

Paiva, Luis Henrique; Varella, Santiago Falluh

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Luis Henrique Paiva, Institute for Applied Economic Research (Ipea)
and International Policy Centre for Inclusive Growth (IPC-IG)

Santiago Falluh Varella, United Nations Children's Fund (UNICEF)

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International Policy Centre for Inclusive Growth (IPC-IG)

SBS, Quadra 1, Bloco J, Ed. BNDES, 13º andar
70076-900 Brasília, DF - Brazil
Telephone: +55 61 2105 5000

ipc@ipc-undp.org ■ www.ipcig.org

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THE IMPACTS OF SOCIAL PROTECTION BENEFITS ON BEHAVIOURS POTENTIALLY RELATED TO ECONOMIC GROWTH: A LITERATURE REVIEW¹

Luis Henrique Paiva² and Santiago Falluh Varella³

1 INTRODUCTION

What are the possible impacts of social protection benefits on economic growth? Although the main objective of these benefits is to protect people from poverty, shocks and social risks—and not promote economic growth—this question pervades both the theoretical and the empirical literature on social policy. The main concern is that social protection could have negative effects on certain behaviours associated with economic growth. They could, for instance, negatively affect savings, labour supply and fertility, all potentially relevant factors to induce short- and long-term economic growth. However, they could also lift liquidity constraints that prevent people from investing more in children's education, starting a new business or migrating to a place where there are more opportunities in the labour market.

A large amount of theoretical expectations and empirical evidence has been accumulated about the effects of social protection benefits on several different behaviours potentially associated with economic growth. The objective of this document is to summarise this discussion.

The review considers the effects of both contributory (pensions and unemployment insurance, for instance) and non-contributory benefits (such as social pensions and conditional and unconditional cash transfers). It does not cover in-kind transfer programmes. A much more complicated question is which outcomes should be taken

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2. Institute for Applied Economic Research (Ipea) and International Policy Centre for Inclusive Growth (IPC-IG).

3. United Nations Children's Fund (UNICEF).

into account. The scope of this piece did not permit us to select these outcomes after a careful examination of economic theories of growth, which would be the most appropriate course of action. Therefore, we chose to focus on some of the ‘usual suspects’:

- consumption and saving;
- labour supply;
- education;
- fertility;
- migration; and
- innovation and risk-taking.

Social protection benefits can have other impacts on economic growth, beyond affecting microeconomic individual behaviour. Social spending can also affect economic growth through macroeconomic channels. Increasing expenditures with social protection benefits, for instance, can compete with infrastructure or education investments, which could lead to long-term consequences for economic growth. On the other hand, social spending can stabilise aggregate demand and prevent major economic downturns. However interesting, these other effects of social protection on economic growth will not be covered in this study, which will remain focused on the effects of social protection on economic growth through microeconomic channels—that is, through individual behaviours.

The structure of this piece is as follows: in section 2, we detail the scope and method of this literature review; the following sections (3 to 8) discuss the established outcomes; and section 9 comprises the conclusion.

2 SCOPE AND METHOD

This literature review covers studies that measured the impacts of different contributory and non-contributory social protection benefits on several outcomes potentially related to economic growth. Its objective is to provide the reader with a broad overview of what we should expect in terms of effects from the adoption of (or change in) these benefits, not limited to theoretical expectations.

However, this is not a systematic review. A systematic review, covering all potentially interesting studies about such a large number of benefits and outcomes, would be well beyond the scope of this piece.

The strategy of this paper comprised a few steps. First, we took advantage of existing literature reviews on the impacts of specific benefits on specific outcomes. The Congressional Budget Office (CBO 1998) reviews the impacts of pensions on consumption and saving. Krueger and Meyer (2002) review the effects of pensions and unemployment insurance on labour supply. Baird et al. (2013), Kabeer and Waddington (2015) and Bastagli et al. (2016) are good examples of studies about the impact of cash transfers on specific or multiple outcomes. Moffitt (1998) covers studies about the effect of welfare programmes on fertility. These reviews provide a good sense of the research on the topic up to their publication date.

The second step was to identify, in the existing literature reviews, occasional studies that we considered pivotal for the research on the subject. Whenever possible, these studies were also reviewed. Good examples are Feldstein (1974; 1996), who measured the impacts of pensions on consumption and saving, or Hurd and Boskin (1984) and Krueger and Pischke (1992), who found different results of the effects of social security on labour supply.

The third and final step was to identify relevant studies that could help map recent developments in these research areas. Cigno, Casolaro, and Rosati (2003), for instance, used time-series data to measure the impact of pension coverage on savings. Thus, they followed the original path inaugurated by studies such as those by Feldstein (1974) and Barro (1978), but adopted new strategies to deal with problems that could have affected these first studies (such as endogeneity or the indirect effect of pensions on savings through fertility). Börsch-Supan (2000) and Gruber and Wise (2004) investigate not only the possible effects of 'pension wealth' on labour supply, but also what they named "forward-looking incentive measures" (variation in the pension wealth due to a decision to postpone retirement), following an insight by Krueger and Pischke (1992). These are but a few examples: throughout this review, the reader will find relatively recent studies that addressed concerns raised by the more classical literature.

Obviously, this three-step strategy was not always strictly followed. In particular, large literature reviews of studies about cash transfers were performed recently, so in this case the third step was not necessarily relevant. The number of identified studies about the effects of specific benefits on particular outcomes may also be small. This is the case, for instance, for possible effects of contributory pensions on education. In this case, the strategy was to review the few studies we were able to identify.

3 CONSUMPTION AND SAVING

3.1 THEORETICAL EXPECTATIONS

Social insurance

Social insurance (that is, mandatory, contributory and typically earnings-related social protection) has two expected effects:

- consumption smoothing over the life cycle, keeping family consumption above a certain level in case of potential social risks and shocks; and
- an increase in average consumption (and a corresponding decrease in voluntary savings).

These expected effects are compatible with both the life-cycle theory, which predicts that pension wealth⁴ would, in specific circumstances, substitute voluntary savings for retirement one-for-one (CBO 1998; Cigno, Casolaro, and Rosati 2003; Attanasio and Rohwedder 2003), and with the idea that social insurance could erode precautionary savings.

An intuitive way to explain these expectations is that the perception that potential social risks (such as unemployment, sickness, work injury, old age, among others) are covered

by mandatory social insurance can lead to reductions in retirement and precautionary savings, and to a proportional increase in consumption (Feldstein and Liebman 2002). An actuarially generous system, which generates more social security wealth than what is paid in contributions, would create an additional incentive to present consumption or, inversely, an additional disincentive to present saving (Cigno, Casolaro, and Rosati 2003; CBO 1998).

These positive effects on consumption, or negative effects on saving, are expected to occur during both working and old age (in general, periods when contributions are paid and benefits are received, respectively). When contributions are paid, pension wealth is accumulated and tends to crowd out voluntary savings. When benefits are received, social risks (which otherwise could affect work capacity and income) will have a limited impact (if any) on household income, reducing the need for precautionary saving.⁵

Non-contributory benefits

Other social protection benefits are expected to have similar effects. However, these should vary considerably according to the design and level of the benefits. Generous non-contributory, rights-based benefits can prevent major fluctuations in family income and thus produce a negative impact on precautionary saving. Cash transfers, on the other hand, are targeted, normally set at a lower level and are not risk- or rights-based. As a consequence, they reach a poor population with a very high marginal propensity to consume, and who would be barely able to save in the first place. Therefore, these transfers should have a positive impact on consumption and be neutral (or slightly positive) regarding saving (when comparing beneficiaries and non-beneficiaries with similar characteristics) (Kabeer and Waddington 2015). However, aggregate household saving may be negatively affected by any form of family allowance or child benefits (including conditional cash transfers—CCTs), precisely because they target young households that (as a rule) save less than middle-aged ones (Cigno, Casolaro, and Rosati 2003).

3.2 LITERATURE REVIEW OF EMPIRICAL EVIDENCE

Social insurance: pensions and unemployment insurance

There is a large body of empirical evidence about the relationship between social insurance and consumption and savings. This evidence comes mainly from studies using aggregate time-series data (e.g. Barro 1978; Lesnoy and Leimer 1985; Feldstein 1996; Cigno and Rosati 1996; and Cigno, Casolaro, and Rosati 2003), cross-country comparisons (e.g. Edwards 1995) and cross-section or longitudinal microdata (e.g. Alessie, Angelini and van Santen 2013; Feng, He and Sato 2011; Attanasio and Brugiavini 2003; Attanasio and Rohwedder 2003). A comprehensive survey conducted by the Congressional Budget Office details the state of the debate and historical evidence until the end of the 1990s (CBO 1998).

Studies using aggregate time-series data in general used consumption as the dependent variable and pension wealth as the main independent variable. Feldstein (1974, revised in 1996), Leimer and Lesnoy (1982) and Barro (1978) are good examples of these studies.

Feldstein (1996) reported a statistically significant positive impact of pension wealth on consumption and, conversely, a negative effect on savings. The author defined these impacts

as of “economically important magnitude”. In 1992, private savings in the USA were 63 per cent lower than they should be if no social security were in place. However, this large disparity seems to be better explained by the very low level of actual private saving rather than by a large degree of substitutability between pension wealth and savings, since his study suggests an additional consumption (saving reduction) of only USD 0.028⁶ per additional dollar of pension wealth.

Barro (1978, *apud* CBO 1998) added government deficit to the model proposed by Feldstein (1974) and defined several specifications to measure the impact of pension wealth on private savings. Although most estimates suggested, as expected, a negative relationship between pension wealth and savings, this relationship became “uniformly positive” when pension wealth was replaced as the independent variable by the pension replacement rate.

Leimer and Lesnoy (1982), in turn, maintained that the way pension wealth was computed in these studies could lead to very different (and, in fact, opposite) results. The assumption that insured workers could adequately compute their pension wealth was too strong. If pension wealth were computed in five plausible—albeit different—ways, what would their relationship with private savings look like?⁷ In three out of these five methods of computing pension wealth, the effects on saving were positive.

Overall, the use of aggregate time-series data rendered measures of the impact of social insurance on consumption/saving that were too disparate (and probably imprecise). Three reasons could help understand why: (1) the results looked very sensitive to the specification of the regression equation. Feldstein and Liebman (2002) recognised that the specification could not only result in very different impact magnitudes but also in opposite results; (2) there was a lack of evidence supporting the assumption that insured workers could precisely compute their pension wealth, and the different ways to compute pension wealth could also lead to very different results; and (3) the use of aggregate time-series data to measure the impact of pension systems on private saving could potentially involve endogeneity (Kaier and Müller 2015). Hypothetically, a pension system could have become historically more generous to respond to decreasing levels of saving, and not the other way around.

Two other sources of variation were used to estimate the impact of pension systems on consumption and saving: savings were regressed on the varying generosity of pension systems in cross-country studies; and variations in pension wealth across individuals were used in studies using cross-sectional (and even longitudinal) individual microdata.

The CBO (1998) reviewed seven cross-country studies. They (as a rule) did not compute pension wealth for different countries. In general, the variable used to measure the generosity of the pension systems was the pension replacement rate. Edwards (1995) used the ratio of public expenditure on social security and welfare to total public expenditure as the indicator for social security.

The CBO (1998) considered cross-country studies inconclusive. Five of them found both positive **and** negative estimates. The median estimates in four of the seven studies were not statistically different from zero. Edwards (1995), using aggregate time-series data for 36 countries, pointed out several estimates suggesting negative impacts of pensions on saving. However, the CBO (1998) suggests that the use of the ratio of public expenditure on social security and welfare was not as theoretically desirable as the pension replacement rate, which could affect the results.

The number of studies using cross-section microdata reviewed by the CBO (1998) was substantially larger (14). In these studies, the main independent variable was pension wealth,

which was computed at the individual level. Private savings was typically the dependent variable. Although the median estimates in eight of these studies were not statistically different from zero, most estimates were between zero and -0.5, and the report suggested that the most likely estimate was “near the middle of that range”.

Among more recent studies, a few strategies to explore variation in social security sound promising. Attanasio and Brugiavini (2003), Attanasio and Rohwedder (2003) and Feng, He and Sato (2011) took advantage of pension reforms (as a source of exogenous variation in pension wealth) to try to measure the impact of pension wealth on savings, which seems to be a solid identification strategy. Hurd, Michaud, and Rohwedder (2012) and Alessie, Angelini and van Santen (2013) conducted a cross-country study covering several countries, based not on aggregate but rather on individual microdata. Using micro datasets, Euwals (2000), Engelhardt and Kumar (2011) and Klump and Kim (2010) regressed non-pension household wealth on pension wealth for different countries (the Netherlands, the USA and Germany, respectively). Euwals (2000) and Engelhardt and Kumar (2011) also explored heterogeneity over the income distribution. Finally, Cigno and Rosati (1996) and Cigno, Casolaro, and Rosati (2003) relied on traditional time-series analysis for four European countries, adopting specific strategies to avoid endogeneity and considering fertility as an endogenous effect.

Pension reforms are an exogenous source of variation in pension wealth. They affect cohorts and professional categories (for instance, private-sector workers and civil servants) differently. Attanasio and Brugiavini (2003) explored the effect of the 1992 Italian pension reform, which increased retirement age and the minimum period of contribution, introduced restrictions to early retirement and reduced replacement rates. All of these changes contributed to a reduction in pension wealth, with proportionally greater impacts on the public sector, younger and educated workers than on the private sector, older and uneducated employees. They applied regression discontinuity design (RDD) and the difference-in-differences (DID) approach on data from the Survey on Household Income and Wealth (regarding waves before and after the reform). Pension wealth (as a proportion of current earnings, computed at the individual level) was the main independent variable, and saving rate was the dependent variable. The results varied a lot depending on the specification used. For middle-aged households, the authors found a high degree of substitutability (close to -1). Low degrees of substitutability were found for young households (possibly due to liquidity constraints) and for old households (the authors considered this result “puzzling”).

Attanasio and Rohwedder (2003) adopted fundamentally the same strategy, focusing on three pension reforms in the UK: those of 1975 and 1981, which changed the indexation rules of the Basic State Pension (BSP)⁸ and reduced pension wealth; and that of 1978, which created the State Second Pension (S2P)⁹ and increased pension wealth for higher-earning workers. The authors worked with different waves of the Family Expenditure Survey, computing pension wealth (as a proportion of current earnings) at the individual level and having saving rates as the dependent variable.

The results were interesting. For the S2P, in cohorts older than 31 years of age, the substitutability between pension wealth and private wealth was high (with an estimate of roughly -0.75). For the younger cohorts, the degree of substitutability was zero (tentatively explained by liquidity constraints). For the BSP, this substitutability was also virtually non-existent, which led Attanasio and Rohwedder (2003, 1515) to suggest that the “substitution of pension wealth for private wealth in the poorer part of the population is likely to be small due to liquidity constraints”.

Feng, He and Sato (2011) also explored an exogenous variation in pension wealth, the Chinese pension reform of 1995–1997, which planned to reduce the replacement rate of social insurance benefits from 75 per cent to 58.5 per cent. Different age groups were affected differently by this reform, with younger groups being more affected. The authors used data from the China Household Income Project (waves from before and after the reform), adopting ordinary least squares (OLS) models and instrumental variables (IVs) to measure the effect of pension wealth on saving rates.

