

The significance of interage economic transfers in Chile

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Chile is a middle-income country with a relatively small, aging population. The evolution of its economy in recent decades has been scrutinized by scholars and policy analysts interested in gauging Chile's structural-adjustment programs, reforms, and policies, particularly as reflected in some macro indicators. Some observers have paid considerable attention to the effect of economic policies on Chile's stability and growth; to the effects of the privatization of the pension system on aggregate saving, investment, and growth; and to the distributive effects of public expenditure and transfer programs. Others have analyzed the demographic trends and noted potential economic consequences of population aging. Yet, despite clear interrelations between the two spheres of concern, there has been little research integrating them.

This chapter examines the mechanisms by which the Chilean population is able to satisfy its consumption needs over the stages of the lifecycle. It explores the extent of economic dependency in different age groups, the means of financing their consumption, and some of the effects that interage resource reallocations have on the living conditions of each generation of the population. The analysis is based on new estimates, for the year 1997, of Chilean national transfer accounts (NTAs). These accounts allow for a systematic and detailed examination of some important aspects of the economic lifecycle.

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Economic Setting

The Chilean economy and the living standards of the population have changed substantially over recent decades. The country currently ranks high within the region in many socioeconomic indicators, including a per capita income of about USD \$14,510 PPP in 2008 the second highest value in Latin America, after that of México (IMF, World Economic Outlook Database, April 2009). Annual growth of per capita GDP accelerated from averages of a little over 2% during the 1980s to 5% during the 1990s (Loayza and Soto 2002, page 5, table 2). Growth in per capita GDP has decelerated somewhat since, but in spite of short-term variations averaged a healthy 3.2% per year during the first half of the last decade. Since 1990 Chile has maintained a reasonably stable macro economy and sustainable external accounts. In 2000 the government introduced a fiscal rule of “structural balance” (Marcel et al. 2001), setting spending accordance with the estimated medium-term trend in GNP, a policy that has effective countercyclical effects. Fiscal discipline has contributed to a greatly reduced public and external debt, resulting in record low-risk premiums for the nation (Marcel 2006).

One of the engines of aggregate growth has been capital accumulation, made possible by national saving. During the 1960s and 1970s the national saving rate fluctuated significantly, averaging only about 12% of GDP (Bennett, Schmidt-Hebbel, and Soto, 1999, Annex table 1). After the economic crisis of 1982–83, when the aging of the population structure started to become noticeable, savings increased sharply, to over 20% of GDP by the end of the 1980s, and remained at about that level during the 1990s. By 1997, the main year examined in this chapter, national savings were at 23.1% of GDP, while investment was at 27.7%. This performance is better than average within Latin America, but it lags considerably behind that of other developing regions and countries, particularly those of Asia.

Another area in which Chile has made substantial progress is the reduction of poverty, which was very high (of the order of 45% of the population) during the 1980s, the last decade of the military government. Poverty rates have fallen sharply since, from 38.6% in 1990 to 13.7% in 2006, and the population has benefited from better protection against economic cycles due to the aforementioned macro stability and policy of structural balance, as well as targeted public transfers (Leiva, 2006).

Demographic characteristics and trends

Chile's population, which in 2008 stood at 16.3 million, is undergoing a significant demographic transition. The first half of the twentieth century featured a total fertility rate of more than 6 children per woman and life expectancy at birth under 55 years. The elderly constituted a small portion of the population, and relatively few survived to ages much older than the normal retirement age: fewer than 40% survived to the age of 70 and fewer than 20% lived to the age of 80. As in all pre-transitional societies, the main demographic burden was on the maintenance of children, with old-age dependency being a low risk for individuals and a concern of only modest aggregate dimensions for the nascent social-protection systems.

By the beginning of the 1980s, a decade when important reforms were introduced to the pension system and to the health and education sectors, fertility had dropped to nearly 2.5 births per woman and life expectancy had surpassed the 70-year mark. In more recent years, important policy changes have been introduced in the health sector, and in 2007 a comprehensive new reform of the pension system was approved that stimulates contributions and expands the benefits especially for lower income workers. Changes to the education system may come next. All this has occurred at a time when the demographic transition has advanced to below-replacement fertility of about 1.9 births per women, and to a life expectancy for both sexes combined of 78 years, a level comparable to that of some developed countries—for example, the United States.²

These changes are causing significant demographic aging and imply that an increasing fraction of the lifecycle of individuals is spent in retirement. Today, men who survive to age 60 can expect, on average, to live more than 20 additional years, and women can expect to live more than 24 additional years. These numbers should continue to rise because the general aging trend is projected to accelerate over the coming decades. The process of demographic aging has converse expression in the

² Within Latin America, life expectancy ranks highest in Chile and Costa Rica (which are followed closely by Cuba, with life expectancy at birth near 77 years); and fertility is second lowest in Chile, after Cuba's very low 1.6 births per woman.

