shows that in lower income Latin American countries, most men remained in the labor force until age 65 or beyond and that with economic development and related changes, the labor force participation of older men, even those aged 55–59, starts to decline. These changes are a paradox since at the same time people are entering the labor force later, because of increasing educational attainment, living longer; they are leaving the labor force at younger ages (De Souza, Queiroz and Skirbekk, 2019; Wise, 2010). In Brazil, for example, Queiroz and Ferreira (2016) show that labor force participation for the older workers has been declining since the 1990s. They estimated and forecasted the duration of retirement to more than doubled between 1980 and 2020.

There are six main explanations for pattern of labor force participation of older persons. First, the existence of public pension systems (Gruber & Wise, 1999; 2004); second, higher income and expansion of the leisure class (Costa, 1998). Third, Profeta (2004) argues that aging population increases political pressure on social security policies affecting labor force participation at older ages. Forth, Clark et al (1999) points that rising income and socioeconomic changes tend to affect negatively the proportion of the elderly that stay in the labor market. However, in more recent years developed economies have observed an increase in elderly labor force participation, especially those with higher levels of education (Coile, 2018).

There are two less studied factors that are normally brought into the discussion of trends in the labor supply of the elderly. First, as mortality declines individuals with worse health reach older ages and are less able to stay in the labor force. In a recent paper, De Souza, Queiroz and Skirbekk (2019) showed that health has clearly improved in all Latin American countries in the past 30 to 40 years. Despite this, their LFPRs have declined steadily. The result observed for several countries in Latin America is in line with what has been observed in recent decades for more developed economies (Coile, Milligan and Wise, 2016). This finding indicates that a large share of those not working beyond age 60 have increasingly good health, and that health is not generally a barrier to policies intended to increase the retirement age. The second point is that, it is argued that changes in the older workers' labor force participation have an important impact on the jobs available for the youth (Bertoni and Brunello, 2017; Mohnen, 2017; Munnell and Wu, 2012). In this sense, the labor market functions as a “closed-box” and new workers would only be able to find work if older workers leave the labor force. The aim of this paper is to analyze the

former theory in the context of Latin American economies. In this paper, we use different data sources (mainly from IPUMS and SEDLAC) from a series of countries in region to investigate the relation between older workers employment and the young adults' labour market situation (particularly concerning unemployment and inactivity).

## **2 Background**

Before presenting the literature on the relation between older employment and youth labour market outcomes itself, it is important to contextualize the situation of the region in terms of both their employment policies targeted on the youth and the characteristics of the pension systems and labour markets.

### **2.1 Employment policies targeted on the youth**

The education and training systems play an important role in preparing individuals for the labour market and they can be a potential solution for the lack of skills for individuals who have left the formal schooling system (Attanasio et al., 2011). According to (O'Higgins, 2001) there are two pathways from school to full-time employment, basically: through sequential or dual systems. While in the former model, individuals are first educated at school and then go to full-time job where they are given specific training, in the latter system, most individuals leaving school undertake traineeship before becoming full-time workers. However, one can distinguish the systems implemented in each country by identifying the extent to which schools provide training and the extent to which training is provided by employers (school-based versus work-based training). In one extreme there are systems largely based on theoretical school-based training (examples are France and Italy), and in the other extreme there are models exclusively based on workplace-training which although providing concrete working experience, the acquired skills can be very firm specific (examples are the United States and the United Kingdom).

According to O'Higgins (2001), due to advantages and disadvantages of these two extremes, most countries combine both systems. This is the case of the Latin American systems where vocational training centers are enterprise based with close links with employers. The Brazil's National Industrial Apprenticeship Service (SENAI) pioneered these centres in Latin America. O'Higgins (2001) states that youth unemployment is basically related to a country's level of economic activity but the fact that different countries show very different relative levels of youth unemployment is related to the education and training system. The author finds that if on one hand the countries operating on the dual apprenticeship system are the ones with the lowest ration of youth to unemployment (Germany and Austria); on the other hand, the ones with highly standardized school-based vocational systems (France and Italy) and the ones with work-based training without links to the education system (the United States and the United Kingdom) do not perform well.

Additionally to general education and training systems, policies aimed at promoting self-employment among young people are becoming increasingly common, particularly in developing countries (O'Higgins, 2001; Listerri et al., 2006). Although self-employment programmes can contribute to other measures aiming at integrating young individuals into the labour market, a strategy to fight youth unemployment should not be based on self-employment programmes alone. Chile Joven programme is a successful example. It had four fronts to improve employability: provide work experience with private-sector, training for self-employment, alternative apprenticeships and purely theoretical training. Launched in 1991, the

programme rapidly exceeded its initial objectives in terms of number of young people attended and in terms of its designated target group (the ones with medium and low socioeconomic backgrounds). Impact evaluations showed that beneficiaries were much more likely to have higher wages and better-quality jobs than non-beneficiaries. Such policies are remedial in nature as they attempt to correct educational and training system failures in integrating young individuals into employment (O'Higgins, 2001). Attanasio et al. (2008, 2011) evaluated the impact of a Colombian training program first introduced in 2005 targeting the disadvantage youth. They found positive impacts on earnings and formal employment especially for women and the net gains generated by these results tend to be much larger than those found in developed countries. Additionally, the benefits of training are found when individuals spend more time on workplace training instead of taking school-based training.

According to Attanasio et al. (2011), Argentina, Brazil, Chile, Colombia, Dominican Republic, Panama, Peru, and Uruguay have all implemented training programs for the disadvantage youth and there some evidence suggesting positive effects. As the average level of skills in developing countries is lower than in the developed ones, returns to skills may be expected to be higher. In those countries, the formal sector also highly values individuals' specialized skills as the better positions are mainly restricted to educated workers. The authors emphasize, however, that in spite of many good reasons to advocate the use of training programs, reliable evidence on the impact of training on improving labour market outcomes are scarce in the context of middle- and low-income countries.