The authors compute pension wealth according to three ‘scenarios’ (with different assumptions about variables such as the rate of wage growth) and computed saving rates in two different ways (including/excluding education and health care), for private-sector workers and civil servants (IVs were used only for private-sector workers). Estimates were always negative (with pension wealth reducing the saving rates), but of small magnitude (with the use of IVs, the largest magnitude was -0.16). Different results for saving rates computed with and without spending on education and health care allowed Feng, He and Sato (2011, 482) to state that declining pension wealth negatively affects “expenditures on children’s education and health by more than their other expenditures”. In other words, in the Chinese context, the reduction in pension wealth would result in increased saving and, conversely, less consumption, but part of the reduction in consumption would affect expenditures that can be understood as human capital investment.

Hurd, Michaud, and Rohwedder (2012) developed a cross-country study. They evaluated the effects of public pensions on financial assets, using micro datasets from 12 different countries (the Health and Retirement Study—HRS—for the USA; the English Longitudinal Study of Ageing—ELSA; and the Survey of Health, Ageing and Retirement in Europe—SHARELIFE—for 10 mainland European countries). The sample included men aged 65–75. Pension wealth was the independent variable used in different models. Estimates ranged from -0.09 to -0.22, a relatively small magnitude. The pooled regression with country fixed effects resulted in the largest estimate, -0.22. In this case, an additional USD1 of pension wealth would result in a decrease of only USD0.22 in financial assets.

The study by Alessie, Angelini and van Santen (2013) used the third wave of SHARELIFE, which covered 13 European countries.¹⁰ Variation in pension wealth across the countries was used to measure the impacts of pensions on net worth¹¹ and financial wealth. The degrees of substitutability found in this study were large (between 0.47 and 0.61 for net worth; and between 0.78 per cent and 0.87 for financial wealth as the dependent variable). However, the authors highlighted a limited displacement for less educated and “perhaps financially illiterate” households.

Euwals (2000) adopted a simple empirical strategy to estimate the impacts of the two pillars of social insurance in the Netherlands (a basic pay-as-you-go scheme and a supplementary, fully funded occupational scheme) on savings. Based on data from the CentER Savings Survey (1993, 1994 and 1995 waves) and taking into account households with men aged between 40 and 64, the author regressed the self-reported importance of savings as a supplement to each of the two pillars on several variables, including social security wealth (related to the first pillar) and pension wealth (related to the second pillar). Additionally, he also regressed private household wealth (comprising savings, insurance, stocks, bonds, property and debts) on a similar set of covariates (replacing pension wealth with years of contribution in one specification). The conclusions are that both social security wealth and pension wealth negatively affect the self-reported importance of saving for old age, but that these variables

do not have a clear impact on private household wealth. When pension wealth is replaced by years of contribution, a displacement effect is observed, but only for the highest decile of per capita income. Euwals suggests that social security tends to affect savings negatively, but only for those who are better off.

Engelhardt and Kumar (2011) tried to measure the degree of substitutability between private pension wealth and non-pension household wealth in the USA, based on data from the 1992 wave of the HRS. The HRS not only collected information declared by interviewees, but also garnered their approval to collect administrative data about their private pension plans and previous earnings, which allowed for a more precise computation of individual pension wealth. The authors employed IV regression and IV quantile regression (to measure occasional heterogeneity over the income distribution) and concluded that there is a relatively high degree of substitutability (between 0.53 and 0.67) between pension wealth and non-pension wealth at the mean. The authors also suggested that “the bulk of the mean effect [is] concentrated in the upper quantiles” of the wealth distribution. The effect is also high for those with non-pension wealth and income above the median, and those with college education (against a virtually in-existent effect for those below the median or less than college education). Their study also corroborates the hypothesis that pensions do crowd out private savings, but with a degree of substitutability below 1, concentrated on those who are better off.

Klump and Kim (2010) also adopted the strategy employed by Euwals (2000) and regressed non-pension household wealth on public-pension wealth and a set of covariates—for Germany, in their case. Based on data from waves from 1984 to 1999 of the German Socio-Economic Panel (GSOEP, which rendered a relatively small sample of 776 households whose head was aged from 40 to 59 years old in 1988), the authors concluded that the degree of substitutability between pension wealth and non-pension wealth is not larger than 0.22 in any specification.

The strategy adopted by Cigno and Rosati (1996) and Cigno, Casolaro, and Rosati (2003) was different. These authors resorted to aggregate time-series data, but adopted a few innovations. First, they did not compute pension wealth (relying instead on old-age coverage as the variable to account for the generosity of social insurance). Second, they treated fertility as endogenous. Finally, to work around the problem of endogeneity that could potentially affect studies with aggregate time-series data, Cigno, Casolaro, and Rosati (2003) used a vector autoregressive (VAR) model, where all variables are considered potentially endogenous.

Cigno and Rosati (1996) found that household saving (defined as the difference between household disposable income and consumption) was positively affected by social security coverage (defined as the ratio of total pensions paid to the population aged 65 or older) in Italy, the UK and the USA, but not in Germany. On the other hand, Cigno, Casolaro, and Rosati (2003) proposed a better definition of what should count as old-age pension benefits in Germany and added a variable accounting for child benefits to the model—afterwards, they also found that social security coverage had “a strongly positive effect on saving” in that country.¹²

Cigno and Rosati (1996) credited the difference between their findings and theoretical predictions to the fact that they employed a model where saving and fertility are jointly determined. They also believed that the direct effect of social security on saving is negative. However, social security has an indirect (and positive) effect on saving: it reduces fertility, and lower fertility leads to higher saving. The overall effect is positive.

Engen and Gruber (2001) also find some evidence that a different social insurance benefit (namely, unemployment insurance—UI) could have a negative impact on precautionary

saving. These authors explored the differences in UI replacement rates across the states in the USA, which function as an exogenous variable affecting income uncertainty. Based on data from the Survey of Income and Program Participation, they found that a reduction in the UI replacement rate by half would increase savings (fundamentally, financial assets) by 14 per cent. The main problem with this finding is that, as the financial assets accumulated by the median family are very low, this increase represents only 0.8 per cent of the family's annual earnings and only 21 per cent of the transfer reduction that the average unemployed person would face in case of a 50 per cent cut in the UI replacement rate. In other words, despite being related to a decrease in saving (and a corresponding increase in consumption), the most likely scenario is that UI increases overall welfare.

Non-contributory benefits

Evidence seems to confirm theoretical expectations related to the effect of CCTs on consumption and savings (that is, they should increase consumption and be neutral or slightly positive regarding saving behaviour). The literature review conducted by Rawlings and Rubio (2005), based on the impact evaluations of the first generation of CCTs, and the meta-analysis performed by Kabeer and Waddington (2015) collect significant evidence that CCTs have an unambiguous positive effect on consumption. Rawlings and Rubio (2005) highlight a 13 percentage point impact on general consumption (and an 11 percentage point impact on food consumption) for *Progresas* (Mexico) and an increase of 19 per cent in general consumption in Nicaragua (always compared to the control group). Kabeer and Waddington (2015), in turn, maintain that the CCTs studied increased consumption by between 2.6 per cent (Mexico's *Progresas*) and 19.2 per cent (food consumption, Nicaragua's *Red de Protección Social*). Angelucci, Attanasio and di Maro (2012) also refer to a positive impact on food consumption for *Oportunidades* (Mexico),¹³ but the impact on non-food consumption was not statistically significant.

A relevant point is that there is evidence that the incremental income was used for items of food and children's consumption rather than for items of adult consumption (Kabeer and Waddington 2015; Cecchini and Madariaga 2011) and that beneficiary families spent more on food than comparable non-beneficiary families (Fiszbein and Schady 2009). Jannuzzi and Pinto (2013) suggest that this consumption pattern may be related to conditionalities, which work as a reminder of the pro-children design of such programmes, while Kabeer and Waddington (2015) believe this pattern can be an effect of the benefit being preferably paid to women.

Evidence of effects on savings appears relatively more scarce. Rubalcava et al. (2009, *apud* Kabeer and Waddington 2015) point to a residual increase in savings in Mexico among beneficiary families. Angelucci, Attanasio and di Maro (2012) found no statistically significant impact for *Oportunidades*. The findings of Angelucci and De Georgi (2009) suggested an increase in livestock assets and grain resources for beneficiary families in Mexico, compared to the control group.¹⁴

In developing countries, the effect of non-contributory old-age pensions on consumption and saving seems to depend on policy design and benefit levels.

Galiani, Gertler and Bando (2014) analyse the possible impacts of Mexico's *Programa de Atención a Adultos Mayores en Zona Rurales* (Programme for the Assistance to Older People in Rural Areas) on consumption and saving. At the time data were collected, *Adultos Mayores* used to pay USD90 every two months to people aged 70 and older living in communities with

fewer than 2,500 inhabitants. The benefit design allowed a reliable comparison group to be built, comprising people aged 70 and older living in communities with a population slightly larger than 2,500 inhabitants. Occasional anticipation effects (for instance, a reduction in labour supply or increased consumption—and a corresponding decrease in savings by people younger than 70) were measured, comparing those aged between 66 and 69 in communities of both sizes. Using a DID approach on data from baseline and follow-up surveys carried out by the Instituto Nacional de Salud Pública in 2007 and 2008, the authors concluded that consumption increased by 23 per cent in treated households and that there was no anticipation effect on earnings and consumption (saving).

On the other hand, González-Rozada and Ruffo (2016) measured the effects of Argentina's *Plan de Inclusión Provisional* (PIP). This social pension emerged with the introduction of a tax amnesty permitting any person aged 60 or 65 (for women and men, respectively) or older to report having worked between 1955 and 1993 as self-employed. They incurred a 'debt' with social security (which would be paid through lower old-age pension levels in the first five years) but, on the other hand, had immediate access to the benefit. Benefit levels were around USD90 per month for the first five years and USD170 per month thereafter (substantially higher than what was paid by Mexico's *Adultos Mayores*). Their work was based on data from the Permanent Household Survey (*Encuesta Permanente de Hogares*—EPH—from 2003 to 2013) and the National Consumption Survey (*Encuesta Nacional de Gastos de Hogares*, two rounds: 2004-2005 and 2012-2013). The main independent variable was the probability of being treated. Considering households with at least one member aged 60/65 (women/men) or older, a 10 per cent increase in the probability of benefiting from PIP would lead to an increase of 1.18 per cent in food consumption and 1.23 per cent in non-durables consumption, as well as a decrease of 3 per cent in savings. The authors also suggest effects during the life cycle on consumption and saving that took a convex shape: always negative for savings; negative for consumption prior to the statutory age limit, and positive later on.

A last (and intriguing) result must be mentioned regarding universal old-age pensions. Defying theoretical expectations, Obben and Waayer (2011) report a positive impact of pension wealth on savings regarding New Zealand's Superannuation (NZS). NZS is a relatively generous universal flat-rate benefit¹⁵ paid to all residents aged 65 and older. Working with time-series data and an empirical model inspired by Feldstein (1974), these authors reported that a 10 per cent increase in gross pension wealth would induce an increase of 1.7 per cent in the household saving rate (significant only at a 10 per cent level, however). They suggest that the absence of means-testing (which could lead potential beneficiaries to 'game' the system by undersaving) and of a compulsory pension scheme (which would probably affect saving negatively) could explain this result.¹⁶

* * *

We can reach a few conclusions in this subsection. First, estimates of the effect of social insurance on saving (consumption), based on cross-sectional or even longitudinal microdata, tend to point towards a negative (positive) relationship. This includes studies that explore exogenous variations caused by pension reforms, an apparently solid identification strategy. Pensions probably have a negative effect on private savings.

Second, accepting the idea that social insurance policies displace private saving, at least to some extent, one should also take into account that: (i) the magnitudes vary too much to

suggest a minimally reliable degree of substitutability; and (ii) estimates are, in most cases, significantly below 1. Thus, we should consider that social insurance policies are probably associated with a substantial increase in welfare (that is, they would provide a higher old-age income than what elderly people would have otherwise saved for).

Third, this increase in welfare is valid for both pay-as-you-go and fully funded pension schemes. However, Euwals (2000) and Engelhardt and Kumar (2011) also argue that degrees of substitutability between pension wealth and private savings/non-pension wealth below 1, in the case of fully funded schemes, mean that these schemes should increase national household savings (that is, these schemes would accumulate a higher proportion of savings than individuals would), which is growth-enhancing.

Fourth, many of these studies—for instance, Euwals (2000), Attanasio and Rohwedder (2003), Engelhardt and Kumar (2011) and Alessie, Angelini and van Santen (2013)—reach a common conclusion: the negative impact of social insurance benefits on savings for groups subject to liquidity constraints (that is, younger, poorer, less educated workers) tends to be very limited or non-existent. They would not save significantly anyway. Thus, one should not expect reforms that reduce pension wealth to be associated with increased savings for these groups: “for them the relationship between pension wealth and savings might look different” (Attanasio and Rohwedder 2003). The same can be concluded from studies covering modest cash transfers, which normally reach households that would not be able to save anyway: they increase consumption (especially of food) and are neutral or slightly favourable to saving.

Fifth, general equilibrium effects of increasing or decreasing pension wealth levels are probably more complex than life-cycle and precautionary saving models would suggest. The studies by Cigno and Rosati (1996) and Cigno, Casolaro, and Rosati (2003) shed some light on this issue. Indirect effects of increasing social insurance transfers can offset direct negative effects on savings.

Finally, the design and levels of non-contributory pension benefits can have some influence on their possible effects. The younger the target group and the more generous the benefit, the more likely it is to find some positive impact on consumption or negative impact on saving. However, again, these benefits also are probably associated with a substantial increase in welfare.

4 LABOUR SUPPLY

4.1 THEORETICAL EXPECTATIONS

Social insurance: pensions and unemployment insurance

There are at least a few mechanisms through which pensions could affect labour supply. First, the ‘wealth effect’ of receiving a pension is expected to induce beneficiaries to retire immediately after the age of entitlement (Krueger and Meyer 2002). The benefit makes working less necessary (or even unnecessary), and leisure becomes relatively cheaper. Thus, both income and substitution effects of the benefit operate in the same direction. As one could expect larger replacement rates for low-skilled workers, this effect should be stronger for them than for high-skilled workers (Lalive and Parrotta 2017).

A second mechanism works through the benefit formula. It could encourage workers to remain working for longer after the age of entitlement, by specifying a premium for additional work time. If this premium is actuarially attractive or at least neutral, it should counterbalance the wealth effect, and one should not expect a large discontinuity in labour supply at the age of entitlement (Krueger and Meyer 2002).

A third mechanism is related to the way these benefits are financed—as a rule, a pay-as-you-go payroll tax. This tax would affect the labour supply of the working-age population, although in an ambiguous way. The income effect of the tax on wages would lead to an increase in labour supply (holding wages constant), while the substitution effect would decrease labour supply (Hausman 1981). In turn, the prospect of becoming eligible for benefits would produce an “entitlement effect” (Krueger and Meyer 2002) that could also boost labour supply.

Another mechanism through which social insurance could affect labour supply is related to the way couples make joint decisions. Spouses of wage earners can decide to work as a form of protecting the family against social risks faced by the person mainly responsible for household income. Social insurance coverage renders this behaviour less necessary and could reduce household labour supply. The benefit formula can define a cap for the second old-age pension in the same household. This cap could represent a disincentive for spouses to join the labour market (*ibid.*). Finally, access to pension income by the partner could discourage the labour supply of the spouse (Lalive and Parrotta 2017).

The main theoretical concern about possible effects of UI on labour supply is, obviously, that it could lead to higher unemployment spells and rates. To some extent, this is not only expected but desirable: a possible rationale for its implementation is to promote a more productive match between workers and jobs in a context of imperfect information. In other words, UI would encourage workers to look for higher-productivity jobs, which should take more time and result (*ceteris paribus*) in higher unemployment rates. The general expectancy is that productive gains could offset this effect (Acemoglu and Shimer 2000; Addison and Blackburn 2000).