In this framework, inflows to individuals of any given age consist of labor income (Y_l), income from assets A (Y_A), transfer inflows from the public sector (τ_g^+), and transfer inflows from the private sector (τ_f^+). Outflows consist of consumption (C), investment (I) in capital, credit and land (which in the aggregate must equal savings (S), transfer outflows to the government (τ_g^-), and and transfer outflows to the private sector (τ_f^-). In other words, the equation states that the *lifecycle deficit* must be matched by *age reallocations* consisting of *asset-based reallocations* and *net transfers*. The specific estimation methods are presented in detail in the NTA project Website (<http://www.ntaccounts.org/>).

For Chile, two key microlevel databases for the NTA estimates are the national Budget and Expenditures Survey (BES) of 1996/97, and the Socio-Economic Characterization Survey (*Encuesta de Caracterización Socioeconómica*, CASEN) of 1998. The BES is the main data source for the estimation of private consumption, as it reports in great detail on 726 categories of expenditures on goods and services in the household. Although both surveys contain information on the sources of income (labor income, income from assets, transfers) for each individual household member, we prefer the CASEN survey for the estimation of labor income because it contains greater detail on the categories of income (43 in all, *versus* 5 in the BES) and because the individuals are classified in single ages (whereas in the BES they were categorized in 5-year age groups). The CASEN is also the most pertinent database, as well as the official source, for the statistics and analysis of income distribution, poverty, and the impact of government transfer programs on living conditions of the population, especially of low-income groups.

We use the aggregate figures on public expenditures by program reported annually by the Budget Directorate of the Finance Ministry (Ministerio de Hacienda, 2006), and on the age profiles of income taxes provided by the National Tax Service (*Servicio de Impuestos Internos*, SII), which together allow for the estimation of net public transfers. All the age profiles have been scaled to match the appropriate aggregates of the national and income accounts (National Income and Products Account, NIPA) published by the Chilean Central Bank (Banco Central de Chile, 2006).

Lifecycle deficit

In Figure 1, which displays the lifecycle deficit for Chile in 1997, the curve of per capita labor income (dark thick line) has the characteristic inverted U-shape, but with

relatively higher values in the older ages. The result is due mostly to the significant income from self-employed workers, (dashed bottom line) which in Chile have significantly higher earnings than employees and they represent an increasing fraction of labor income at the older working ages.

[Figure 1 about here]

But in comparative perspective, the overall Chilean age pattern of labor income is intermediate between the higher income countries which maintain high labor income until later peak ages and fall much more sharply afterwards, and the lower income countries whose labor income falls off more gradually toward the older ages.

The per capita consumption profile (thick grey line) has a much more dampened humped shape, commonly observed in developing countries. The age pattern is dominated by private consumption (dashed grey line), which represents 86% of total consumption.³ Public consumption (i.e., the value of the in-kind goods and services that are provided by the government) accounts for the other 14%. This is a value between the lowest registered values to date in developing countries, such as Indonesia and Thailand, and the much higher values observed in developed countries such as Japan, Sweden, and the United States. Compared with other Latin American countries, the Chilean slight downturn of consumption at the older ages is a bit different than the flatter Costa Rican pattern and differs from the moderately increasing one of Brazil.

Public consumption (dot-patterned bottom line) has a distinct, roughly inverted U-shape, but its moderate upturn at the older ages is not strong enough to change the slope of the total consumption curve to positive, as occurs in today's more developed countries that have very large government expenditures on health and other social services for the elderly. In Chile these public programs are also important; but our data show that, especially after the privatization reforms in the pension and health systems instituted in the 1980s, the elderly have been relying less on in-kind public consumption and more on other sources of income, including transfers and asset reallocations. We shall return to this point later in the chapter.