Card et al. (2011) evaluated the impact of the Dominican Republic program named Juventud y Empleo that aimed at increasing youth employability through training. Their analysis was based on applicants who applied to receive training in early 2004 and who were followed-up 10-14 years later. They found little evidence of positive effect on employment outcomes and a modest effect on earnings for the ones working. However, some evaluations of training programs suggest that the impact of these programs tends to increase with time, especially beyond 2 years (Díaz and Rosas, 2016). In fact, Ibarrarán et al. (2019) evaluated long-run (six years after) effects of the Dominican Republic program and found significant effects on formal employment, particularly for men and on earning for both men and women in Santo Domingo – although there was no evidence of effects on overall average employment. Alzúa et al. (2013) analyse the impact of a training program carried in Córdoba, Argentina, named entra21. The program included vocational training, life skills and work experience for low-income youth. They found large positive effects in employment and access to credit, especially for men and younger participants. Díaz and Rosas (2016) evaluated the impact of the Peruvian Job Youth Training Program (Projovent), implemented between 1996 and 2010. Their evaluation covers the period from the applications that took place in 2009-2010 to the follow-up survey conducted in 2013. The authors found significant long-run positive effects of Projovent on formal employment.

## **2.2 A brief overview on Latin American public pension systems and labour market characteristics**

Like employment policies for improving youth's access and quality of jobs, public pension systems and labour market characteristics also have the potential to influence individual's outcomes.

There is a large heterogeneity in public pension programs across Latin American countries which may greatly impact older adults' labour force behavior depending on the country (Queiroz, 2017;

Rofman and Oliveri, 2012; Melguizo, Bosch and Pages-Serra, 2017), especially in terms of early versus later retirement (Costa, 1998; Wise, 1997; 2004; 2010). Argentina, Brazil, Chile, and Uruguay began pension programs in the late 19th to early 20th century that were initially occupation specific but increased their coverage over time (MesaLago, 1978; Rofman, Apella and Veza, 2015). Beginning in the mid-1900s, Bolivia, Colombia, Costa Rica, Ecuador, Mexico, Panama, Paraguay, Peru, and Venezuela all attempted to replicate a strong welfare state and universal coverage but were not all successful. The Dominican Republic, Haiti, Nicaragua, and El Salvador, in contrast, did not begin implementing their programs until the 1960s and 1970s, and their coverage is still very narrow (MesaLago, 1978; Rofman, Apella, and Veza, 2015).

A series of reforms has been implemented in Latin America Social Security Systems since the beginning of the 21st century. Most of these reforms were focused on expanding coverage beyond the workers in the formal labor market, which brought intense debate on these systems' sustainability as population ages. Between 2000 and 2013 at least 18 Latin American countries introduced reforms aiming at increasing income protection coverage for the elderly. The reasons behind this succession of reforms include the exhaustion of the previous model of coverage expansion, improvements in the economic conditions (generated by either policy decisions or the economic boom due to higher demand for primary products), and society pressure demanding social protection policies especially for vulnerable groups. Recent reforms allowed an important inclusion of the elderly in social protection systems by both the expansion of traditional contributory social protection systems and the implementation of poverty reduction policies. Also, in order to address the fiscal sustainability in the context of population aging, some countries have switched from pay-as-you-go public pension systems to systems relying on privately-managed individual accounts (OECD/IDB/The World Bank, 2014; Rofman et al., 2015).

Most Latin American public pension programs follow a pay-as-you-go system, with the notable exceptions of Chile, whose system is based on mandatory individual accounts, and Colombia, which allows beneficiaries to choose between an individual account and social insurance. All countries set minimum retirement ages for benefit reception that are higher for males (65) than for females (60), but in some nations (e.g., Brazil), workers can collect benefits on proving a certain number of contribution years, ranging from 15 in Guatemala to 38 in Costa Rica (Pallares-Millares, Romero, and Whitehouse, 2012, and Rofman and Carranza, 2005).

Although there is great cross-country variability in Latin American public pension systems, they still share one key characteristic: low coverage, either in terms of percentage of older men (around 40%) receiving benefits (Melguizo, Bosch and Pages-Serra, 2017) and a low number or workers making contributions. For instance, although Argentina, Brazil, Chile, Uruguay, and Costa Rica had 2010 coverage ratios above 80% (Melguizo, Bosch and Pages-Serra, 2017), in Guatemala and Honduras, less than 10% of older adults received any type of pension program. Moreover, despite a significant increase in contribution rates in 1990-2010, on average during the 2000s, less than 50% of workers in the region contributed to the system (Queiroz, 2017). This means that there is a high level of informality in the region's labor market (Meghir et al., 2015). Based on the percentages of male workers with pension rights on retirement in 2000-2015, De Souza, Queiroz and Skirbekk (2018) classified 17 Latin American countries into three groups: the ones with at least 50% of the male working population (Uruguay, Chile, Brazil, Dominican Republic, Costa Rica, and Argentina), the ones with 30-50% (Colombia, Venezuela,

Panama, Ecuador, Peru, and El Salvador) and the ones with less than 30% (Haiti, Bolivia, Paraguay, Mexico, and Nicaragua).

Another feature of the labour market worth mentioning is its unionization. Unions shape labour market outcomes, influence the broader economy and non-economic aspects of a society as they affect directly wages, benefits and working conditions of their own members and indirectly affect those of non-members (Johnson, 2005). Workers of the informal economy are traditionally not organized by trade unions and even for the ones in the formal sector the share of those belonging to labour unions vary significantly by country. Johnson (2005) compared the share of workers belonging to unions of 6 countries – Canada, the United States, and 4 Latin American countries: Ecuador, Mexico, Nicaragua and Venezuela. The highest share of unionized workers is found in Canada (29%). For the Latin American countries this figure is 22% for Venezuela, 16% for Mexico, 9% for Ecuador and 5% for Nicaragua. According to Johnson (2005), these differences are due to structural explanations in the sense that there are certain jobs or workers that are more prone to unionization than others. As a result, if certain countries have disproportionate share of workers in hard-to-unionize categories, this may explain their low levels of unionization. In this sense, the author found that in all six countries the same personal and job characteristics are associated with a higher chance of union membership: those in large firms; in manufacturing, utility and transportation industries; in professional, administrative and manual occupations; aged 45-54; and those in public sector. By the same token, Johnson (2005) found that agricultural workers, and the younger (under 34) and the older workers (over 64) tend to have low unionization chances. Reinforcing these patterns, another key finding is that structural factors like gender, age, industry, occupation, education and part-time/full-time mix of the labor force can explain an important part of the cross-country differences in unionization with an emphasis for the age, since the very young labor force in Latin America holds back union membership in the region.