However, there are other possible undesirable effects produced by UI, most of them predicted by Mortensen (1977). First, protection against unemployment could lead employees to work less hard or to search less hard for a job, both of which would result in higher unemployment.¹⁷ Second, the search subsidy effect: UI could raise the reservation wage and consequently increase unemployment spells. A prediction based on these two theoretical effects could be that a beneficiary’s search effort will increase the closer they are to the date the benefit expires. The third effect (entitlement effect) would operate in the opposite direction: non-entitled workers and UI beneficiaries in the final period of the benefit would have an incentive to escape from unemployment. Finally, UI is also expected to crowd out spousal labour, if the work of both adults is an alternative to social protection, since it “reduces the loss in family when one spouse is unemployed” (Krueger and Meyer 2002, 17).

Non-contributory benefits

Social insurance benefits are paid because of social risks that prevent people from working or that make working more difficult for them. Although the possible negative impact of benefits on labour supply is a source of concern, one could argue that reducing labour supply

(of people that are barely able to work) is exactly one of their functions.¹⁸ Non-contributory benefits aimed at people facing social risks typically covered by social insurance would probably be similar. They would differ in their effects on labour supply only in that they are not financed by direct contributions. Thus, one should not expect income and substitution effects related to paying contributions, or the entitlement effect (also related to paying contributions).

In turn, non-contributory benefits aimed at reducing poverty (means-tested, in general) are frequently paid to people who can (and should be encouraged to) work. According to the simplest theoretical models, cash transfers would produce two possible effects. The income effect would promote a straight reduction in labour supply (most probably at the intensive margin—that is, in the number of hours worked), since working becomes less necessary. The larger the transfer, the stronger this effect should be. A second and critical effect may be generated by the benefit's marginal tax rate (that is, the reduction in the benefit level as a function of the marginal income received as wage). Marginal tax rates change relative prices (rendering working less rewarding and leisure less expensive). The higher the marginal tax rate, the stronger the substitution effect is expected to be (Moffit 2002; Borjas 2005). However, a more sophisticated model incorporating the costs of looking for a job, as well as liquidity and credit constraints faced by poor people, could suggest that modest benefits might even increase labour supply.

The benefit design and level can influence the observed results. It should be “impossible to formulate a relatively generous welfare programme without substantially reducing work incentives” (Borjas 2005), but relatively modest benefits—for different reasons—might have no perceptible impact or even a positive one. Reducing marginal tax rates should encourage labour supply by non-working or lower-labour-supply beneficiaries, but the overall effect is ambiguous, because higher-labour-supply individuals would have an incentive to reduce their labour supply and become beneficiaries (marginally increasing or reducing their total income, but gaining substantial leisure time) (Moffit 2002). Adopting time limits for benefits would increase labour supply—but at a cost of reducing social protection. Work requirements are theoretically expected to have an unambiguous positive effect on labour supply. However, the categorisation of beneficiaries into those who can work and those who cannot would possibly be expensive and give excessive decision-making discretion to local social workers. Therefore, it could be subject to significant error (*ibid.*).

4.2 LITERATURE REVIEW OF EMPIRICAL EVIDENCE

Social insurance—pensions and unemployment insurance

As in the literature aimed at measuring the impact of social insurance benefits on consumption and savings, studies on labour supply adopt three main types of data/empirical strategies: time-series, cross-sectional and longitudinal data (which could be taken as a hybrid strategy).

Krueger and Meyer (2002) conducted a relatively comprehensive literature review on the impacts of pensions and unemployment insurance on labour supply, comprising nine studies up to the late 1990s.

One of the most influential papers they reviewed was by Hurd and Boskin (1984), who used different empirical strategies (from conditional probabilities to logistic regressions) on longitudinal data from the US HRS and from administrative records of earnings (merged with the HRS). For a public of white, married men aged 59–66, they found that the conditional

probability of retirement at the ages of 62 and 65 (early and normal retirement ages) were roughly 50 per cent higher than would be expected considering the tendencies observed at other ages. Coefficients from their logistic regression (with the probability of retiring¹⁹ at the age of 65 as the dependent variable, and social security wealth as the main independent variable) suggested that an increase of USD10,000 (1969 prices) in social security wealth would be related to a 7.8 percentage point increase in retirement. This association could, according to the authors, explain all the 8.4 percentage point decrease in the labour market participation rate observed between 1968 and 1973, years in which changes in the social security law produced a substantial increase in pension wealth.

However, Krueger and Meyer were far from being convinced that the impact of social security wealth on labour supply would be high. One of the studies in their review, which suggested a limited impact (if any) of social security on labour supply, was produced by Krueger and Pischke (1992), who took advantage of the 'notch generation' in the USA. The country's social security benefits were over-indexed in 1972. Legislation passed in 1977 corrected this, preserving the generous rules for those born in 1916 or earlier and adjusting the rules for those born after that, over a five-year transition period. The groups born in 1916 and earlier and between 1917 and 1921 (the 'notch babies') experienced different benefit levels (and, consequently, levels of social security wealth) for otherwise very similar persons, which can configure a natural experiment. Using data from the Current Population Survey between 1976 and 1988 to build a panel on labour force participation for people aged 60–68 years old, Krueger and Pischke compared this with their estimated social security wealth (which varied considerably across this group). Despite sharp variations in social security wealth, the labour force participation kept its historical downward trend, evidence of the limited impact of social security wealth on labour supply.

Overall, Krueger and Meyer (2002, 47) concluded that studies that adopted a credible identification strategy "tend to find a very modest impact of Social Security wealth on labor supply in the United States".

More recent studies still suggest that the impact of social security wealth on labour supply is controversial. Gruber and Wise (2004) summarise the findings of 12 studies covering developed countries,²⁰ all using the same basic methodology, which regresses labour supply on a set of variables, the most important being social security wealth and social security wealth variation as a function of postponing retirement. Coile and Gruber (2007) use data from the HRS and a similar methodology to recalculate these measures for the USA. The results reported in Gruber and Wise (2004, 16) suggest virtually non-existent effects of social security wealth on labour supply. According to the authors, this effect "is often not statistically different from zero and in many cases is of the wrong sign".²¹ However, Coile and Gruber report a negative effect of social security wealth on labour supply: an increase in social security wealth of one standard deviation (a non-intuitive measure, we should recognise) would increase the probability of retirement (that is, decrease labour supply) by 0.96 percentage points.

Mastrobuoni (2009) also points to a negative impact of pensions on labour supply. The author explores the increase of two months per year in the normal retirement age (legislation passed by the American Congress in 1983, effective in 2000) for the generations born after 1938 (inclusive). This increase would be equivalent to a reduction of 1 percentage point in the benefit level. Using monthly data from the Current Population Survey from 1989 to 2007, the author adopts two different strategies. First, he adjusts models to regress retirement status on the level of benefits (controlled by a series of other independent variables) and suggests that

increasing benefits by 1 percent would represent an increase in the probability of retiring of 0.73 percentage points for men and 0.36 percentage points for women. Second, the author models the change in the linear tendency of retirement observed between those born up to 1937 and those born later, concluding that an increase of two months in the normal retirement age would be related to an increase of one month in the retirement age.

One interesting aspect in the previously mentioned study by Krueger and Pischke (1992) is that, although social security wealth seems to have a limited impact on labour force participation, they found a significant effect of the variation in social security wealth on labour supply due to an additional year of work (the accrual in social security wealth).

Börsch-Supan (2000), studying the case of Germany, takes advantage of this finding. He uses data from the GSOEP (covering 13 years, from 1984 to 1996) to regress retirement status on what Gruber and Wise (2004) would term “forward-looking incentive measures”. These measures do not focus on the amount of accumulated social security wealth, but on its variation within a certain period due to a decision to postpone retirement. Examples of these measures are the accrual in social security wealth (which is the variation in the present discounted value of promised pensions if the employee decides to work one more year) and the ‘option value’ (which measures all possible gains in the present discounted value of earnings and the social security wealth from postponing the retirement from today to the optimal date). Börsch-Supan’s main independent variable is the option value.

The author finds a negative and statistically significant coefficient for the option value variable (that is, the larger the option value, the lower the retirement). A subsequent policy recommendation is to introduce an actuarially fair benefit formula, which could provide the correct incentives for employees to continue in the labour force.

The work by Gruber and Wise (2004) and Coile and Gruber (2007) also emphasises the forward-looking incentive measures as independent variables, including the accrual and the option value. They add the ‘peak value’ (which measures possible gains in the present discounted value of the social security wealth from postponing the retirement from today to the optimal date) to the first two. The effects of all forward-looking incentive measures on retirement were statistically significant and negative for most of the 12 countries in the study.

A final aspect of these last two studies is also interesting. Using age as a covariate in a very flexible way (dummy variables for each year of age), the authors conclude that financial incentives (pension wealth or forward-looking incentive measures) “cannot explain the large jumps in retirement rates at normal and early entitlement ages” (Gruber and Wise 2004, 8). “There are still enormous spikes in retirement hazard at ages 62 and 65 [early and normal retirement age in the USA, respectively] that are not explained by the incentive measures we include in these regressions” (Coile and Gruber 2007, 246).

In other words, the empirical evidence is not entirely clear about the effects of social security wealth on labour supply. The variation in the amount of social security wealth as a consequence of postponing retirement seems to be more important to the decision of retiring than social security wealth itself. Measures of this variation are positively associated with labour supply. However, it also seems that—at least to some extent—high retirement rates at specific ages are not explained by financial incentives, but rather by the simple fact that legislation makes retirement possible. This should be critical in examining early retirement. The adoption of an actuarially fair benefit formula could have some effect on postponing retirement, but legal restrictions to early retirement should be equally effective, if not more so.

The empirical evidence suggests that UI (both level and duration) produces some impact on the reduction of labour supply. Nevertheless, estimates are not precise.

Nickell (1998, 813) tries to understand the large variation in unemployment rates across 20 Organisation for Economic Co-operation and Development (OECD) countries. Variables in their models cover different dimensions, such as the restrictiveness of the legal framework of the labour market; passive and active employment policies; the structure of wage bargaining and the role of trade unions; and taxes on labour. The author uses a random effect model and suggests a positive effect of both replacement rate and duration of the benefit on the unemployment rate: “a 10 percentage point increase in the benefit replacement rate and one year on the duration of entitlement generates a 25 per cent increase in unemployment”.

Krueger and Meyer (2002) perform a review of 15 studies on the effect of UI on labour supply up to the early 2000s. Eight of these studies try to measure these effects for the USA (considered a good laboratory, since UI programmes exist in all US states but present sharp differences in terms of benefit levels and the potential duration of benefits, a relevant exogenous source of variation). For studies based on the US case, elasticity estimates of the length of unemployment spells with respect to the benefit level were over 0.5, and significantly lower with respect to the potential duration of benefits. Studies that consider data from other countries feature a considerable range of estimates (with elasticities of unemployment duration with respect to benefit²² varying from statistically zero to over 1.0).

Tatsiramos and Van Ours (2012) conducted a recent survey of nine studies on the impact of the maximum duration and level of UI on exit from unemployment, based either on DID or in regression discontinuity design strategies. Elasticities of unemployment spells with respect to potential benefit duration were relatively low, and frequently below 0.2. Elasticities of unemployment spells with respect to benefit (which combines duration and benefit levels) varied considerably (from 0.35 to 1.6). From a fiscal perspective, the authors reached the conclusion that extending the duration of UI is much more significant than increasing the benefit level.

Policy changes have become a relevant opportunity to measure the effects of UI on labour supply. They were used, for instance, by Lalive (2008) and Amarante, Arim, and Dean (2013) to measure the effects of extending UI duration on unemployment spells in Austria and Uruguay, respectively.

In Austria in 1988, the government extended the potential UI duration from 30 weeks to 209 weeks (from 6.9 months to 4 years) for unemployed workers aged 50 or older. This ‘dramatic increase’ was valid for some regions in Austria, but not for others. Both discontinuities (age and geographical) were potentially useful for the adoption of regression discontinuity methodologies. Lalive (2008) preferred to explore the geographical discontinuity and considered unemployed workers on both sides of the border, facing very similar labour market conditions but having access to UI benefits of different duration. The author used longitudinal microdata from the Austrian Social Security Database (ASSD) and from the Austrian Unemployment Register (AUR) and considered men and women living no farther than a 70-minute car drive from the border. Before the adoption of the extended UI duration, there was no difference in average unemployment spells on either side of the border. The preferred specification suggested an increase of 12/45 weeks in the unemployment spells of men/women living on the side of the border where the benefit duration was increased (an elasticity of the length of unemployment spell with respect to UI duration of 0.09 for men and 0.32 for women).²³

In Uruguay, the UI payment scheme was changed in 2009, from a monthly fixed level for six months to a decreasing benefit level over the same period. Benefit duration was sharply and substantially increased for people aged 50 or older (by an additional six months). The authors worked with administrative records from the UI programme and with a sample of longitudinal data from social security records. They deployed three empirical strategies: DID and propensity score matching for measuring the impact of adopting the scheme of decreasing benefit levels; and regression discontinuity design for extending the duration of UI for people aged 50 or older. Changing the benefit payment scheme had a negative—albeit very small—impact on unemployment duration (minus two days, from a base of one month), computed through the propensity score strategy; and of less than a week, computed through DID. Regarding the extension of the duration of UI by six months, the impact on the unemployment spell was around +0.8 months across several specifications. The extension was not positively associated with higher wages after re-employment.

More recently, Rothstein (2011), based on the US case, measured the impact of large extensions of the duration of UI during the Great Recession, from the average of 26 weeks to up to 99 weeks. The author used the longitudinal structure of the Current Population Survey and applied survival analysis techniques. To isolate the effects of extending UI, he explored several alternatives, such as comparing people who became beneficiaries just before or after the extension and faced similar labour market conditions; taking ineligible unemployed workers as a comparison group; or using variation across states. The different specifications rendered similar conclusions: the extension of UI duration had a statistically significant—but small in magnitude—impact on the probability of exiting unemployment (by the end of 2010, the monthly hazard would be reduced by between 1 and 3 percentage points, from a base of 22 per cent).

Four studies reviewed by Tatsiramos and Van Ours (2012) also aimed to measure the impact of extending the duration of UI on the quality of job matching, measured in terms of wages and job stability. Three of them found no effect, while the other one suggested a small positive effect of extension on wages. Addison and Blackburn (2000), using data from workers who lost their jobs between 1983 and 1990 in the USA, also found a small positive impact of UI on the new job's wages, when comparing beneficiaries to non-beneficiaries.

These results should be taken with a grain of salt. As much in the literature that tries to measure the impacts of social benefits on several outcomes, estimates vary considerably. Acemoglu and Shimer (2000), for instance, model the behaviour of high school graduates in the USA and conclude that small increases in the UI benefit level would produce impacts on output twice as large as corresponding expenditures, and that small increases in UI duration would result in a fourfold output compared to corresponding expenditures.

If confirmed, estimates that point to a small impact on the quality of job matching (and therefore, on productivity) should be considered a greater source of concern than the possible effects on increasing unemployment spells. In fact, the impact of UI on unemployment duration was, to some extent, expected—even desirable, if related to an improvement in job matching.

A possible explanation for the limited effect of the quality of job matching (measured by future wages) may be found in Krueger and Mueller (2010). At first, one does not know if an increase in the unemployment spell related to UI is primarily due to a longer search for better job matching (which is productivity-enhancing) or to a reduction in the time spent searching

(which is not productivity-enhancing). Both behaviours could be theoretically predicted. Krueger and Mueller use data from the American Time Use Surveys (ATUS) from 2003 to 2007 to check how the search effort for a new job during unemployment varies as a function of the generosity of UI benefits. Thus, the dependent variable is the daily amount of time allocated to job search. Independent variables include the maximum UI benefit in the state, the former wage of the beneficiary and other background variables. Elasticity estimates of the amount of time spent on job search with respect to the maximum benefit level in the state varied from -1.2 to -0.8, depending on the specification. Elasticity estimates based on the average benefit level in the state are still negative and even larger.