Another interesting aspect of the lifecycle deficit is the age at which individuals become net producers and net consumers. In the Chilean case we find that the first transition occurs at about age 26, and the second at age 54. The implied length of the

³ We discuss in detail the various components of the lifecycle deficit, including private consumption, in Bravo and Holz (2008).

net-producing period of 28 years is somewhat below the average on NTA countries, but in line with the average of the Latin American countries that have comparable estimates so far.

We should note that although those younger than 26 and older than 54 years of age are dependents from the point of view of the lifecycle deficit (because individuals in both groups produce less through their work than what they consume), there are evident differences in their economic status and degree of economic dependency. First, younger dependents produce only 26% of their average consumption (young children produce 0%), whereas older dependents produce about 55% of their consumption with their labor and thus rely to a much lesser extent on other sources of support. Second, older adults draw upon substantial asset income, whereas children do not, and adolescents and younger adults do so to a very limited extent. Therefore older adults are much less dependent on transfers than are children. As we shall see, the public-private transfer mix differs considerably across the age groups. Third, in systems that are mostly contributory as the Chilean, the pensions that older adults receive constitute an instituted compensation for the contributions they made while younger; i.e., they are part of an explicit intertemporal, intergenerational social contract,⁴ whereas in the case of children, there is no explicit or necessarily proportional linkage between the public transfers received when young with the taxes paid later in life.

Public transfers

In the NTA framework, public transfer inflows to individuals refer to all current (non-asset based) government expenditures, not just to specific cash programs as generally understood in the usual public-finance use of the term. The concept is that the activities and associated spending of the public sector produce goods and services that are of direct or indirect benefit to the population. Some of these benefits accrue only to specific groups such as students, pensioners, or persons in poverty programs, whereas others accrue to the population at large. Examples of the latter are public infrastructure, foreign relations, and general government operating expenditures. The former benefits

⁴ In non-contributory schemes, the taxes paid and pensions received at different stages of the life-cycle are de-linked at the individual level; they are more clearly pure transfers.

we assign to the pertinent population groups; the latter are allocated on a uniform per capita basis to all age groups. Public transfer outflows refer to the payments (taxes and social security contributions) that individuals make to the government within a given year.

Public transfer inflows are categorized as cash or in-kind, and by some social sectors—i.e., health, education, social security. Public transfer outflows consist mostly of direct and indirect taxes, which refer to income and property taxes on the one hand, and consumption and excise taxes on the other.⁵

Transfer inflows

In 1997, aggregate in-kind transfers represented 11% of Chile's GDP, more than half of which (6% of GDP) was consumption of collective goods; health and education programs accounted for the remaining 5%. Cash transfers represented 4.8% of GDP, virtually all of which was accounted for by public pensions, together with a small proportion of spending in training and unemployment subsidies.

As shown in Figure 2, in-kind transfers were concentrated on children and adolescents through public education expenditures, and on the elderly through public health programs.

[Figure 2 about here]

Compared with public education and health transfers of other countries in the NTA project, Chile's transfers were in an intermediate range, close to those of other developing countries such as Costa Rica and Taiwan, well above those of Indonesia, but much lower than those of developed countries such as Japan and the United States. As expected, education expenditures were high for children, teenagers, and young adults, whereas health expenditures benefit mainly older adults and to a lesser degree young children. Other public consumption expenditures had no clear age correlation.

Cash transfers consisted basically of old-age and survivors' pensions, both of which were geared mostly to the elderly and constituted the lion's share of public transfers to them, as seen in Figure 3. This figure also shows that per capita public

⁵ In addition to taxes, public transfer outflows include mandatory contributions, fees and bond purchases to the government (see details in <http://www.ntaccounts.org>, under public transfers)

benefits for the elderly dwarfed those received by children; but because the population age structure is still heavily tilted toward the younger ages, the public expenditure on children and the elderly were of comparable aggregate magnitude.

[Figure 3 about here]

The final outcome of these transfers is of interest with regard to the income distribution. Previous work by Bravo (2007) has assessed, for several Latin American countries, the impact of government cash transfers on poverty rates by age, drawing from an estimation procedure developed by Uthoff and Ruedi (2005). Figure 4 displays the estimates obtained in the same manner as in the previous work, in this instance for Chile in 1997.