Additionally, there is still a trend of leaving the labour market early, incentivised in Latin American countries by expanding social security systems, economic development, rising income, higher educational attainment, and political pressure to social security policy revisions to deal with population ageing (Queiroz, 2017; Aguila, 2014; Costa, 1998; Clark, Young, and Anker, 1999; Profeta, 2002; Wise, 2004; 2010). However, it is important to have a closer look at the behaviors of the ones retiring earlier, as for instance, in Brazil there is a relatively new phenomenon called unretirement. This means that lately it has become more common for workers reaching the minimum age of retirement (or the minimum number of contribution years) to officially retire (in order to receive the benefit) although opting to continue working (Zanella et al. 2014; Marques and Londucci, 2016).

In summary, Pay-as-you-go system (with a few exceptions) with low coverage, low contribution rates, high labour force informality as well as unionization of specific workers as typical features of the region's labour markets persist despite its recent changes, even though the type and incidence depend on the country.

### **2.3 Older individuals' and youth' labour market outcomes**

Several studies in the United States and Europe show the impact of pension regulations, income growth and behavior on labor force participation rates (Gruber and Wise, 1999; Wise, 2010). Hurd (1990) shows the retirement peak at age 62 after the introduction of early retirement provisions in the 1960s. However, Krueger and Pischke (1992) find little empirical evidence

linking changes in social security wealth and retirement behavior of older workers. The authors argue that the reduction in wealth did not affect downward trend in labor force participation. In other countries, the effects of pension provisions are much larger than in the US. Borsch-Supan (2000) analyzes Germany and other OECD countries and finds large disincentives to work in the public pension programs. Baker, Gruber and Milligan (2003) find that the Canadian pension program has significant impacts on retirement, and that public policy can create incentives for workers to stay in the labor force longer. Profeta (2002) shows that changes in the population age structure are one of the main determinants of the size of the public pension programs and of retirement policies in a series of OECD countries. She shows that as population ages, political pressure increases to maintain or create better conditions for early retirement. Finally, Clark et al (1999) argue that economic development, and rising income, plays an important role in the declining trend in the elderly labor force participation rates. In an international comparison analysis, Gruber and Wise (1999; 2004) showed that for a series of developed countries there are very large incentives to leave the workforce earlier and collect pension benefits. They also show that countries could create incentives for additional years of work by creating fair compensations for an additional year of work compared to the current laws in place.

Gruber, Milligan and Wise (2010) studied the relation between trends in elderly labor supply, more specific retirement trends, and changes in youth unemployment. The study, for 12 countries, investigates the common idea that incentives to early retirement were necessary to create jobs for younger workers as they would replace older individuals in the labor force. The study, carried out by research specialists in each country, found no evidence that early retirement trends increase the employment opportunities for younger workers. Kalwij et al (2010) also investigate the same issue for 22 OECD countries showed that older and younger workers are not substitutes and changes in the employment of workers aged 60 and above have small impacts on youth (16-24) employment. They concluded that policies to discourage early retirement will have no impact on the unemployment rates of young workers. Boheim and Nice (2019) discussed the impacts of increasing retirement ages and youth unemployment in a series of European countries. They do not find any clear trade-off between elderly employment and youth unemployment. In fact, they observed that regions with increasing retirement ages the youth wages tend to be higher. Thus, indicating that youth and elderly are not substitute but complementary members of the labor force.

There is still little research on how pension rules relates to retirement on Latin America. Notable exceptions are James and Cox-Edwards (2005), who show that restrictions to early retirement and actuarially fair adjustment of benefits for later retirement explain the increase in labour force participation in Chile; Aguila (2014), who demonstrates that pension rules in Mexico create early retirement incentives, especially for low income groups; Queiroz and De Souza (2017), who show that pension rules related to labour force behaviour incentivise couples retirement in Brazil, and Queiroz and Skirbekk (2019), who show that the greatly improved health conditions of recent years in Latin American countries translate into lower labour force participation today than in the past. There are, however, even fewer studies analyzing the relation between older individuals' employment and youth unemployment or type of insertion in the labour market in Latin America.

The issue of the relation between elderly employment and youth unemployment should also be tested in less developed economies, especially the ones going over important changes in the population age structure. In addition to the trends in the labor force of the elderly a larger share

of working-age population should also have an impact on the employment rates of the youth (Lam, 2014; Cunningham, 2009). Silva Leme and Málaga (2001) study the impacts of the Brazilian social security rules on investments in human capital and duration of labor force participation in comparison with a capitalization regime. They find that the pension scheme does not induce further investments in human capital due to the provision of pension benefits at young ages. This means that individuals who could for instance be out of the labour market while dedicating more time to education have no incentives for doing so. Legrand (1995) uses 1980 census data to study effects of the social security system and of other variables on men's retirement behavior in Brazil. The results indicate that although the system has strong effects on retirement, self-employed and employers have lower retirement propensities as well as higher education and income are associated with lower retirement rates. Carvalho-Filho (2008) shows that the social security reform of 1988 impacted the labor supply of rural workers in Brazil. The author finds that rural workers leave the labor force as soon as pension benefits become available. Finally, Queiroz (2007; 2008) show that there was a decline in the labor force participation of the elderly since 1960 and that more educated workers in the urban areas have higher propensity to retire than less educated workers. It is worth reminding that together with the already known Social Security incentives for retiring earlier, there is also a recent movement back to the labour market among the retired in Brazil (Zanella et al. 2014; Marques and Londucci, 2016).

Cunningham and Salvagno (2011) analyse youth's path from school to work place in Brazil, Mexico and Argentina. Besides representing around 60% of the Latina American population, according to the authors these countries also offered distinct labour market characteristics – with Brazil presenting a moderate unemployment rate, Mexico having low employment rates and Argentina being a high unemployment economy – which would give further insight into the school-work transition processes. Cunningham and Salvagno (2011) found similar trends in all three countries. In general, young people tend to leave school to spend short time in informal wage paying jobs (for acquiring skills), move to formal occupations and finally become self-employed.