In other words, there is some evidence that extensions in UI duration may have a negative impact on unemployment duration and are not strongly effective at improving job matching. Nevertheless, they can be necessary for welfare reasons. One alternative is to associate extensions in UI duration to some sort of monitoring and sanctions. The review conducted by Fredriksson and Holmlund (2006) is informative on this topic. The authors review eight studies (mostly based on experiments conducted in the USA, but also on experimental and non-experimental studies based in the UK, the Netherlands and Switzerland) about the adoption of monitoring and sanctions by employment agencies and their effect on the length of unemployment spells. Typically, the studies were about the introduction of job search requirements for UI beneficiaries (in general, a minimal number of contacts with employers per week), associated with some sort of monitoring (usually, visits to job centres) and occasional sanctions (a reduction in the benefit level if the beneficiary does not meet the requirement, or even a risk of losing the benefit, for instance). In most cases (six out of eight studies), the dependent variable (the length of unemployment spell, the duration of the benefit or the exit rate from unemployment) was affected in the expected direction with the adoption of monitoring and sanctions for UI beneficiaries. Pure search requirements (with no associated sanction) were considered likely to “speed up transitions to employment”, but the empirical evidence was not conclusive.²⁴ However, computing the cost-effectiveness of the adoption of monitoring and sanctions was not possible, according to the authors, since cost estimates were “virtually inexistent in this area” (Fredriksson and Holmlund 2006, 377).²⁵

Non-contributory benefits

Regarding non-contributory transfers, results seem to be in line with theoretical expectations. Modest transfers tend not to be strongly associated with changes in labour supply, either at the extensive or the intensive margin. The most studied programmes are cash transfers (conditional or unconditional), for which literature reviews, overviews of literature reviews and occasional meta-analysis are available.

Kabeer and Waddington (2015) review eight studies about the impacts of CCTs on labour supply. In this review, only in Pakistan did a study find negative impacts on labour force participation (a reduction for mothers). Reductions in the number of working hours were registered in other countries, such as Uruguay (urban areas of Montevideo, with reductions of 5.1 per cent for men and 17 per cent for women) and Brazil (a reduction of between 9 and 12 per cent for mothers in one study; or 4.1 per cent for women). Adults in beneficiary households were more likely to be looking for work in Brazil and Chile (according to two independent studies), while in Mexico there was no impact on labour market participation, but some effect on the change from self-employment and unpaid work to wage work was noted.

The extensive review conducted by Bastagli et al. (2016) about the effect of cash transfers (either conditional or unconditional) on several outcomes paints an even muddier picture. Three out of eight studies reporting on the effect of cash transfers on the labour force participation of working-age adults point to an increase, and only one to a decrease. Of the eleven studies reporting on the number of hours worked, only three suggested a decrease (one of them reported decreases among older people). Sixteen studies specifically addressed the labour force participation of women. Five found a significant impact, while four of these pointed towards a positive impact (increasing participation). Of the 10 studies on the impact of cash transfers on hours worked by women, four found significant estimates, but that “no clear patterns emerge” (Bastagli et al. 2016: 176).

The review by Oliveira and Soares (2012) covers only papers about the *Bolsa Família* conditional cash transfer programme in Brazil. The overall picture is fundamentally the same. Eight studies report on the effect of *Bolsa Família* benefits on adult labour force participation; five of them also report on the effects of the benefits on hours worked. Five of these eight studies suggest a positive impact on participation. When the magnitudes are explicitly mentioned, they are all small, as expected. Only one study points to a reduction in labour force participation—for female heads of households. Regarding effects on hours worked, three out of five studies report a small decrease in the number of hours worked per week (two only for women). The authors conclude that the evidence is mixed. In specific groups (non-extremely poor women), a small reduction in the number of hours worked is observed; for others, a small increase in participation is observed. Overall, “there is no clear evidence that CCTs strongly discourage labour supply” (Oliveira and Soares 2012, 29).

Finally, Banerjee et al. (2016) perform a meta-analysis of seven randomised controlled trials of cash transfers from six countries to measure effects on labour supply.²⁶ Labour supply was computed in the weekly number of hours of work, with those not working amounting to zero. The variable thus captures both labour supply at the intensive (hours worked) and extensive (labour force participation) margins. “We do not observe a significant effect of belonging to a transfer programme on employment or hours of work in any of the seven programs” (Banerjee et al. 2016, 12). Pooled estimates were also not different from zero. The same conclusions apply to independent estimates computed for men and women separately.

In other words, these reviews suggest that relatively modest transfers do not seem to have any strong impact on labour supply. Relatively low benefit levels are frequently considered the main reason for this virtually non-existent negative impact on labour supply.²⁷

More generous social assistance transfers, on the other hand, could be more clearly associated with a reduction in labour supply; but even so, the impacts are relatively limited. Bargain and Doorlye (2009), for instance, take advantage of a discontinuity in the design of the French *Revenu minimum d'Insertion* (childless adults younger than 25 are not eligible) to measure the impact of the programme on labour supply. Using regression discontinuity design, the authors state that from 7 to 10 per cent of single men who were junior school dropouts leave the labour force as they become eligible. This group is of relevant size among social assistance beneficiaries. No impact was found among better-educated men, even when their earnings were only marginally higher. The authors consider that the adoption of policy alternatives is not necessarily better. Earned income tax credit, for instance, has a clear risk of producing deadweight loss.

Jonassen (2013) also examines a generous unemployment assistance programme in Denmark. Its main characteristic is that, at the age of 25, non-parent beneficiaries are entitled

to a 55 per cent increase in benefit level (which is useful for regression discontinuity design methods). The dependent variable was participation in the social assistance programme. Based on data on all citizens close to the cut-off age, the authors found a relatively small but statistically significant and positive impact on participation in the programme, which increases by roughly 1 percentage point (from ~12 per cent to ~13 per cent) at the age cut-off. This is important because non-parents at this age represent a significant proportion of social assistance beneficiaries. Even so, the author suggests that the alternative of not increasing the benefit level at the age of 25 would be “excessive”, since the increase in the number of beneficiaries, although significant, is “modest”.

To summarise the discussion, pensions are likely to produce a reduction in labour supply. Estimates vary considerably. The effect of social security wealth is not always relevant (and sometimes presents the ‘wrong sign’), but forward-looking measures (that reflect variation in social security wealth related to the decision to postpone retirement) reveal a clearer positive association with labour force participation. Even so, there is evidence that ‘peaks’ of retirement at certain ages are not explained by financial incentives, which leaves a large space open to policy alternatives, such as restricting access to early retirement and increasing regular retirement ages.

UI seems to be associated with longer unemployment spells (which is expected and could even be desirable, if the additional time of unemployment is used to improve job matching). But it also seems to be related to a decrease in time spent searching for jobs (which could be expected in different models but is undesirable). Effects of UI on the quality of job matching are uncertain. In this case, a clear policy option is also available: implementing an element of monitoring and sanction in UI systems. Special attention should be given to the costs of this element, which could be higher than occasional benefits.

Finally, modest cash transfers are not clearly associated with reductions in labour supply. In the worst-case scenario, they could marginally reduce labour supply at the intensive margin for women. A positive impact on labour supply at the extensive margin is also noted in some studies (for both men and women). More generous benefits seem to be associated with a reduction in labour supply, but this effect may be limited to specific groups. As noted by Moffit (2002), there is no clear policy option that reduces impacts without also reducing welfare.

5 EDUCATION

5.1 THEORETICAL EXPECTATIONS

Social security —pensions

From a macroeconomic perspective, it is possible to look at pensions and education through the lens of generational conflict. Due to demographic ageing, these two redistributive sectors are locked in dispute for scarce financial resources. Ageing increases the political power of older people, which could lead governments to shift public expenditures from education to pensions (Ono and Uchida 2016). A variant of this perspective suggests that in the initial phase of ageing, when pension expenditures have already started to increase, altruistic middle-aged

parents, concerned with their children's human capital accumulation, would also pressure the government to increase education expenditures. In time, the political pressure from the growing older group would prevail, and education expenditures would decrease, which could explain the hump-shaped pattern of this curve (Ono and Uchida 2016).

One could also conclude that, from a microeconomic perspective, pension and education expenditures are negatively associated. Consider a context where the expectation of receiving a pension raises in a situation where the number of social security contributors increases, as does their productivity. Given this scenario, the implied high biological interest rates would generate 'higher expected pension claims'. If receiving pensions and having children are considered alternative insurance strategies against old age, parents would "tend to invest too little in the number and quality [education] of their children" (Meier and Wrede 2005, 1).

However, in a situation where parents are altruistic and not liquidity- and credit-constrained, a significant amount of transfers of human capital should be observed within the family, since children cannot care for themselves or contract credit to finance their education (Becker 1991). On the other hand, in the presence of liquidity and credit constraints, parents would "underinvest in the formation of their children's human capital" (Lambrecht, Michel, and Vidal 2005, 2). A publicly provided pension system could, in such a situation, lift liquidity and credit constraints and "make individuals increase not only their own consumption but also their educational spending" (ibid, 3.).²⁸

In the absence of liquidity and credit constraints, there would not be a case for pensions regarding investment in human capital. Since liquidity and credit constraints play such a relevant role, effects of pensions on education should be more perceptible in low- and middle-income countries than in developed ones, where a complex set of social benefits alleviate liquidity constraints of those who are relatively worse off. Several developed countries also have "social policies designed to aid young people from families with low incomes to continue their studies" (Attias-Donfut, Ogg, and Wolff 2005, 161), which should decrease the relevance of intra-household transfers.

Non-contributory benefits

Social pensions should have a similar possible effect on education spending in contexts of liquidity and credit constraints. Delivered as a social assistance benefit to poor families, one should expect an increase in education spending through the income effect, especially in three-generation households.

The income effect of cash transfers could be relevant in breaking the intergenerational transmission of poverty, given that poor households are unable to invest in the productive capacity of their members (Barrientos and Lloyd-Sherlock 2002).

Even given the income effect of social benefits, poor families could not achieve an optimal level of private investment in education due to market failures. Lack of information about the returns of education, differences in intertemporal discount rates (with parents discounting future consumption of their children at a higher rate compared to a rational agent), or intra-household bargaining issues (such as discrimination against girls or younger children) could lead to sub-optimal private investment in education. CCTs contribute substantially to this debate, since their conditionalities (that is, prerequisites that must be met so that eligible families can receive the benefit, such as children's regular school attendance and periodical

visits to health centres) change relative prices, decreasing the price of schooling. They add a price effect to the income effect produced by transfers (de Janvry et al. 2006; Baird et al. 2013) and should—at least theoretically—be more effective than unconditional cash transfers in improving educational outcomes.

5.2 EMPIRICAL EVIDENCE

Social insurance—pensions

Studies considering the potential role of contributory pensions in the education of children from a theoretical point of view are not necessarily rare. However, studies that try to measure the impact of contributory pensions on education are uncommon, especially in developed countries.

Possible exceptions are studies about the changing pattern of intergenerational transfers in contexts where welfare systems are well established and the population is ageing, such as in Attias-Donfut, Ogg, and Wolff (2005). One of the hypotheses furthered in this piece is that welfare systems contribute to the downward flow of intergenerational financial transfers (that is, flowing to younger generations), while the opposite should occur (i.e. an upward flow of financial transfers to older people) in the absence of social protection systems. Based on data from SHARELIFE (2004), covering 10 countries,²⁹ the authors confirm that financial transfers predominantly go downwards (80 per cent of the recipients of financial transfers were children or grandchildren). Education was considered the motive for financial transfers by 8.4 per cent of interviewees. However, Attias-Donfut, Ogg, and Wolff (2005) make no effort to isolate the role of pensions in increasing investments in education.

Even in developing countries, studies trying to measure the effects of contributory pensions on education are relatively rare. Reis and Camargo (2007) and Silveira and Moreira (2017) measure the effects of pension income on the probability of being in school and on expenditures on education, respectively.

Reis and Camargo (2007) tried to measure possible effects of old-age and survivor pensions on the schooling and labour supply of individuals aged 15–21 in Brazil. They used data from the 2003 National Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios* —PNAD) and ran a multinomial logit model in which the dependent variable could assume a few values (i.e. only studying; only working; working and studying; neither working nor studying). The main independent variable was the per capita income from pensions, with other background variables used as controls. An increase of BRL100³⁰ in per capita income resulting from pensions was associated with an 8.6 per cent increase in the probability of a young person (aged 15–21) being only engaged in studying. The same increase in per capita income resulting from pensions was associated with a 3.7 increase in the probability of being engaged in both studying and working, and a 3.1 per cent increase in the probability of neither studying nor working, with corresponding reductions in the probability of only working.

Silveira and Moreira (2017) used data from the Consumer Expenditure Survey (POF 2002–2003 and 2008–2009) to verify whether access to certain stable income sources (public employment, old-age pensions and *Bolsa Família*) could have an effect on savings (which include, by their definition, investments in human capital, in general, and education, in particular) in Brazil. Expenditure on education was one of their main dependent variables, and the empirical strategy was propensity score matching. Families who received a substantial

share of their per capita income from pensions (≥ 40 per cent) did not report significantly different expenditures on education, compared with families without pension incomes but similar in several other observable aspects.

Non-contributory benefits

On the other hand, the literature is vast when the benefits specifically target poor people (that is, those potentially affected by liquidity and credit constraints).

Dahl and Lochner (2012) took the expansions of the Earned Income Tax Credit (EITC) in the USA during the 1980s and 1990s as an exogenous source of variation to measure the impact of family income on educational achievement (mathematics and reading). These expansions benefited low- and middle-income families, but not rich ones. The authors used panel data from the National Longitudinal Survey of Youth (NLSY) covering a period from the late 1970s to 2000, which has repeated measures of cognitive tests. Children should have at least two measurements in cognitive tests, and mothers should not have changed their marital status to be kept in the sample. Several ordinary least squares, fixed-effect and instrumental variables estimates are provided. The authors' preferred estimates are that a USD1,000 (in 2000 values) increase in household income would lead to an increase in a combined mathematics and reading score of 6 per cent of a standard deviation, an effect considered "modest" but "encouraging" by the authors.

Edmonds (2006) tested the hypothesis that liquidity constraints could lead children to work rather than study (considering that studying would be a better use of their time in the long term). He examined the effects of the Old Age Grant in South Africa on child labour and schooling, comparing rural black households around the age of eligibility (60 for women and 65 for men, at the time the research was conducted) with co-residing children. The author used South Africa's 1999 Survey of Activities of Young People (SAYP). If families were not liquidity- or credit-constrained, they could borrow against the anticipated pension income; consequently, one should not expect any significant difference in terms of child labour and schooling between eligible and nearly eligible households. Using a basic linear regression approach, however, Edmonds found that male pension eligibility was associated with an almost 5 per cent increase in school attendance for children aged 5–17. This effect was higher for children aged 13–17: a 12 per cent increase in attendance for both sexes, mainly driven by an 18 per cent increase for boys (the 8 per cent increase for girls is not significant).³¹ Edmonds believed that the results were compatible with the hypothesis of liquidity and credit constraints affecting the decisions of beneficiary families. An intriguing finding is that, in this cross-sectional study, the positive impacts on school attendance are limited to households with a pension-eligible male.