[Figure 4 about here]

The results confirm our previous finding for Chile (which are also observed in varying degrees in Brazil, Mexico, and El Salvador), that the poverty-reducing effect of cash transfers was much greater for the elderly than for other age groups. Although the effects of government cash transfers were not insignificant for younger adults and children, they were still insufficient to prevent children from ending up with much higher poverty rates than the other generational groups. This result should be a cause for concern from the viewpoint of intergenerational equity and from an intertemporal economic perspective, to the extent that it can be read as a sign of underinvestment in the younger generations, i.e., in their future productivity. Thus, Chile's recently inaugurated government program to improve the well-being and social protection of all children (Mideplan, 2007) appears to be well targeted.

This is only one piece of evidence for the analysis of the distributional effects of transfers, since one should also consider in-kind transfers and public transfer outflows in order to have a complete view of the net generational impact of public policies. The series of NTAs that we are constructing will provide the basic data with which to make these more integrated, comprehensive assessments.⁶

⁶ Ideally, one would like to examine the incidence intertemporally, allowing for a true generational analysis. Doing so requires a long series of NTAs, which are not yet available for Chile. See Bommier et al. (2005) for an interesting analysis of long lifecycle deficit series for the US and France.

Public outflows

Chile's tax structure, which concentrates three-fourths of tax proceeds on indirect taxes, results in an age profile of public outflows quite different from that of developed countries, where direct taxes on income and assets play a much more important role. Figure 5 shows that income taxes have an older age distribution than the value-added tax, a result of the aforementioned tax structure and the allocation rules that imply that indirect taxes are more evenly distributed across different ages, whereas direct taxes are concentrated in the highest earning adult ages.

[Figure 5 about here]

Graphing both inflows and outflows of public transfers, Figure 6 summarizes the results of net aggregate public transfers, which may be particularly relevant to public finance policy as they reflect the total, net amounts the government transfers to and from the population by age group. That is, it shows the benefits received from the government, less taxes paid by the population, in each age group.

[Figure 6 about here]

Figure 6 reveals that individuals under the age of 20 and those over age 60 received net public inflows from the government, whereas those in between, especially those in their late 30s and early 50s, were net taxpayers. The absolute value of public transfers for the elderly after the age of 70, tends to fall with age, mostly because of their reduced population numbers, and because of their smaller net per-capita transfers at those older ages.

Private transfers

Transfers that take place among individuals without the mediation of the government can be either intrahousehold (the more common case) or interhousehold. In the case of Chile, household surveys ask only about transfers received, not about transfers given, and therefore no information exists about the givers of the transfers received. Consequently, armed with the information on transfers received for each individual household member, we had to make assumptions about the givers *vis-à-vis* the receivers to estimate net private interhousehold transfers. We considered two possibilities: (1) that all private transfers were made only among household heads (this is the standard method of the NTA project), and (2) that the recipient was the person

identified in the survey and the givers were the household heads only. In both cases we assumed that giving was proportional to household total factor (“autonomous”) income.

The results for interhousehold transfers differed according to the assumption used. Under the first assumption, the young and the old received a very small portion of net transfers, whereas individuals of intermediate adult ages were large net givers. This was to be expected, since most household heads are indeed middle-aged adults. Under the second assumption, net interhousehold transfers were more evenly spread out. But since interhousehold transfers represented only 18% of private transfer inflows, the reliance on one assumption or the other did not have a large effect on total net private transfers.

We found that interhousehold transfers were larger in Chile than in some other countries; in Thailand, for example, they represented only 6% of all private transfers. But Chile has in common with virtually all the other countries the fact that by far the largest part of private transfers took place *within* households. Figure 7 shows the estimates of private transfers based on the standard NTA methodology.

[Figure 7 about here]

The results show that for all ages above 18, individuals were both givers and receivers of private transfers, a result that is consistent with findings (Saad, 2005) from SABE (*Salud, Bienestar y Envejecimiento*; In English: Health, Well-Being, and Aging) surveys, which sample populations of selected Latin American cities (Palloni and Peláez, 2004) that report extensive evidence of mutual support.. If we consider *net* flows, however, we see that children and young adults are net receivers of substantial private transfers, while older adults received much smaller net private transfers, and then only after the age of 70.