Pieters (2013) also highlight that the main labour market challenges for the youth in Latin America refers to informality, which is high among the ones with primary education and has also increased for the highly education youth. This may be indicating a mismatch between the private sector demand and the skills obtained in the education system (especially the secondary education). For the author, when informal employment experiences functions as training to prepare for a steady job – as suggested by Cunningham and Salvagno (2011) findings – it may be a signal of deficiencies in the education system. In the case of Latin America, this scenario is aggravated by the high share of youth neither working nor studying or training. The social security and social assistance systems in Latin America offer a particular challenge to overcome informality in the region. Mandatory contributions to social security system increase the cost of formal labour while informal workers may be covered by social assistance programs, which end up subsidizing informal labour (Pieters, 2013). Besides having to pay social security contributions for their workers, employers are also subject to corporation tax on profits, severance pay upon laying workers off, and have to pay them a minimum wage (Meghir et al., 2015). It is worth emphasizing that labour policies aiming at protecting workers in Latin American countries have benefits for the recipients, but may increase aggregate unemployment, inequality and informality, with the most adversely impacted by regulation being the youth, and



marginal and unskilled workers and groups marginal to workforce (Heckman and Pagés, 2003; Djankov and Ramalho, 2009).

These costs of employing workers in the formal sector can make it even more difficult for young people to find a good job, especially if one considers that they are not experienced and may be looking for training in skills that were not well shaped by the educational system. Possibly due to educational system failures, some researchers have found that the probability of unemployment in Brazil between 2005 and 2015 was lower among young individuals who had more experience in the labor market and not necessarily who had higher educational level; meaning that it is possible that experience may be more important than the education itself for the youth to find or keep their jobs (Nadú et al., 2018).

Younger individuals are also among the ones who suffer the most with economic fluctuations compared to the adult population in the sense that recessions seem to hit younger workers more intensely (Kahraman, 2011; Justesen, 2008). At the same time they are not among the priorities for social policies given the recent population ageing which kept youth unemployment absent in the public discussion about labour market age-based exclusion (Connell et al., 2015; Dhakal et al., 2018). And the development of effective policies may explain some differences in labour market performance of labour workers around the globe (Pastore, 2018).

Leaving aside the fact that low youth unemployment does not necessarily mean better youth market outcomes as it can mask high vulnerable employment, it is important to emphasize the negative consequences of long-lasting youth unemployment both at the individual and the society levels (Kahraman, 2011; Pieters, 2013). According to Bell and Blanchflower (2011) early adulthood unemployment causes long lasting scars affecting labour market outcomes much later in life. They found significantly stronger effects on happiness and wages at age 50 from early adulthood unemployment than from recent unemployment experiences. As can be seen, youth unemployment imposes social and economic costs so that it is important to analyze its determinants.

In addition to the pressure of population aging and some classes of workers, the formal market costs for the employer, the mismatch between education and the market demands, the literature also brings the incentives later retirement as harmful to youth employment. If the labour market works as a “closed-box”, incentives for keeping the older workers active in the labour force would negatively impact the market vacancies available for the youth. Nevertheless, some researchers state that later retirement have no adverse effect on youth employment since they have found that older and younger workers seem not to be substitutes (but instead they may complement each other in the labor market) and that both early retirement and youth unemployment are correlated with economic cycle (Kalwij et al., 2010; Bertoni and Brunello, 2017; Mohnen, 2017; Munnell and Wu, 2012; Böheim, 2019; Chybalski and Marcinkiewicz, 2014; Brugiavini and Peracchi, 2010; Boldrin et al, 2009). To the best of our knowledge, the available studies analyzing the possible relations between older workers’ employment and youth labour outcomes are based on evidences on developed economies. The aim of this paper is to analyze the former theory in the context of Latin American countries so that we can identify whether the findings for developed countries also holds for the region.

### 3 Data and Methods

We use the demographic censuses made available by the IPUMS-International. We use harmonized labor market variables for the countries in the study. There are small differences on how each country classifies working situation, but IPUMS aims to organized them in a more comparable way.

In this preliminary version we show a descriptive analysis of the correlation between youth unemployment rate (for the ones aged 20-24) and participation in the labor market for the elderly (for the ones aged 60+) taking into account the different regions (states and provinces) by countries. We use data by region to capture the performance of the local labor market in each country overtime.

Additionally, we analyzed the relation between youth inactivity (the ones not even looking for a job) and elderly labor market participation<sup>1</sup>.