Gutierrez, Juarez, and Rubli (2016) adopt a similar approach to measure the effects of the *Pensión Alimentaria para Adultos Mayores*, a universal pension scheme implemented in 2001 in the Federal District of Mexico and paid to all people aged 70 or older. Data came from the *Encuesta Nacional de Ingresos e Gastos de los Hogares* (Mexico Household Income and Expenditure Survey, rounds 2004, 2006 and 2008), and the sample was limited to the Federal District, covering all households with at least one person aged 55 or older and co-residing children aged between 13 and 18. The dependent variable was school enrolment. The authors employed an empirical strategy based on regression discontinuity design. Estimates considering a set of covariates and year-fixed effects suggested a positive impact of receiving the old-age pension on school enrolment from 20 to 33 percentage points.

Estimates were more robust for girls (always statistically significant) than for boys, and the gender of the beneficiary did not seem to be relevant.

Still in the Latin American context, Martinez (2004) took advantage of an interruption in *Bonosol* (a cash transfer to those aged 65 or older in Bolivia) to measure the effects of the programme on household investments (including investments in education). *Bonosol* started in 1997, was interrupted between 1998 and 2000 and was active again in 2001 and 2002. The author used data from the *Encuesta Nacional de Demografía y Salud* (Health and Demographic Survey) for the pre- and post-treatment period and adopted a series of empirical strategies (including probit models, DID and regression discontinuity design, which considered—as in Gutierrez, Juarez, and Rubli (2016)—the age of eligibility as the cut-off point). The sample comprised households with members aged 50–80 and co-residing children. The dependent variable was the probability of enrolment. Effects of receiving the benefits were found for children aged 9–14 and older (+7 percentage points on the probability of enrolment). Effects were large and statistically significant for rural areas (roughly +13 percentage points). Martinez also suggested that the results corroborated the hypothesis of credit and liquidity constraints negatively affecting poor families' decisions to invest in human capital.

The literature on the effects of conditional or unconditional cash transfers on education is extensive. Two literature reviews (Baird et al. 2013; Bastagli et al. 2016) cover much of the debate. The focus of Baird et al. (2013) was the role of conditionalities in educational outcomes. The authors reviewed a large number of studies on conditional and/or unconditional cash transfers and performed a meta-analysis. Three outcomes were considered: school enrolment, attendance and learning (as measured by test scores). The meta-analysis, based on 35 estimates from 32 studies that report on school enrolment, stated that the probability of children from beneficiary families being enrolled in school is 36 per cent higher than for non-beneficiaries. Both conditional and unconditional cash transfers had a positive effect on school enrolment, but the pooled estimate for the group of programmes where conditions were explicit and enforced was statistically higher than for the group of unconditional cash transfers. Estimates on school attendance were reported by 16 studies (20 estimates), and, again, both types of interventions significantly increased the probability of children attending school (+42 per cent). Only five studies reported on learning (as measured by test scores), and no conclusion can be drawn from them. This led Reimers, Silva, and Trevino (2006) to consider CCTs as a relevant opportunity cost to investments in quality education.

The comprehensive literature review conducted by Bastagli et al. (2016) considered several different areas of research. Regarding education, school attendance or absenteeism, learning and problem-solving skills were the outcomes covered, and 42 studies were reviewed, covering 27 programmes in 20 countries. Of the 20 studies reporting effects on school attendance, 13 pointed to at least one significant impact, all but one in the expected direction (reduction of absenteeism or increase in school attendance). Seven studies did not report any significant impact. The number of studies about the potential effects of cash transfers on learning (either mathematics or language or both) is substantially smaller (five studies), and no conclusion can be reached: three studies did not report any significant impact, and the other two pointed to effects in different directions. Three of the five studies that reported potential effects on cognitive development pointed to statistically significant effects, always positive. This may be interpreted as a relatively promising result.

A potentially interesting issue is whether time of exposure to cash transfers should be considered relevant to the perception of effects on educational outcomes. In effect, several

impact evaluations (especially randomised controlled trials) are “constrained by time” and assess short-term impacts (Simoes and Sabates 2014). While school attendance is expected to respond to cash transfers in the short term (especially when conditionalities are in place), it would be reasonable to expect that that effects on other outcomes (such as educational attainment and learning) could only be captured after a longer time of exposure to these programmes.

Villa (2014) and Simoes and Sabates (2014) tried to relate specific outcomes to time of exposure to CCTs. Villa (2014) used administrative records from Colombia’s *Familias en Accion* programme (SISBEN databases, with information about low-income households collected between 2001 and 2011). The author adopted a generalised propensity score methodology to measure the impact of time of exposure on years of education and school enrolment. The results pointed to “a considerable difference of 4.4 years of education between the least and the most exposed to the programme” (Villa 2014, 20). A variation in exposure between 10 and 100 per cent (of the household’s maximum time of exposure) was associated with an increase of 29 percentage points in the probability of school enrolment.

Simoes and Sabates (2014) also tested the hypothesis that time of exposure could have a relevant impact, here not only on school attendance and progression, but also on learning. They worked with three different datasets: (1) administrative records from Brasil’s *Bolsa Família* programme (which has information on transfers and time of exposure); (2) the National School Census 2007 (which has information about the school and also on the students’ progression to the next academic year); and (3) the *Prova Brasil* dataset (which includes socio-economic variables for fourth-grade pupils and parents, as well as test scores for mathematics and languages). These three datasets could only be connected at the school level, which makes this an ecological study. The authors adopted an interactive multiple regression model, which allowed them to test both cash effects (benefit levels) and time effects (length of exposure). Although the share of beneficiaries among students was negatively associated with test scores (as expected, due to the poorer background of beneficiaries relative to non-beneficiaries), the length of exposure was related to a decreasing gap between the average Portuguese language test scores of schools with high and low shares of beneficiaries: “In schools with all students as beneficiaries, a gain of 0.62 standard deviations is estimated for three years increase in time of participation” (Simoes and Sabates 2014, 159). However, the relationship between time of exposure and scores in mathematics tests is not statistically significant. The authors considered the possibility of ecological fallacy highly unlikely.

Evidence raised by Villa (2006) and Simoes and Sabates (2014) is interesting but should be taken carefully. Bastagli et al. (2016) reviewed a few papers covering time of exposure and seem to be less optimistic about long-term impacts of cash transfers on educational outcomes.

In summary, these studies give ample support to the theoretical expectations: liquidity- and credit-constrained households tend to underinvest in the education of their members, and social protection benefits could have a positive effect on educational outcomes. The empirical literature seems limited regarding the effect of contributory pensions on education, but studies regarding social benefits (tax credits, social pensions and cash transfers) are more numerous. They largely point to the same conclusion: that social benefits have a (sometimes small, but as a rule, significant) positive effect on the educational outcomes of co-residing children. Cash transfers (either conditional or unconditional) have drawn considerable attention—especially because many of these programmes, implemented in developing countries, aim to improve the human capital of the youth. Comprehensive literature reviews reveal a clear association between these programmes and educational outcomes. These reviews also suggest that conditionalities have an

effect by themselves. However, evidence of impacts on learning (a critical outcome in breaking the intergenerational transmission of poverty) is still preliminary. A few recent studies shed light on the long-term impacts of cash transfers and proposed that some educational outcomes (such as learning) might change due to long periods of exposure.

6 FERTILITY

6.1 THEORETICAL EXPECTATIONS

The expected effects of social security benefits might vary according to their type. Children may be considered part of the insurance strategy against old age, providing parents with transfers (Boldrin, de Nardi and Jones 2015). If this “old-age security motivation for childbearing” works, mandatory social insurance (and, to some extent, non-contributory social pensions) could have a negative effect on fertility. There is also an additional reason why social insurance could discourage fertility. Typical social insurance pays earnings-related benefits. Thus, children could affect not only the workers’ permanence in the labour market and prospects of future earnings (especially for mothers), but also their access to (and the level of) contributory pensions. From this perspective, typical social insurance “constitutes an implicit tax on childbearing” and would be “a further deterrent to childbearing” (Cigno, Casolaro, and Rosati 2003, 192).

However, from a theoretical perspective, the existence of old-age pensions could also be positively associated with fertility. Taxes on labour income would reduce net wages and thus lower the opportunity cost of spending time with children (Zang 1995). Billari and Galasso (2009) also believe that, for the family economics of Becker and Barro, children could be understood as a ‘consumption good’ (whom parents are altruistic towards and have pleasure in raising). In such a scenario, higher pensions might increase—not decrease—demand for children.

Child-related benefits, on the other hand, reduce the marginal cost of children and could have a positive effect on fertility. However, these benefits would have to be very large to (at least partially) cover the high costs of bearing and raising a child. For this reason, universal, rights-based and generous child benefits could have a measurable impact on fertility, but it seems doubtful that targeted, very modest and non-rights-based CCTs (whose design not rarely incorporates a limit to the number of beneficiary children) would have a significant positive impact. In fact, the opposite could happen due to the following reasons: (1) CCTs are mostly paid to women and require periodical visits to medical centres. Hence, they could empower women in their decision-making process regarding how many children they want to have, providing information and access to contraceptives, which could lead to a decrease in fertility (Bastagli et al. 2016); and (2) conditionalities add a price effect to the income effect of the benefit, reducing the cost of education. If the number and ‘quality’ of children are substitute goods, CCTs could have a positive effect on human capital investments and a negative effect on the number of children (Simoes and Soares 2012).

Finally, tax credits (and other work-related benefits) should have an ambiguous effect on fertility (Brewer, Radcliffe, and Smith 2012). Income and price effects should increase fertility—the extra income should increase demand for all goods (children included)—and, if benefits increase with family size, the benefit would lower the price of additional children, also increasing demand. However, tax credit incentives are also thought to encourage work,

which could have a negative effect on fertility. This last impact should be stronger for single women than for married women.

6.2 EMPIRICAL EVIDENCE

Cigno, Casalaro, and Rosati (2003) performed a time-series analysis to measure the possible impact of social security on total fertility rates and savings in Germany. Old-age pension coverage was the variable to account for social insurance generosity. The authors used a vector autoregressive (VAR) model, where all variables are considered potentially endogenous. Fertility was negatively associated with social security coverage: a 1 per cent increase in coverage would result in a 0.22 per cent decrease in the total fertility rate. This finding was consistent with that of Cigno and Rosati (1995), who also performed a time-series analysis using similar variables for Italy, the UK and the USA.

Galasso, Gatti, and Profeta (2008) tried to test the hypothesis of a negative relationship between pension generosity and fertility. They argued that the development of financial markets should be understood as a potential intervening variable. A cross-national analysis covering around 100 countries was performed. Total fertility rate was the dependent variable. Pension expenditure as a percentage of gross domestic product (GDP) and a composite measure on the development of financial markets were the main independent variables, among other demographic and economic variables, such as per capita GDP, percentage of the rural population, and percentage of the population aged 65 or older. Variables were reported around 1995. The preferred specifications suggest that an increase of one standard deviation in pension spending would be roughly associated with a decrease of 10 per cent of a standard deviation in fertility, when the measure for the development of the financial market was in the bottom quartile. In other words, the effect of pensions on fertility seems to be affected by the availability of other forms old-age provision.

Boldrin, De Nardi, and Jones (2014) also developed a cross-national study relating pension expenditures and total fertility rates (among other variables) for 104 countries (base year 1997) and a panel study for eight developed countries from 1960 to 2000. The main result from the cross-national regression suggested that an increase in pension expenditure from zero to 10 per cent of GDP would be associated with a decrease of 0.7 in the number of children. The panel study rendered results that were “similar to the estimates in the cross-section data” (Boldrin, De Nardi, and Jones 2014, 272). These results could explain between 40 and 60 per cent of the decrease in total fertility rates observed in the USA over recent decades and of the observed difference in fertility between the USA and European countries.

Finally, Billari and Galasso (2009) explored the strong discontinuity caused by the pension reforms in Italy in the first half of the 1990s to determine whether children were ‘consumption’ or ‘investment goods’. Their main hypothesis is that, if children were ‘consumption goods’, a decrease in pensions would be associated with a decrease in fertility. If, on the contrary, they were ‘investment goods’ (which is compatible with the old-age security hypothesis for fertility), a decrease in pensions would be associated with an increase in fertility. Data come from the Survey of Italian Households’ Income and Wealth (from 1998 to 2006). The dependent variables are the number of children in the household and the probability of having an additional child. Ordinary least squares (OLS) and probit models are applied for those affected and unaffected by the reforms. The analysis shows that the average number of children increased by 0.053 and the probability of having an additional child increased by 18.6 per cent since the 1992 reform

(both statistically significant at a 10 per cent level). Measurements for the 1995 reform have the same sign but are not statistically significant. The authors concluded that the results were compatible with the old-age security hypothesis for fertility.

In the context of a developing country, Nugent and Gillaspay (1983) attempted to measure the impact of the introduction of a social security scheme (in Mexico in 1963), which targeted the rural population (more specifically, the workers of the sugarcane sector), on fertility. The authors used data from the national censuses of 1960 and 1970 for a group of municipalities where the sugarcane sector was strong enough to produce some change in the share of the population participating in social security (the main independent variable). The change in the ratio of children (0–4 years old) to women was the dependent variable. Control variables included changes in the labour force participation rate, in income per worker, in the share of income of the 40 per cent poorest and in the literacy rate—all computed at the county level. Using several fixed-effect regression models, the authors found that an increase of 100 per cent in social security coverage would be related to an average increase of 10 per cent in the children–woman ratio. They also suggested that the old-age security hypothesis might be relevant to understand variations in fertility.

In other words, the literature seems to point to a moderate negative impact of the development of social security systems on fertility, supporting theoretical expectations based on the old-age security hypothesis. Obviously, this negative impact is problematic, since lower fertility rates, in turn, undermine the sustainability of (mostly pay-as-you-go) social security systems in the long term.

Two studies conducted extensive literature reviews on the effects of family benefits on fertility in the context of developed countries. Moffitt (1998) summarised 68 estimates about the relationship between family benefits in the USA (Aid to Families with Dependent Children—AFDC—and Food Stamps) and fertility. The studies that produced these estimates adopted different strategies. They usually compared different benefit levels across US states (rendering 41 estimates); or the effect of changes in different states (19 estimates); explored some sort of intra-state variation (only 3 estimates); or, finally, conducted time-series analyses (5 estimates). Fourteen estimates were produced for women of all races; 26 for white women; and 28 for black or non-white women. Studies exploring cross-state benefit levels mostly produced significant positive estimates regarding the effect of benefit levels on fertility (13 significant versus 8 insignificant), but only for white women. Studies that compared the effects of changes in welfare across states, on the other hand, rendered a large number of positive and significant effects regarding the effect of benefits on fertility for non-white women. Moffitt concludes that welfare benefits probably have effects on fertility, with the caveat that “disparities in the research findings weaken the strength of the conclusion” (1998, 75).

Gauthier (2007), in turn, reviewed 13 studies on the association between family policies (including benefits) and fertility in the context of developed countries. These studies usually have the total fertility rate as the dependent variable. Her main conclusion was that “family cash benefits, such as family and child allowances and tax credit for dependent children, appear to have a positive impact on aggregate indices of fertility. This impact tends however to be small” (Gauthier 2007, 331). The author also suggests that the impact might be more related to fertility timing than to overall fertility rate.

Regarding cash transfers, Bastagli et al. (2016) performed a literature review on the impact of cash transfers on several outcomes, including fertility. Pregnancy and giving birth were

commonly the dependent variable. Seven of the 10 studies reporting on fertility present significant results: five show a negative association between cash transfers and fertility, and two (both on Honduras's Family Allowances Programme—PRAF) suggest a positive association. Six studies report significant effects on the use of contraception. One finds mixed results, but the other five "find unambiguous evidence that the transfer increased the use of contraceptives or reduced the likelihood of unsafe sex for both men and women" (Bastagli et al. 2016, 10). The authors concluded that the fear about cash transfers increasing fertility is not supported by evidence and that the opposite effect is most likely.

Two studies about the possible impact of conditional cash transfers on fertility (not covered by Bastagli et al. (2016)) reached similar conclusions. Todd and Wolpin (2006) used data from a randomised controlled trial to calibrate a model to estimate long-term impacts of Mexico's *Progresa* on decisions regarding education of children and fertility (that is, the dilemma between the quantity and quality of the offspring). Authors suggest that "fertility outcomes are essentially invariant to the subsidies" (Todd and Wolpin 2006, 1404) and that all the observed effect is on education.

Simoes and Soares (2012) used data from the Brazilian National Demographic and Health Survey (PNDS) to investigate possible effects of the *Bolsa Familia* programme on the fertility of beneficiaries. The dependent variable is the number of children born in the 30 months before the survey was collected (December 2006), and the main independent variable is participation in the programme. Socio-economic and demographic characteristics work as control variables. The authors used Poisson regression and two methods (the Heckman correction and the Generalised Method of Moments) to correct for endogeneity. All the specifications that considered correction for endogeneity point to a statistically significant negative effect of the programme on fertility, suggesting that beneficiaries are substituting quantity for quality regarding their children.

Thus, there seems to be no evidence that modest cash transfers could produce any incentive to higher fertility among beneficiary families.

Finally, the study by Brewer, Ratcliffe, and Smith (2012) brings some evidence of possible effects of tax credit benefits on fertility. The authors employed a DID methodology, considering the period after the major change in the UK welfare system, in 1999, with the introduction of the Working Families' Tax Credit (WFTC) and the increased payments to non-working families. Tax credits are supposed to encourage work (in the UK, families need to have an adult working at least 16 hours per week to receive benefits). Hence, single-parent families would face a significant opportunity cost for having additional children. For couples, this opportunity cost could be more manageable, and the benefits' income effects could lead these families to have more children. Data come from the Family Resources Survey and the Family Expenditure Survey (several years starting from 1999). Their conclusion is that the effects on the probability of having a child in the last 12 months are statistically insignificant for all women, but significant and positive for women in couples (although of a small magnitude—from +0.3 to +1.3 percentage points). The authors recognise that these effects could not be exclusively attributed to the introduction of the WFTC; rather, they reflect the whole set of measures adopted at the end of 1999.

In conclusion, there seems to be evidence that social security benefits have a negative effect on fertility, which corroborates the old-age security hypothesis. But, as with many other outcomes reviewed in this piece, the magnitude of this effect presents relevant variation. Child-related benefits in developed countries might have some positive impact on fertility,

but the magnitudes tend to be small. Moffitt (1998) also suggests that some puzzling results persist, which makes the case for a positive impact less defensible. The literature on the impact of cash transfers in the developing world seems to be clear: the fear that benefits could lead poor beneficiary families to have more children does not hold up. Finally, welfare benefits that encourage beneficiaries to work might have heterogeneous effects on fertility, increasing fertility for women in couples, but not for single mothers.

7 MIGRATION

7.1 THEORETICAL EXPECTATIONS

The two main theoretical issues related to migration are: (i) what are the main determinants of migration decisions (and consequently, levels); and (ii) which people in the source territory will opt to migrate (Borjas 1999).

If we accept that migration decisions are defined mainly by wage differentials³² between source and host territories, then migration decisions and levels will be largely affected by a comparison of earnings in these two territories, net of migration costs (ibid.).

On the other hand, both high- and low-skilled workers can decide to migrate. The skill composition of migrants tends to be affected by differentials in the way that costs (taxes) and benefits (social protection, for instance) are distributed among them, both in the source and in the host territories. Thus, high-skilled workers will migrate comparatively more than low-skilled ones when the host territory taxes them less and/or offers them more social protection, in comparison to the source territory—the same occurring with low-skilled workers (Borjas 1999; Greenwood and McDowell 2011). If this expectation is correct, the skill composition of migrants should be positively affected by the source territory paying flat-rate universal old-age benefits, financed by general taxation, while the host territory pays earnings-related, contributory-based benefits.

Under this theoretical perspective, the possible effect of social protection benefits on migration levels seems limited and ambiguous. Relatively unskilled, credit-constrained³³ workers might make the decision to migrate but not have enough money to face migration costs. In a situation where “migration is inhibited by lack of income” (Posel, Fairburn and Lund 2006, 841), it is possible for some social protection benefits to have a positive effect on migration.

This theoretical expectation becomes clearer when one recognises that “migration decisions are often made jointly by the migrant and by some group of non-migrants” (in general, the migrant’s family) (Stark 1991; see also Bastagli et al. 2016; Kabeer and Waddington 2015). In this situation, migration costs and returns are shared. Therefore, if someone in a relatively poor and credit-constrained family starts receiving a social protection benefit, it is possible for the family to bear the migration costs of one of its members, expecting to receive remittances from them in the future.

However, migration can also be understood as one of the strategies implemented to deal with poverty and social risks. If this is the case, then it is possible that social benefits have the opposite effect on migration levels—that is, to reduce them. On the one hand, social protection transfers can finance the migration of a family member (directly or

indirectly, working as collateral to credit); on the other, if remittances and benefits are considered substitutes, these transfers may render migration unnecessary (Hagen-Zanker and Himmelstine 2013).

Overall, the expected impact of social benefits on migration levels is ambiguous. The measured impact of these benefits on migration will vary greatly according to the specificities of individual contexts and will probably be affected by the design, implementation and level of benefits (*ibid.*).

Conversely, the effects of social benefits on the skill composition of migrants will be highly dependent on the previously mentioned differentials observed between source and host territories. Despite the relevance of migration of high-skilled workers for economic growth (immigration increasing economic growth, and emigration decreasing it), this issue will not be considered in the empirical phase of this research.

7.2 EMPIRICAL EVIDENCE

Theoretically, one should expect that social protection benefits—mostly targeted benefits—produce effects on migration (either positive or negative). The idea behind this expectation is simple: targeted benefits preferably reach poor people and families, who are the least likely to migrate due to being credit-constrained (a situation in which social protection benefits could boost migration) or to consider remittances and benefits as substitutes (a situation in which social protection benefits would prevent migration). It is not by chance that a large part of the empirical literature on the possible effects of social protection benefits on migration focuses on cash transfers.

There are at least a few recent reviews of studies that have tried to measure the impacts of social protection benefits on migration. The review by Hagen-Zanker and Himmelstine (2013) covers 29 studies (23 of them quantitative) about the impacts of different types of social protection benefits on migration. The authors reported the direction but not the magnitude of the impacts found in these studies. Kabeer and Waddington (2015) performed a systematic review and meta-analysis of 46 studies about the economic impacts of cash transfers. Migration is one of the outcomes considered by the authors. Finally, Bastagli et al. (2016) conducted one of the largest literature reviews (201 studies) about the effects of cash transfers on a number of outcomes, migration among them. Although the total number of studies reviewed by Kabeer and Waddington (2015) and Bastagli et al. (2016) is considerably larger than those reviewed by Hagen-Zanker and Himmelstine (2013), the studies specifically measuring the impact of cash transfers on migration are significantly scarcer.

Theoretical expectations suggest that social protection benefits have an ambiguous effect on migration. Due to the previously mentioned reasons, they can both increase and decrease migration. Studies reviewed by Hagen-Zanker and Himmelstine (2013) show that these ambiguous effects are observed in empirical studies, especially for CCTs. Eight of the studies reviewed cover Mexico's *Oportunidades*,³⁴ but there is no clear pattern emerging from them. Stecklov et al. (2005), for instance, using data from the impact evaluation of *Progresas*, suggest that the programme decreased the propensity of beneficiaries to migrate to the USA (-0.2 percentage points) and to migrate to other regions in Mexico (-0.3 percentage points). Using the same data, but working with a different dependent variable and model, Angelucci (2015) found a positive effect on the number of migrants (+0.37 percentage points).

Regarding unconditional cash transfer programmes, Hagen-Zanger and Himmelstine (2013) present five different studies that report a positive effect of the Old Age Grant in South Africa on domestic work migration. Posel, Fairburn, and Lund (2006) and Ardington et al. (2016), presented below, are among them. The Old Age Grant is a means-tested benefit aimed at people aged 60 or older. Compared to other transfers, the level of the benefit is very generous—twice as large as the median per capita income in South Africa (Ardington et al. 2016).

Posel, Fairburn, and Lund (2006) focused on the possible effects of the Old Age Grant on migration in three-generation households in rural areas. They used cross-section data from the Project for Statistics on Living Standards and Development (PSLSD) and defined as dependent variable the migration of prime-age adults (aged between 16 and 50) for work. The authors took into consideration whether the pensioner and the prime-age adults were men or women. The most interesting finding was that the effect of the Old Age Grant on migration was statistically significant for women. The existence of a pensioner in the household would increase the propensity for migration of a prime-age adult woman by between 3.3 and 6.1 percentage points (depending on the specification). If the pensioner was also a woman, this propensity was increased by 7.6 percentage points.

Using eight waves (2001–2011) of longitudinal data collected by the African Centre for Health and Population Studies in the province of KwaZulu-Natal, Ardington et al. (2016) point to a 7.9 percentage point increase in migration of young (18–35 years old) male rural workers with at least 12 years of schooling. Male rural workers aged 25–30 years old are also 5.1 percentage points more likely to migrate, irrespective of their level of education. The authors interpret the result as an effect of the benefit on relaxing previous credit constraints that prevented migration.

Although the evidence for the Old Age Grant in South Africa looks very conclusive, other non-contributory cash transfers in the African context do not seem to have the same effects (Hagen-Zanger and Himmelstine 2013). Studies on the possible effects of social insurance coverage on migration point to a negative relationship (*ibid.*). A few of these studies are outlined below.

Greenwood et al. (1999) used data from the Immigration and Naturalization Service's (INS) records on migrants from 60 countries to the USA between 1972 and 1991 to measure migration rates. Independent variables include measures of the way social protection was structured in source countries, and data were collected from the US Social Security Administration's Social Security Programs Throughout the World for the same period. The authors suggest that, as a rule, the presence of social insurance programmes in source countries reduces the rates of migration to the USA. Negative and statistically significant coefficients were found for employment-related old-age benefits and unemployment insurance. According to the authors, the presence of employment-related pensions does not seem to be interpreted by possible migrants (in general, young people) "as a wealth transfers from younger workers to older retired individuals (which would induce more migration), but rather (...) as relatively beneficial by economically active individuals" (Greenwood et al. 1999, 73). The presence of unemployment insurance also discourages migration to the USA. The authors' interpretation is that young workers are the most likely to migrate and to suffer from unemployment.

In other words, the evidence produced by Greenwood et al. (1999) seems to suggest that migration and social protection can be considered as substitutes, and the presence of social insurance tends to deter migration. A similar conclusion was reached in the study by Sana and Hu (2007). While in Greenwood et al. (1999) data from social insurance programmes were

collected at the country level, in Sana and Hu (2007) data on access to social security were collected at the individual level by the Mexican Migration Project. These authors conclude that Mexican breadwinners with access to the formal labour market (and, consequently, to social security coverage) are less likely to migrate to the USA than those not covered by social security with similar characteristics. The hypothesis to explain this empirical finding was the same as adopted by Greenwood et al. (1999): at least to some extent, migration and social protection are interpreted as substitutes. However, data from the Mexican Migration Project did not allow for verifying whether access to social security had any impact on the migration of other family members (such as in the case of the Old Age Grant in South Africa).

Finally, the study by Greenwood and McDowell (2011) is particularly interesting regarding the possible effects of social protection benefits on the skill composition of migrants. The authors also used data from the INS's records on legal male immigrants from 86 countries to the USA between 1972 and 1991, this time to measure the skill level of migrants. Independent variables included several measures of how social protection was structured in source countries. Information about them was collected in various volumes of the US Social Security Administration's Social Security Programs throughout the World. The set of variables covering countries' social protection systems measured aspects of the financing and distribution of benefits. Social assistance and universal benefits tend to be financed by general taxation and frequently pay flat-rate benefits. For this reason, they were assumed to be more likely to transfer from the better-off (high-skilled workers) to the worse-off (low-skilled workers). This does not happen with social insurance programmes, which are traditionally financed by specific contributions and pay earnings-related benefits. Theoretical expectations suggest that the existence of social insurance benefits (old-age, sickness, unemployment and family allowances) in source countries would be negatively associated with the skill composition of migrants (in other words, favouring a comparatively reduced migration of the highly skilled), while the presence of social assistance or universal benefits in source countries would be positively associated with the skill composition of migrants (favouring a comparatively larger migration of the highly skilled).

The empirical findings seem to confirm these expectations. Most of the statistically significant estimates of the effect of the presence of social insurance benefits (that is, financed by employment) in source countries on the skill composition of migrants to the USA are negative (that is, these benefits and programmes are associated with a comparatively smaller migration of high-skilled workers). On the other hand, all the statistically significant estimates of the effect of the presence of universal or social assistance programmes in source countries on the skill composition of migrants to the USA are positive (in other words, social assistance and/or universal benefits and programmes tend to boost the emigration of high-skilled workers, in comparative terms).

Overall, Hagen-Zanker and Himmelstine (2013, 120) conclude that "we do not see clear patterns of impacts [of social protection benefits] on the propensity to migrate", which would be in accordance with theoretical expectations. This is fundamentally the same conclusion reached by Kabeer and Waddington (2015) and Bastagli et al. (2016), although these reviews are limited to a few studies regarding the effect of cash transfers on migration. The three studies reviewed by Kabeer and Waddington were all about the *Oportunidades* programme in Mexico. "Evidence did not suggest there were consistent effects of CCTs on migration" in that country (Kabbeer and Waddington 2015, 298). The studies reviewed by Bastagli et al. on migration were also inconclusive: "cash transfers can either increase or decrease the probability of migrating internally or internationally" (Bastagli et al. 2016, 9).

However, there seems to be a clearer pattern regarding the effects of South Africa's Old Age Grant, and of social insurance in general, on migration. Studies systematically point to a positive effect of the Old Age Grant on migration, leading to the hypothesis that, in contexts of extremely deprived economic opportunities, the presence of a relatively generous social protection benefit can effectively help families deal with credit constraints and develop additional strategies to overcome poverty through migration. On the other hand, there is some evidence that social insurance coverage could help prevent migration. This effect might be the result of stronger ties with formal labour markets (generally associated with social security coverage), with positive effects regarding long-term prospects for employees.

8 INNOVATION AND RISK-TAKING

8.1 THEORETICAL EXPECTATIONS

The impact of social protection benefits on productive investments is theoretically ambiguous, especially those targeting poor people. As we have seen in the saving/consumption subsection, beneficiaries have a high marginal propensity to consume, and although most of the benefits increase consumption, they do not necessarily increase savings and investment.

However, it is possible to consider some mechanisms through which social protection benefits could have positive effects on the adoption of more productive technologies and on investments, especially among poor families.

These families tend to adopt low-risk and low-return technologies that do not require fixed-cost investments. Consequently, they remain trapped in poverty. The adoption of low-return technologies has many potential explanations: (1) poor families are frequently credit-constrained (ILO 2010; Barrientos, 2012; Stoffer et al. 2016), either due to the unavailability of credit services catering to their needs or difficulties in providing collateral; (2) these families also face liquidity constraints, which at the same time makes saving more difficult and could lead them to accumulate occasional savings to face economic shocks, rather than making productive investments (Barrientos, 2012; Stoffer et al. 2016); and (3) High-return technologies are often riskier, and "the poorer consumers are, the more risk averse they are supposed to be" (Deaton 1990), which could help explain under-investments in certain productive assets.