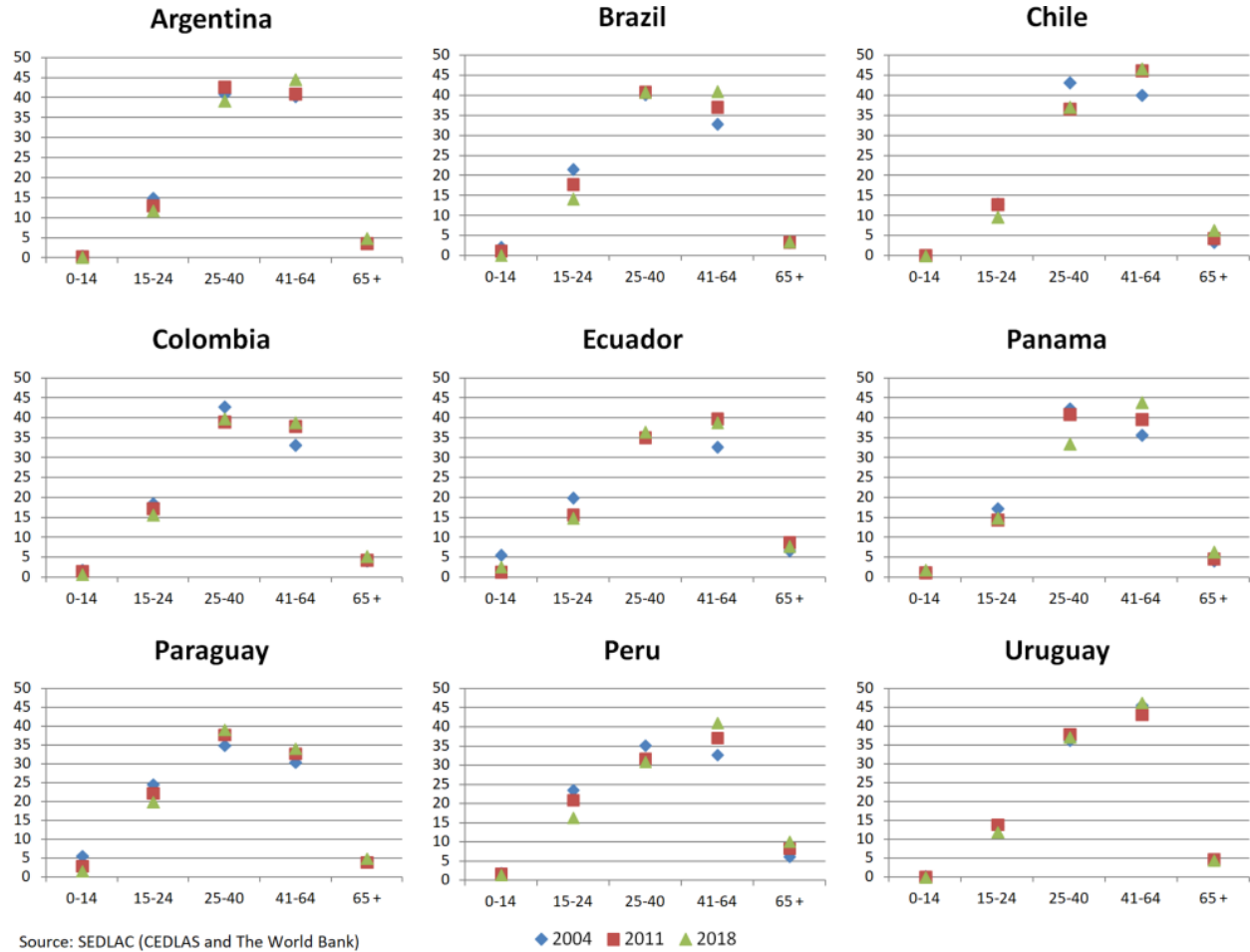
#### *3.1 A brief analysis on the Labor Market Situation for Young and Older workers in Latin America*

Figure 1 presents the percentage of workers according to the age groups 0-14, 15-24, 25-40, 41-64 and 65+ around 2004, 2011 and 2018 for selected Latin American countries. For instance, Argentina 0.3% of workers were 0-14 years old, 14.8% were 15-24, 40.9% were 25-40, 40.2% were aged 41-64 and 3.8% were at least 65 years old in 2004. In general, it is worth mentioning that between 2004 and 2018, the percentage of workers who were 15-24 years old reduced, while the percentage of workers within age group 41-64 rose (probably more due to increases in women's labor force participation) and the percentage of the ones age 65+ at least was kept at the same level if not increased (except for Ecuador).

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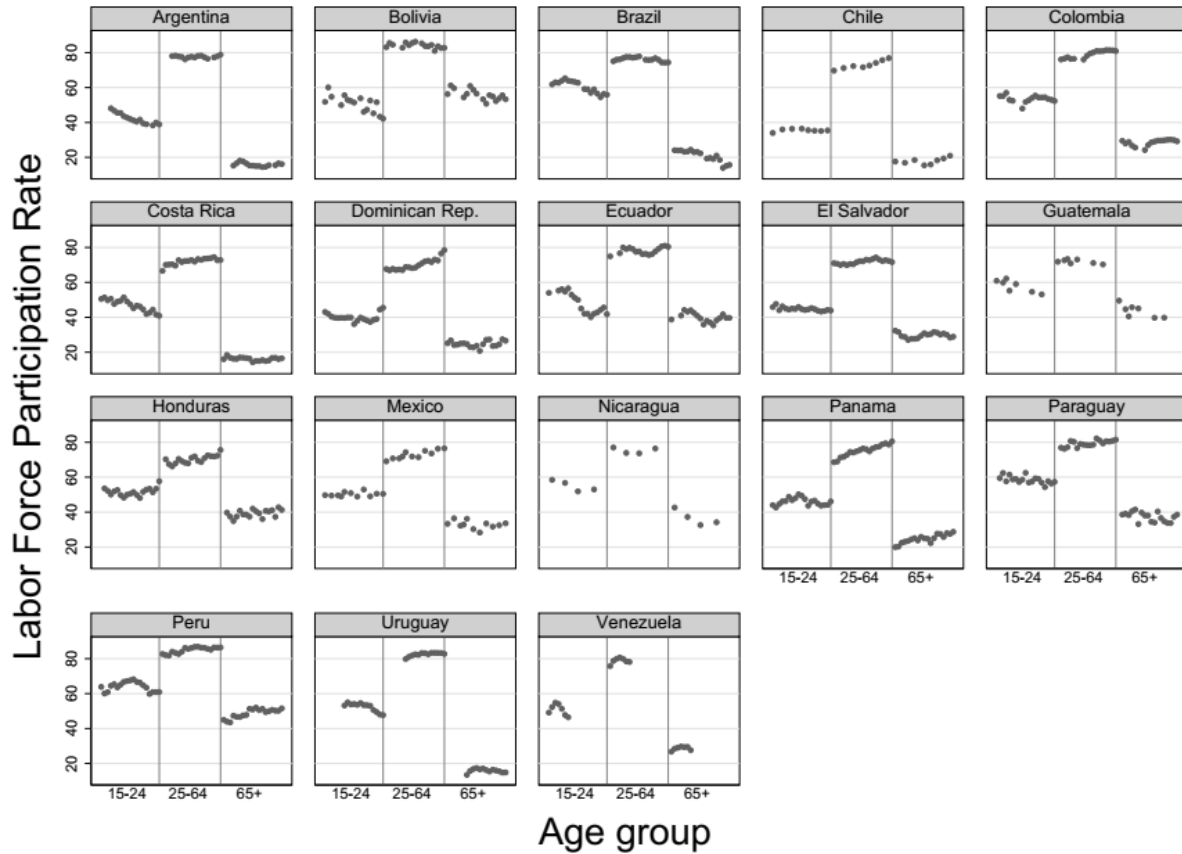
<sup>1</sup>

Figure 1: Percentage of workers by broad age group and country – around 2004, 2011 and 2018.