Social protection benefits that reach this target population can play a relevant role in lifting credit and liquidity constraints, by encouraging small-scale savings (ILO 2010) and facilitating access to credit (Barrientos 2012). They also protect beneficiaries against certain economic shocks, leaving some space to productive investments. The provision of a basic safety net, irrespectively of other sources of income, can alter risk management and coping strategies, potentially influencing production choices (Covarrubias, Davis and Winter 2012).

At least to some extent, the same arguments could be valid for people who are not poor. A stable flow of income provided by a social protection benefit could help lift occasional credit constraints and reduce risk aversion, which would benefit productive investments. But people who are not poor are expected to face lower restrictions to invest, which is why occasional impacts should not be very significant (if any at all).

There are expected impacts (both negative and positive) on human capital investments, physical and financial asset accumulation, and labour supply (Barrientos 2012). Complementary interventions, such as access to micro-credit programmes and supply-side services—i.e. coupling cash transfers with productive investment grants and additional supervision or training—are especially mentioned in the literature as potentially boosting the impacts of cash transfers (Bastagli et al. 2016).

In addition to the possible direct impacts of social policies on lowering credit constraints, providing greater certainty and security and, to some degree, stimulating investment, cash transfer benefits in particular can result in local economic effects on poor communities (Ribas 2014; Stoeffler, Mills and Premand 2016) or in non-income productive effects arising from their design and implementation characteristics (Barrientos 2012; Bastagli et al. 2016).

8.2 EMPIRICAL EVIDENCE

Even though the impacts of social policies related to investment and production are generally considered secondary effects, there are at least two consistent and relatively recent literature reviews specifically addressing the effects of social and cash transfers. The first one reviewed a good number of impact evaluations based on a theoretical framework linking social transfers to processes mediating economic growth and productive capacity outcomes (Barrientos 2012). Most recently, the Overseas Development Institute (ODI) launched a systematic literature review of the impacts of cash transfers on productive investments (Bastagli et al. 2016).

Covering 27 studies, many deriving from the Food and Agriculture Organization of the United Nations (FAO) project 'From Protection to Production' (PtoP), the ODI report concentrates on 13 sub-Saharan African countries (Asfaw et al. 2012; Daidone et al. 2014a; 2014b) but also covers three in Latin America (Gertler et al. 2012; Maluccio 2010), one in Asia and one in Europe. Most of the studies reviewed confirm that receiving a steady and guaranteed cash transfer can help overcome liquidity constraints, diminish credit constraints, enable investments and intervene in risk-coping strategies at the household level. Almost all statistically significant findings were of positive impacts of social policies on agriculture-related assets and outcomes. In addition to these, a few studies dealt with non-rural businesses, with less evident results.

Of the eight papers included in the Bastagli et al. (2016) review of productive agricultural inputs, six revealed positive impacts of cash transfers on that specific aspect, considering increases both in expenditure and in its use. In Malawi, for instance, ownership of agricultural assets such as axes, sickles and hoes increased substantially (from 16 to 32 percentage points—p.p.), with higher impacts for female-headed households (Covarrubias et al. 2012, 61). In Zambia, using similar methodologies,³⁵ Daidone et al. (2014a) found that the Child Grant Programme (CGP) led to a significant increase in both the share of households owning agricultural tools (from 3 to 4 p.p.), and the number of tools owned, which was higher for larger households (7 p.p.).

Overall, livestock ownership and value were influenced by cash transfers, mostly for smaller ones, such as goats and chickens (Bastagli et al. 2016). Covarrubias, Davis and Winter (2012) used randomised controlled trials and propensity score measures to demonstrate that goat and chicken ownership increased by 52 and 59 p.p., respectively, due to Malawi's Social Cash Transfer (SCT) programme. Likewise, significant increases resulting from Zambia's CGP were

found, mostly in the share of households with any livestock (21 p.p.) and in the total number of goats and poultry in households (Daidone et al. 2014a). Using the same methodology, and in the scope of the same project (PtoP), Daidone et al. (2014b) estimate that in Lesotho the only significant impact was on the proportion of households owning pigs, reporting an increase of 8 p.p. over a 24-month impact evaluation.³⁶

Of the few papers on Latin American countries included in the reviews by Bastagli et al. and Barrientos, Gertler et al. (2012) is particularly referred to, presenting outstanding effects of Mexico's *Oportunidades* CCT programme on investments. By using randomised experiments, they found that poor rural households invested 26 per cent of the benefits transferred, and that these investments had long-term impacts on living conditions, measured mainly by consumption levels. The programme increased the ownership of productive assets and the productivity of the rural activity, comparing treatment and controls groups. *Oportunidades* boosted agricultural income by 9.6 per cent in the first 18 months; afterwards, even when control groups started receiving the benefit, the difference between them and the initial beneficiaries (the treatment group) remained for four years, when consumption levels were 5.6 per cent higher in the treatment group.

In contrast with the undoubtedly positive effects of cash transfers on agricultural production, the impacts on non-rural businesses and enterprises were mixed among the papers included in Bastagli et al. (2016). Only four out of the nine studies under review estimated any increase in the involvement of households in non-farm economic activity. One example is Uganda's Youth Opportunities Programme (YOP), also analysed using randomised controlled trials (Blattman, Fiala and Martinez 2012). The investments in acquisitions deriving from the transfers increased almost five-fold (481 per cent or USD298.00) compared to the control group, with a 150 per cent increase in terms of asset stocks.

Lichand (2010) and Ribas (2014) also provide additional evidence on non-farm productive investments, while studying the *Bolsa Familia* programme in Brazil. Lichand investigated whether the programme increased the probability of beneficiaries investing in new ventures. In close dialogue with previous studies, such as by Gertler et al. (2012),³⁷ Lichand decomposed the impacts of *Bolsa Familia* in three possible transmission channels of benefits to entrepreneurship: i) alleviation of wealth constraints; ii) insurance against potential negative outcomes resulting from risky activities; and iii) reduction in the labour supply of children. The results revealed a clear incentive to entrepreneurship coming from both insurance and wealth constraint alleviation effects. However, the resulting ventures are significant only in urban areas and are typically secondary sources of income, acting as a way of diversifying the beneficiaries' income portfolio, a very common risk-coping behaviour.

Notwithstanding Lichand's findings, to investigate the relationship between CCTs and entrepreneurship, one should also consider the indirect effects of benefits on both beneficiary and non-beneficiary households.³⁸ Ribas (2014) did so by comparing municipalities over time. Using a DID model, he estimated the effect of *Bolsa Familia* on the entrepreneurship level of men with a low level of education. The results demonstrate a 10 per cent increase in the proportion of entrepreneurs driven by the programme. However, this increase is explained entirely by the externalities of the programme, since labour supply is negatively affected (mostly by transitions from formal to informal employment), negatively influencing the direct effects of *Bolsa Familia* on entrepreneurship. The indirect effects are explained mostly by risk-sharing strategies among recipient and non-recipient households (such as informal credit markets), rather than by overall rising aggregate demand.

When considering programme design and implementation features, Bastagli et al. (2016, 150) point to both positive and negative effects. Conditionalities and the messaging associated with benefits (also described as ‘implicit conditionalities’), especially those encouraging expenditures on human capital and children, are reported as negatively affecting households’ propensity to invest additional cash in productive assets or activities (ibid., 164). Such is the case of Lesotho (Daidone 2014b), in alignment with previous evidence (as in the consumption and saving section) that points to child-related conditionalities causing a high marginal propensity to spend the *Bolsa Família* benefits on their main needs (Jannuzzi and Pinto 2013), leaving less space for investments.

Another negative effect is derived from the implementation aspect of cash transfers, as reported by Covarrubias, Davis and Winter (2012). Their research highlights that the lack of clarity in communicating with beneficiaries, especially regarding some of the targeting approaches, can lead them to fear that eventual investments of their benefits—for example, on cattle—could compromise their future eligibility for the programme (ibid., 61). However, at least when referring to targeting aspects and their consequences for investments, Bastagli et al. (2016) stress the relevance of considering the “vibrancy of local agriculture and markets, with implication for geographic targeting” (ibid., 164), as well as the varying asset bases of households, their access to land and labour, and the role of each of these aspects as mediators to productive impacts.

Another source of variation related to programme design is, obviously, the duration and the level of benefits. These aspects are useful in explaining, for instance, the previously mentioned different impacts of *Oportunidades* (Gertler et al. 2012) and *Bolsa Família* (Lichand 2010; Ribas 2014) on processes mediating growth: the former, by transferring larger and longer-lasting benefits, with outstanding direct results in productive investments, and the latter by generating mostly spill-over effects, probably due to the lower value of transfers and their limited duration compared to *Oportunidades*.

Conversely, other design and implementation features of cash transfers can have positive productive-related results. Productive impacts of cash transfers can be enhanced by complementary interventions such as savings groups, training and technical counselling or assistance, as well as tethering the timing of transfers to the agricultural cycle. This logic of complementary actions in a continuum of phases is being increasingly adopted worldwide, known as ‘graduation’ approaches to social policies.³⁹ These design aspects are reported as having positive impacts on income and revenues, total consumption, assets, food security, financial inclusion and total time spent working (Soares and Orton 2017, 8).

Several existing impact evaluations have revealed that some of the main features of graduation approaches, especially training on income-generating activities and regular visits by social workers (mainly to boost savings and financial literacy), can positively impact cash transfers. That is the case of Niger’s *Projet Pilote des Filets Sociaux par le Cash Transfert* (PPFS-CT).

Stoeffler, Mills and Premand (2016) evaluated the impacts of the PPFS-CT on productive investments, such as agricultural asset ownership and investments in durable goods. The study demonstrates the programme’s capacity to induce investments, which were considerably higher among the poorest households. Considered in isolation, that specific conclusion might seem to contradict most of the evidence presented previously, especially that which points to better results among those who are slightly less poor (with a lower probability of consuming the entire benefit), and the relevance of varying asset bases among households to explain different transfer effects on productive investments. However, the PPFS-CT improved

sustainable asset accumulation, mostly among extremely poor people in rural areas, mainly by encouraging beneficiaries to engage in saving groups (*tontines*).

As previously mentioned, credit constraints play an important role in keeping very poor people trapped in poverty. By stimulating *tontines*, an important vector for investments was created and is considered one of the mechanisms that can explain the larger impacts of transfers observed on the productive assets of the poorest people.⁴⁰ The combination of regular transfers with access to credit led the recipients to invest more and to create an asset base in the medium term (Stoeffler et al. 2016, 23).

The counterintuitive evidence that the joint engagement in the PPF5-CT and *tontines* could raise the incomes of the poorest people by sustainably increasing their livestock ownership calls for further research, especially to verify whether these design aspects would have the same positive impacts in other contexts. With that in mind, Blattman et al. (2016) tested the extent to which cash transfers bound to other complementary activities can boost productive investments. The Women's Income Generating Support (WINGS) programme also targeted people living in extreme poverty and, more specifically, the post-war women living in small villages in northern Uganda.

The provision of a unique USD375 grant was complemented with a five-day business skills training course and business planning assistance. Supervision was also provided to assist in implementing the plan of a petty trading business. The grant was 30 times larger than the beneficiaries' baseline monthly earnings. Similar to Stoeffler's approach, Blattman et al. also tested, in half of the treatment group, whether constituting self-help groups (mostly aimed at creating a savings and credit association), together with supplementary training, had additional positive impacts on the success of productive investments.

One year and four months after receiving the grant, considerable impacts were measured in occupational and income levels. Compared to control groups, the number of women owning non-farm businesses grew by 41 p.p. in the standard treatment group (without the incentive to form savings groups), and they worked nine hours more per week, which enabled them to double their earnings. However, the treated group that was encouraged to constitute savings groups doubled the average earnings of the standard treatment groups. The reason for that extraordinary performance was not related to the individual size of the businesses, but to the fact that "groups spurred informal finance as well as labor-sharing and cooperative cash cropping" (Blattman et al. 2016, 37–38).

9 SUMMARY AND CONCLUSIONS

The introduction of social protection benefits or changes in their design can affect the individual behaviours of recipients and co-residents. In turn, these behaviour changes can (positively or negatively) affect economic growth. Concerns and hopes about the possible effects of social security benefits on economic growth through microeconomic channels are vastly disseminated and fuel lively academic and political discussions. The objective of this work was to summarise empirical findings on the effects of social protection benefits on outcomes (consumption, savings, labour supply, education, fertility, migration, innovation and risk-taking) potentially related to economic growth.

The main conclusions are the following, by outcome and type of benefit.

9.1 CONSUMPTION AND SAVING

Social security

Main theoretical expectation: The prospect of receiving a pension would increase consumption and reduce savings.

Findings: Studies using time-series data are very sensitive to the model specification: estimates vary not only in magnitude, but frequently also in sign. Cross-country studies tend to be inconclusive. Studies based on cross-sectional or longitudinal microdata support the theoretical expectation that the existence of pensions would erode private savings. Among these studies, those based on natural experiments (pension reforms in Italy, the UK and China) seem to be particularly solid. However, the degree of substitutability (displacement effect) is often lower than 1; for low-income, lesser-educated workers, savings tend not to be affected by social security due to credit and liquidity constraints. Social security is probably related to an increase in consumption and a reduction in savings, but it tends to be welfare-enhancing. Displacement effects below 1 also point to an increase in national private savings, when there is a mandatory, fully funded social security pillar. The most commonly used independent variable in these studies—social security wealth—is a source of controversy. An actuarially fair benefit formula can limit negative effects on savings.

Non-contributory benefits

Main theoretical expectations: Generous non-contributory benefits should increase consumption and decrease savings; modest cash transfers should increase consumption and be neutral regarding savings.

Findings: Non-contributory pensions seem to have small-magnitude impacts on consumption (positive) and savings (negative). Cash transfers have a positive impact on consumption (especially food and child-related items) and no impact on savings.

9.2 LABOUR SUPPLY

Social security

Main theoretical expectation: Pensions should have a negative effect (especially for low-income workers, whose replacement rate is higher in general); actuarially fair (unfair) benefit formulas could have a positive (negative) effect, respectively; the 'entitlement effect' should be positive; unemployment insurance could increase unemployment spells.

Findings: Estimates of the effect of pension wealth vary considerably, do not share the same sign and are often statistically insignificant. Incentives given by the benefit formula tend to be statistically significant and of the 'right' sign. Unemployment insurance (duration and level) is negatively associated with labour supply, but the magnitudes are frequently small. Adequate pensionable ages, limited access to early retirement and actuarially fair benefit formulas can avoid negative effects of pensions on labour supply. For unemployment insurance, the best policy option seems to be close coordination with active policies.

Non-contributory benefits

Main theoretical expectations: Negative effects are expected for generous benefits, but modest cash transfers should not have any significant effects.

Findings: Modest cash transfers in the context of developing countries tend not to be associated with large reductions in labour supply (either in terms of participation or hours worked). More generous social assistance benefits may cause a reduction in labour supply, but these effects tend to be limited in magnitude and affect specific groups (such as lesser-educated workers).

9.3 EDUCATION

Social security

Main theoretical expectation: Pensions may have a positive impact on the educational outcomes of co-residing children, for liquidity- and credit-constrained families.

Findings: There is evidence of a downward flow of intergenerational financial transfers (compatible with theoretical expectations), but the few studies reviewed have mixed results.

Non-contributory benefits

Main theoretical expectation: Welfare benefits should have a positive impact on educational outcomes, for liquidity- and credit-constrained families. Conditionalities could add a price effect to the income effect of unconditional cash transfers.

Findings: There is evidence of positive effects of several non-contributory benefits (social pensions, tax credits, conditional and unconditional cash transfers) on outcomes such as enrolment and attendance. Measures of the effect on learning and cognitive skills are unclear.

9.4 FERTILITY

Main theoretical expectations: Pensions (contributory or non-contributory) should have a negative effect on fertility (if children are considered an old-age security strategy). Contributory schemes should have an extra negative effect, since children have a negative impact on labour market participation and future earnings. Child-related benefits should have a positive impact (through income and price effects). Modest cash transfers should be neutral. CCTs might have a negative impact (through women's empowerment and improved access to health services).

Findings: There is evidence that pensions have a moderate negative effect on fertility. Child-related benefits in the context of developed countries tend to have a small positive effect, but some controversy persists. Modest cash transfers tend to have a negative effect. One study suggests that tax credits might have positive effects, but only for women in couples.

9.5 MIGRATION

Main theoretical expectations: The effect is theoretically ambiguous. If migration is a strategy for families to deal with social risks, social benefits should have a negative effect. Benefits

paid to credit- and liquidity-constrained families with a member who is inclined to migrate might have a positive effect.

Findings: Access to social security tends to have a negative effect on migration. Regarding non-contributory cash transfers, no clear pattern emerges from the empirical analysis, which is consistent with the ambiguous theoretical expectations. The possible exception is South Africa's Old Age Grant, for which studies have suggested a clear positive effect.

9.6 INNOVATION AND RISK-TAKING

Main theoretical expectations: Social benefits should have positive effects on lifting credit constraints and reducing risk aversion, benefiting productive investments, especially if coupled with additional supervision or training.

Findings: Cash transfers have positive impacts on agriculture-related assets and outcomes, especially by helping overcome liquidity and credit constraints, enabling investments and intervening in risk-coping strategies at the household level. Impacts on non-rural businesses are mixed. In some contexts, cash transfers have created risk-coping behaviours, such as diversification of income sources and risk-sharing strategies among recipient and non-recipient households—for example, informal credit markets.

Overall, there seems to be little space for deep concerns or high hopes regarding the possible effects of social protection benefits on economic growth through microeconomic channels. Pensions can have negative effects on savings and labour supply, but estimates vary considerably and are frequently of small magnitude. The saving behaviour of low-income, lesser-educated workers, potentially affected by liquidity and credit constraints, tends not to be affected in any way. Moreover, there are policy options to deal with these possible adverse effects. Actuarially fair benefit formulas, adequate pensionable ages, limited access to early retirement and close coordination between passive and active employment policies are believed to reduce or eliminate disincentives.

There is evidence of a positive impact of modest cash transfers (particularly when attached to conditionalities) on school enrolment and attendance, which is encouraging. However, evidence is less clear regarding their effects on learning—a critical outcome. Contributory pensions and CCTs seem to have a modest negative impact on fertility, which is a source of concern for the sustainability of pay-as-you-go pension regimes and for economic growth. As other child-related benefits might have a positive impact, a social protection reform that decreases pension expenditures and substantially increases child benefit outlays should be considered a policy option. Social security affiliation tends to be negatively related to migration (which is growth-enhancing, given that the affiliated are the most productive part of the labour force). Cash transfers can finance migration—but they would also be growth-enhancing if they were to finance domestic migration. Finally, there is some evidence that modest cash transfers enable small investments and improve risk-coping strategies.

The best news is that the relatively small magnitudes of negative effects of social protection benefits (on outcomes such as savings and labour supply, for instance) lead us to believe that they are welfare-enhancing. The myriad of policy alternatives to deal with possible negative impacts—together with small, but positive effects (on outcomes such as education, migration and risk-taking)—leads us to be modestly optimistic about their overall impact on economic growth through microeconomic channels.

APPENDIX. SUMMARY OF THE FINDINGS

LITERATURE REVIEW ON THE IMPACTS OF SOCIAL PROTECTION BENEFITS

Consumption and saving

- Social security

Main theoretical expectation: Prospects of receiving a pension would increase consumption and reduce savings.

Findings: Studies using time-series data are very sensitive to the model specification: estimates vary not only in magnitude, but frequently also in sign. Cross-country studies tend to be inconclusive. Studies based on cross-sectional or longitudinal microdata support the theoretical expectation that the existence of pensions would erode private savings. Among these studies, those based on natural experiments (pension reforms in Italy, the UK and China) seem to be particularly solid. However, the degree of substitutability (displacement effect) is often lower than 1; for low-income, lesser-educated workers, savings tend not to be affected by social security due to credit and liquidity constraints. Social security is probably related to an increase in consumption and a reduction in savings, but it tends to be welfare-enhancing. Displacement effects below 1 also point to an increase in national private savings, when there is a mandatory, fully funded social security pillar. The most commonly used independent variable in these studies—social security wealth—is a source of controversy. An actuarially fair benefit formula can limit negative effects on savings.

- Non-contributory benefits

Main theoretical expectations: Generous non-contributory benefits should increase consumption and decrease savings; modest cash transfers should increase consumption and be neutral regarding savings.

Findings: Non-contributory pensions seem to have small-magnitude impacts on consumption (positive) and savings (negative). Cash transfers have a positive impact on consumption (especially food and child-related items) and no impact on savings.

Labour supply

- Social security

Main theoretical expectation: Pensions should have a negative effect (especially for low-income workers, whose replacement rate is higher in general); actuarially fair (unfair) benefit formulas could have a positive (negative) effect, respectively; the 'entitlement effect' should be positive; unemployment insurance could increase unemployment spells.

Findings: Estimates of the effect of pension wealth vary considerably, do not share the same sign and are often statistically insignificant. Incentives given by the benefit formula tend to be statistically significant and of the 'right' sign. Unemployment insurance (duration and level) is negatively associated with labour supply, but the

magnitudes are frequently small. Adequate pensionable ages, limited access to early retirement and actuarially fair benefit formulas can avoid negative effects of pensions on labour supply. For unemployment insurance, the best policy option seems to be close coordination with active policies.

- **Non-contributory benefits**

Main theoretical expectations: Negative effects are expected for generous benefits, but modest cash transfers should not have any significant effects.

Findings: Modest cash transfers in the context of developing countries tend not to be associated with large reductions in labour supply (either in terms of participation or hours worked). More generous social assistance benefits may cause a reduction in labour supply, but these effects tend to be limited in magnitude and affect specific groups (such as lesser-educated workers).

Education

- Social security

Main theoretical expectation: Pensions may have a positive impact on the educational outcomes of co-residing children, for liquidity- and credit-constrained families.

Findings: There is evidence of a downward flow of intergenerational financial transfers (compatible with theoretical expectations), but the few studies reviewed have mixed results.

- Non-contributory benefits

Main theoretical expectation: Welfare benefits should have a positive impact on educational outcomes, for liquidity- and credit-constrained families. Conditionalities could add a price effect to the income effect of unconditional cash transfers.

Findings: There is evidence of positive effects of several non-contributory benefits (social pensions, tax credits, conditional and unconditional cash transfers) on outcomes such as enrolment and attendance. Measures of the effect on learning and cognitive skills are less clear.

Fertility

Main theoretical expectations: Pensions (contributory or non-contributory) should have a negative effect on fertility (if children are considered an old-age security strategy). Contributory schemes should have an extra negative effect, since children have a negative impact on labour market participation and future earnings. Child-related benefits should have a positive impact (through income and price effects). Modest cash transfers should be neutral. Conditional cash transfers might have a negative impact (through women's empowerment and improved access to health services).

Findings: There is evidence that pensions have a moderate negative effect on fertility. Child-related benefits in the context of developed countries tend to have a small positive effect, but some controversy persists. Modest cash transfers tend to have a negative effect. One study suggests that tax credits might have positive effects, but only for women in couples.

Migration

Main theoretical expectations: The effect is theoretically ambiguous. If migration is a strategy for families to deal with social risks, social benefits should have a negative effect. Benefits paid to credit- and liquidity-constrained families with a member who is inclined to migrate might have a positive effect.

Findings: Access to social security tends to have a negative effect on migration. Regarding non-contributory cash transfers, no clear pattern emerges from the empirical analysis, which is consistent with the ambiguous theoretical expectations. The possible exception is South Africa's Old Age Grant, for which studies have suggested a clear positive effect.

Innovation and risk-taking

Main theoretical expectations: Social benefits should have positive effects on lifting credit constraints and reducing risk aversion, benefiting productive investments, especially if coupled with additional supervision or training.

Findings: Cash transfers have positive impacts on agriculture-related assets and outcomes, especially by helping overcome liquidity and credit constraints, enabling investments and intervening in risk-coping strategies at the household level. Impacts on non-rural businesses are mixed. In some contexts, cash transfers have created risk-coping behaviours, such as diversification of income sources and risk-sharing strategies among recipient and non-recipient households—for example, informal credit markets.

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NOTES

4. Pension wealth is generally defined as the sum total of benefits a person will be entitled to, minus their future contributions, both at current value.
5. Assumptions about the existence of bequest motives or parental altruism (Barro 1974) could lead to different models where social security has a reduced negative impact (or, in specific circumstances, even a positive one) on saving. Another interesting perspective is that ordinary people would be incapable or unwilling to properly compute their social security wealth and that the approximate methods that they would use might result in different responses in terms of consumption and saving (Lesnoy and Leimer 1985; CBO 1998).
6. This was the estimate used to compute the impact of pension wealth on aggregate private savings. The highest estimate presented in Feldstein's study, however, was still far from perfect substitutability (USD0.083 of additional consumption per USD1 of additional pension wealth).
7. As previously mentioned, pension wealth is the sum total of benefits a person is entitled to, minus their future contributions, both at current value. Assuming that contribution rates are stable and that workers know their future income (strong assumptions, already), the pension wealth will vary as a function of the benefit formula in place at a specific moment in the future—namely, when beneficiaries claim their benefits. The benefit formula defines the benefit–income ratio, whose perception by workers is central to understanding the five ways that Leimer and Lesnoy (1982) suggest pension wealth could credibly be computed. The first way assumes the future benefit–income ratio will be the average of the last three decades (the assumption made by Feldstein). The second way assumes that the future benefit–income ratio will be the same as the current one. The third way assumes that individuals use the current benefit–income ratio to modify their previous projections. The fourth way assumes that individuals use actuarial studies by the Social Security Administration to project the future benefit–income ratio. Finally, the last one assumes a perfect projection of the future benefit–income ratio.
8. A flat-rate basic social security pension that presents virtually universal old-age coverage.
9. A second-pillar, earnings-related benefit.
10. Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, the Czech Republic and Poland.
11. Defined as gross financial assets minus financial liabilities plus properties, own businesses and cars.
12. The estimate was +0.46, meaning that each additional percentage point of old-age social security coverage would result in a 0.46 percentage point increase in the aggregate saving rate.
13. Progresa was renamed Oportunidades in 2002, evolving its design to reach poor households in urban areas. The positive impact on food consumption was of MXN169 (in 2003) and MXN283 (in 2004).
14. Increases in livestock were also observed for unconditional cash transfers. As livestock can be understood as both saving and productive investment, we will consider these impacts in the section about innovation and risk-taking.
15. NZS's floor level is 66 per cent of the net average wage, the actual level varying across the period considered in the study (1973–2008).
16. New Zealand is probably a unique case, where the typical social security earnings-related, pay-as-you-go pillar simply does not exist (Willmore 2000).
17. An alternative view is that an occasional increase in the unemployment spell as an effect of unemployment insurance is mainly related to liquidity effects—which enhances welfare—and not to moral hazard (Chetty 2007). This seems to be a morally interesting discussion: the liquidity effect hypothesis suggests that UI benefits smooth consumption and increase welfare, whereas the moral hazard hypothesis suggests that they distort marginal incentives and subsidise leisure. However, in practical terms, both perspectives suggest an increase in unemployment spells as a function of benefit levels and maximum benefit duration.
18. For example, an old-age social insurance benefit that reduces labour market participation of older people is working exactly as expected. It may become a problem only if the eligibility age threshold is low, which seems to be the real concern of a large part of the literature.
19. Meaning leaving the labour force permanently.
20. Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, the UK and the USA.
21. Meaning that social security wealth is positively associated with labour supply.
22. That is, benefit level times duration.
23. The difference between the results for men and women can probably be explained by the fact that women could have access to a longer UI benefit duration at the age of 50 and to early retirement at the age of 54, while men would only have access to early retirement at the age of 59.

24. These results are consistent with those found by Kluge (2010), who reviews 137 active labour market programme evaluations in 19 countries and concludes that modern forms of job search assistance (with an element of sanction) seem to be particularly effective for the transition out of unemployment.
25. Card, Kluge, and Weber (2010), in their review of almost 200 active labour market programme evaluations in 12 countries, also state that the cost dimension is frequently ignored in this sort of study, which makes cost-effectiveness impossible to compute.
26. Countries and programmes considered were Honduras (PRAF II), Indonesia (PKH), Morocco (Tayssir), Mexico (Progresa and PAL), Nicaragua (RPS) and the Philippines (PPPP).
27. The review of the effect of welfare programmes in the USA on labour supply, conducted by Moffit (2002), also points to food stamps having no perceptible effect, which is credited to the modest value of this benefit.
28. The authors argue that the impact of pensions on economic growth should consider not only possible positive effects of pensions on education, but also possible negative effects on savings and physical capital (Lambrecht, Michel, and Vidal 2002).
29. Sweden, Denmark, the Netherlands, France, Germany, Austria, Switzerland, Spain, Italy and Greece.
30. Roughly USD75, using the 2005 PPP conversion factor.
31. Edmonds suggests that larger and significant impacts on boys' school attendance are probably related to the fact that they have lower attendance rates than girls and, thus, more room for improvement.
32. We will not take into consideration in this section migration driven by natural disasters, war and other humanitarian reasons.
33. The importance of limited access to the credit market seems to relate to a more general argument: Davis, Carletto, and Winters (2010) suggest that the effect of social protection on migration will be larger according to larger market failures (in terms of access to credit, insurance, the labour market etc.)
34. Mexico's conditional cash transfer programme Prospera was branded Progresa between 1997 and 2002, when it started reaching poor households in urban areas and was renamed Oportunidades. In 2014, it was finally rebranded as Prospera.
35. With data collected from a randomised experimental design impact evaluation (2010–2012).
36. The lack of impacts on chicken ownership is somewhat justified by cultural and community-level practices, such as the habit of exchanging or borrowing instead of selling this kind of livestock (Daidone et al. 2014b).
37. The first draft of Gertler et al.'s paper was initially published as a working paper in 2006.
38. Barrientos (2012) specifies other kinds of potentially important indirect effects, such as the reported demonstration effects of Oportunidades on access to health services.
39. The Graduation Approach can be understood as "the act of going through a set of phased-in and overlapping interventions meant to improve the well-being of their participants" (Soares and Orton 2017, 7).
40. The overall impact is large and significant, as the assets of beneficiaries increased by 0.418 tropical livestock units, representing more than half a cow, four goats or 40 chickens. Additionally, that impact lasted over 18 months after transfers were terminated, with increases in livestock of almost half the total transfers received over the 18-month programme (Stoeffler, Mills and Premand 2016, 15).



International Policy Centre for Inclusive Growth (IPC-IG)

SBS, Quadra 1, Bloco J, Ed. BNDES, 13º andar
70076-900 Brasília, DF - Brazil
Telephone: +55 61 2105 5000

ipc@ipc-undp.org ■ www.ipcig.org