The percentage of adults in each broad age group (15-24, 25-64 and 65+) which are in the labor force (either working or looking for jobs) is shown in Figure 2. For instance, 46.8% of the Argentines aged 15-24 were in the labor force and 16% of the ones aged 65+ were in the labor force. According to this figure, most countries (except for Panama) have seen a drop in the youth labor force participation between 2004 and 2018 (probably due to a rise in the years of schooling which in turn can delay their entry into the job market) while the labor force participation for the older ones (65+) reduced for some countries (Brazil, Ecuador and Paraguay), increased for others (Chile, Colombia, Panama, Peru and Uruguay) and kept almost at the same level in the remaining one (Argentina).

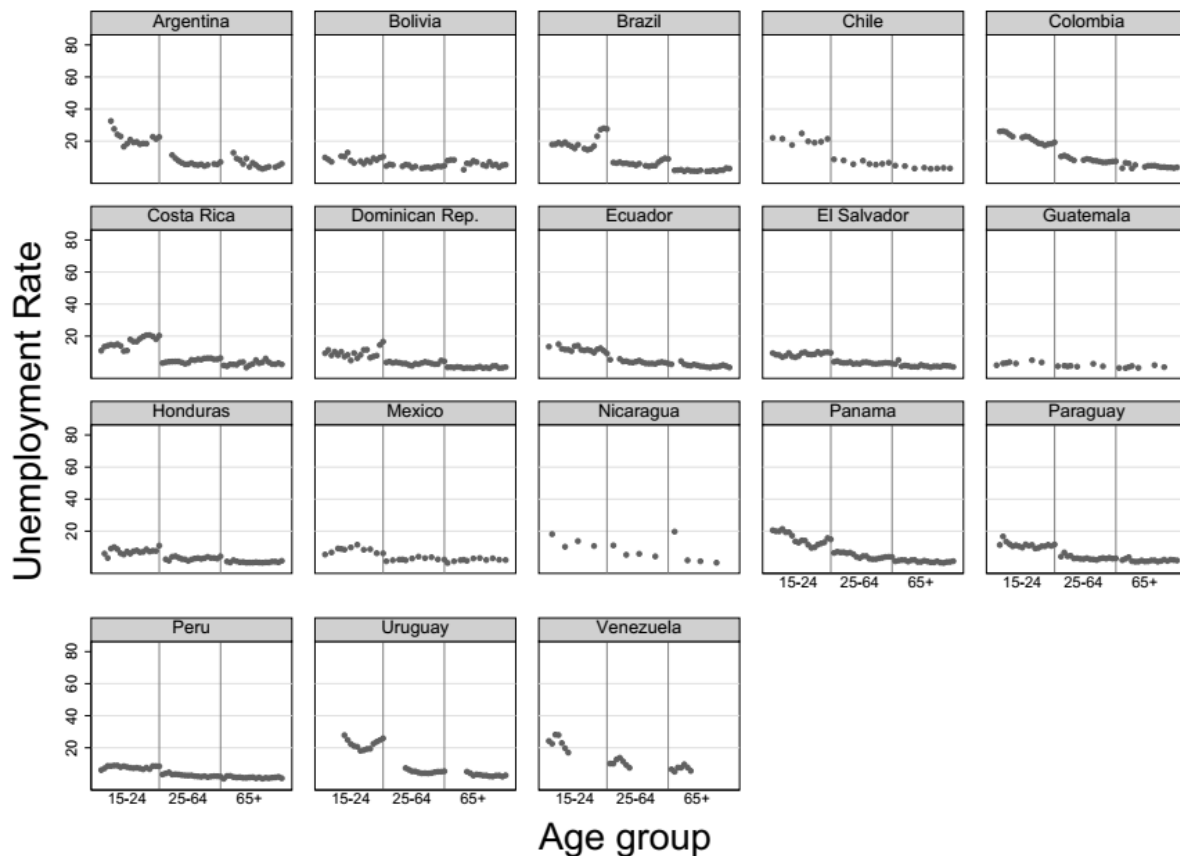
Figure 2: Percentage of adults in each broad age group who are in the labor force (working or looking for jobs) by country – 2004, 2011 and 2018



Source: SEDLAC (CEDLAS and The World Bank).

In Figure 3, we present the unemployment rate according to the same broad adult age groups (15-24, 25-64 and 65+) for the selected countries. While there is a wider variability among countries regarding the unemployment rate for the youngest individuals (it can be as high as 27.6% for Brazilians in 2018 and as low as 2.1% for Peruvians in the same year), when analyzing the oldest ones unemployment rates there is a small variability among countries (between 0.5% and 5.8% in 2018). Also, it is worth highlighting that only in Brazil, unemployment rate rose for all age groups, and this rise was significantly higher for the youngest age group.

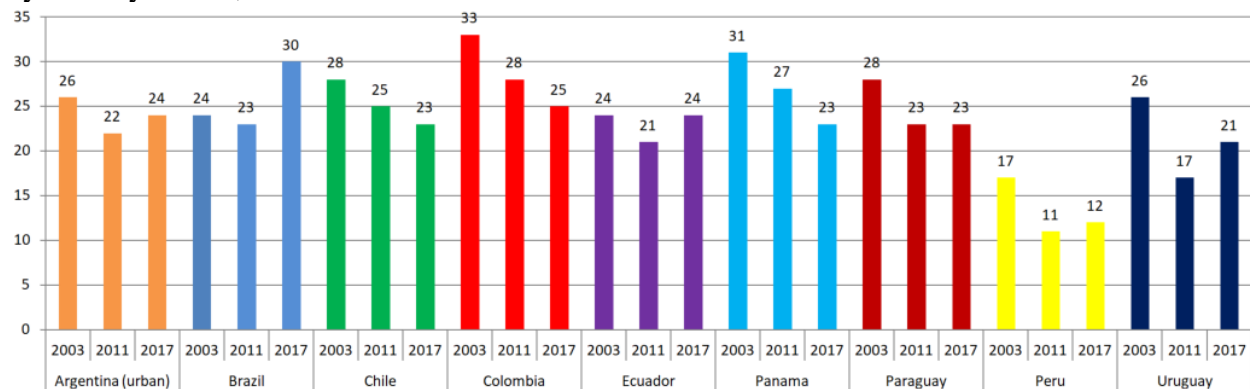
Figure 3: Unemployment rate by broad age group and country – 2004, 2011 and 2018



Source: SEDLAC (CEDLAS and The World Bank).

Finally, Figure 4 shows the percentage of youth (the ones aged 19-24 years old) who are neither studying nor working for each country analyzed previously concerning years 2003, 2011 and 2017. Peru is the country with the lowest percentage of young individuals either out of school or not working (12% in 2017) and Brazil has the highest percentage (30% in 2017). For the remaining countries, between 21% and 24% of the ones aged 19-24 are out of both school and labor market. Also, in general, some countries have seen a steady fall in this percentage between 2003 and 2017 (Chile, Colombia and Panama), while others experienced a reduction in period 2003-2011 and an increase in 2011-2017 (especially Argentina, Brazil, Ecuador and Uruguay).

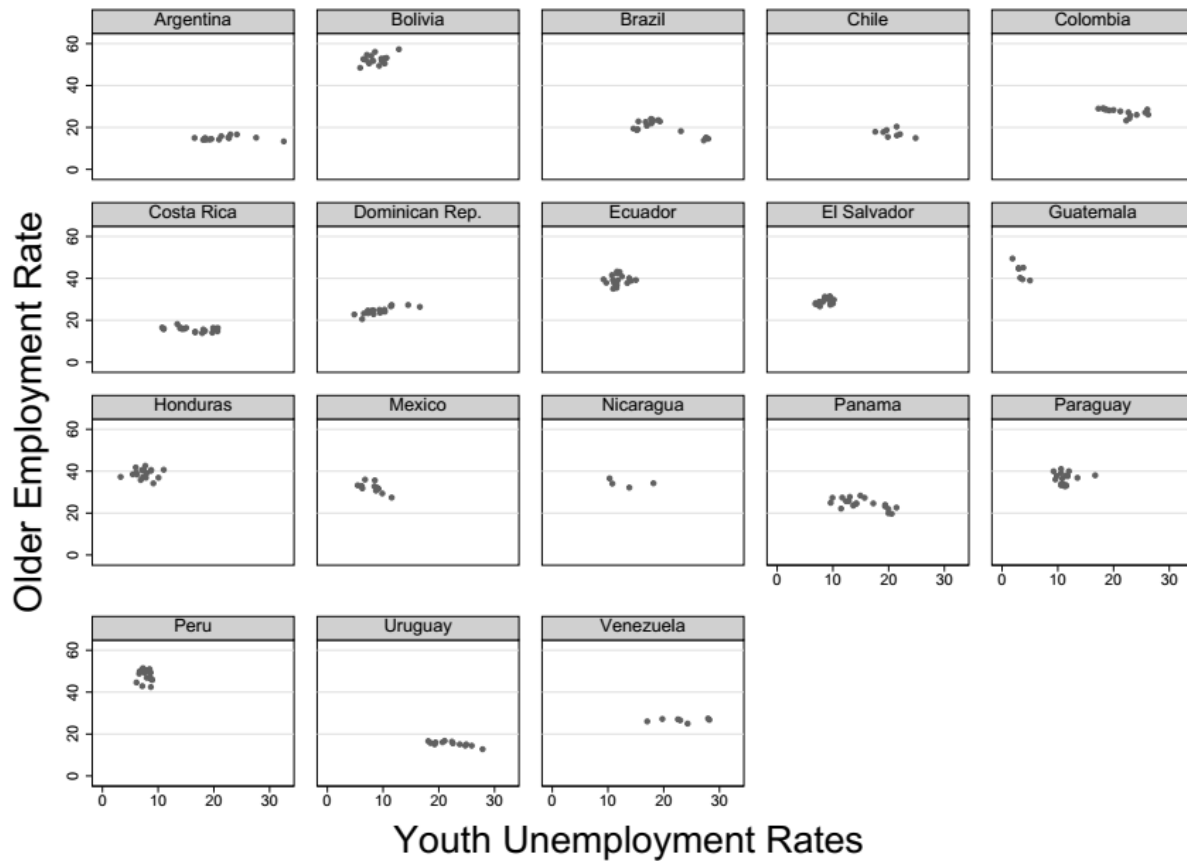
Figure 4: Percentage of population aged 19-24 years old who are neither in school nor working by country - 2003, 2011 and 2017



#### 4. Preliminary Results

There is an important debate in the literature around the hypothesis that the elderly labor force participation is positively related to the youth unemployment rate which means that the higher the elderly participation, the higher the youth unemployment tends to be. Figure 5 shows the relation between elderly employment and youth unemployment, in several countries of the region. The y-axis shows elderly employment rates and x-axis shows the unemployment rate for young adults. In 1991, there was not clear relation between the two variables as we observed states with very high elderly labor force participation and very low youth unemployment. In 2010, there is a very weak negative relation between the two variables. We observe that in states with very high elderly labor force participation there is very low youth unemployment rates and regions with low elderly employment there is also high unemployment rates. The preliminary evidence suggests that the performance of the local labor market plays a more important role in driving the situation in the labor market.

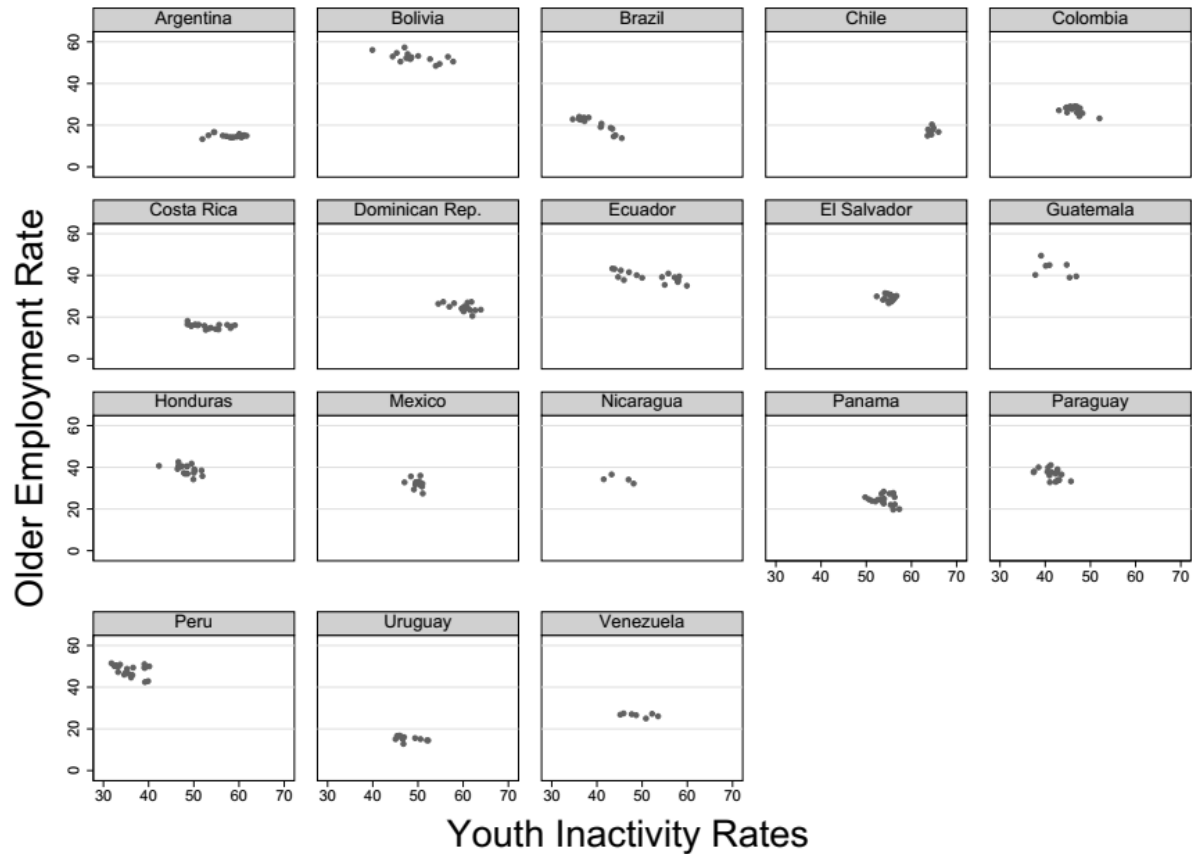
Figure 5 – Relation Elderly Labor Force and Youth Unemployment, Latin America



Source: SEDLAC (CEDLAS and The World Bank).

Figure 6 shows the relations between elderly labor force and youth inactivity (out of the labor force) for the countries in the region. The results indicate no clear relation between the 2 variables. The relation shows a negative relation between elderly employment and the situation of the youth in the labor market. In areas with a high level of elderly employment, youth inactivity is also incredibly low.

Figure 6 – Relation Elderly Labor Force and Youth Inactivity, Latin America



Source: SEDLAC (CEDLAS and The World Bank).

Table 1 shows preliminary results from the regression models based on previous data. The estimates indicate that we do not observe a strong relation between the variables, similar to what is observed in OECD countries. The main results are:

1. elderly labor force participation has a negative effect on Youth inactivity in the labor Market – that is - the greater the participation of the elderly, the lower the youth inactivity;
2. We do not find evidence that increase in elderly employment rates are related to decline in youth employment – or increases in youth unemployment;
3. analysis for all countries suggest that high levels of elderly employment are positive associated to high levels of youth employment
4. shows results in the same direction as observed in OECD countries



Table 1 – Summary of Regression Models, Latin America

Dependent Variable	Explanatory Variable	Result
Youth Inactive Rate	Labor Force Participation 65+	Negative and statistically significant effect
Youth Unemployment Rate	Labor Force Participation 65+	Very small positive relation, but not statistically significant
Duration of Youth Unemployment	Labor Force Participation 65+	Very small negative relation, but not statistically significant

**Next steps**

1. Regression model including other co-variables to better understand the relation between elderly employment and youth unemployment. More details using microdata from IPUMS international
2. From census data, analysis for both national and sub-national level
3. Discussion considering differences by gender

## 5 Conclusion

The rapid process of population aging will have huge impacts on the sustainability of the Brazilian pension system. The increase at the old age dependency ratio means a larger number of beneficiaries will depend on a smaller number of workers. The demographic problem is not the sole issue in this matter. There is also a strong downward trend in labor force participation at older ages. Early retirement has increased the dependency ratio more than would be predicted by demographic analysis. In general, there are two main criticisms to this view. One is the relation of labor force and health, that was discussed in the LAC context before (De Souza, et.al, 2019). In this paper, we tackle the second one that argues that early retirement is important to create employment opportunities to young workers, in other words, if the elderly postpone retirement one would observe an increase in youth unemployment rates.

In the paper, we discuss: how old-age employment is related to youth unemployment? We use census data at the provincial level for a series of Latin America countries. As Boheim and Nice (2019) there is no evidence of trade-off between elderly employment and youth unemployment in OECD countries, but there are very few studies in less developed economies and those characterized by large informal labor market.

Our preliminary analysis for the countries in the region shows results in the same direction as observed in OECD. We do not find evidence that increase in elderly employment rates are related to decline in youth employment – or increases in youth unemployment. In general, the analysis for all countries suggest that high levels of elderly employment are positive associated to high levels of youth employment. In the next steps of the paper, we aim to investigate further the conditions of local labor markets and business cycles to better understand this result. An important impact, however, is that recent changes in the public pension systems in the region, that aim to increase the duration of working life, do not seem to have an impact on the employment opportunities of younger generations.

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