Asset reallocations

Individuals who do not generate substantial labor income or receive much transfers may resort to interage asset-based reallocations to finance their consumption. Recall that asset-based reallocations are the difference between asset income and saving at each age. Figure 8 shows that in Chile in 1997 per capita net asset reallocations rise from the early twenties onwards, leveling off with small variations between the ages of

42 and 60. They then fall almost continuously until the age of 85, after which we observe a sharp upturn to the ages 90 or higher. The estimates at the older ages are surely less reliable due to the small population size, but taken at face value, they seem to suggest that after the age of 85, individuals begin to obtain more liquidity by reducing their savings, not at all an unreasonable behavior. Looking at the components of asset reallocations, income from assets rises gradually from the mid twenties, escalating to reach a maximum just past the age of 65.⁷ They then fall, except for a brief upsurge around age 82 to 83, resuming their decline thereafter. Viewed from a life-cycle perspective, these age patterns seem roughly consistent with economic theory and prior expectations. The implied life-cycle behavior of savings, however, is more intriguing. Savings become clearly positive only after the age of 45, and generally increase and remain high as late as age 85. Savings fall sharply thereafter, but remain positive throughout. This pattern is different from that of countries such as the US and Costa Rica, where net asset reallocations had no turning point, but rather kept increasing even at older ages, with savings falling toward *negative* values. It is noteworthy that, in Chile, the variations in savings virtually mirror those of asset income between the ages of 65 to 85, as if within this age range, all asset income was saved, thus remaining available for withdrawal at the oldest ages.

Financing consumption at different stages of the lifecycle

A useful way to summarize the foregoing results is to examine the sources of financing the lifecycle deficit at different broad age groups of “dependents” and “net producers”, which we show in Figure 9. It confirms that middle-aged adults, between the ages of 26 and 54, were substantial net producers; their labor income was 28% higher than their own consumption. They also obtained important positive net asset reallocations, equivalent to 43% of their consumption. This provided them with sufficient resources to be net transfer givers of both private and public transfers, in amounts that represented 46% and 25%, respectively, of their average consumption.

[Figure 9 about here]

⁷ Possibly associated with a large drawing of assets at about the time of retirement.

Children and youth below the age of 25 and adults aged 55 and older were net consumers (“dependents”), but their sources of support and degree of dependence were radically different. More than three-fifths of the consumption of the younger dependents was funded by private (mostly intrahousehold) transfers, and another one-fifth was funded by labor income. The remainder one-fifth is composed of net public transfers (15%) and asset reallocations (2%)⁸. On the other hand, the older dependents (aged 55 or older) financed more than one-half of their consumption with their own labor and could count on asset reallocations to finance another 37% of their consumption. Together with public transfers that account for 31% of their consumption they command sufficient resources to still be net providers of private transfers, which amount to 18% of their consumption. The more conventional cut-off age of 65 or older reveals the expected larger reliance on public transfers (almost two-thirds of their consumption) and smaller contribution of own labor (about one-fifth of their consumption). Asset reallocations account for 11 % of consumption in this age group, and as indicated earlier, the elderly do not rely greatly on private transfers for their support; they are modest net recipients (3% of their consumption) of private transfers from younger adults.

Conclusion

Our analysis of intergenerational reallocations for Chile in 1997 leads us to conclude that labor income is an important source of support for the great majority of adults, even for the elderly, in a greater proportion than in some countries with similar levels of development, urbanization, and social security coverage. Consumption displayed a smooth, somewhat dampened age profile that fell between the more pronounced inverted-U shape found in the lowest-income countries and the upward-sloping consumption curve observed in today’s more developed countries.

Those younger than age 26 and those older than 54 were, on average, economically dependent in the sense that individuals in both groups produced less through their work than what they consumed. But there were clear differences in their

⁸ Asset reallocations in this age group results from a combination of very small asset income and some debt (negative saving), which probably includes student loans.

economic status and degree of economic dependency. Older adults were much less dependent than children and young adults on sources other than their own labor income and asset reallocations. In 1997, our main year of analysis here, this result was probably influenced by the privatization reforms initiated in the 1980s, especially that of the pension system, which has increased private saving for old age. Still, the government pensions, that comprise the bulk of public transfers to the elderly, represent the lion's share of the means of sustenance for the elderly.

Public inflows (benefits) to individuals were mostly health care, education, and collective goods received in different degrees by all population age groups. Cash transfers (basically pensions) represented by far the largest public transfer received by the elderly, who enjoyed total net per capita public transfers several times larger than children or young adults. However, since there were still more younger than older persons in the population, the aggregate public spending on children and teenagers was roughly comparable to that on the elderly.

Cash public transfers appear to have had a much greater impact in reducing poverty among the elderly than in any other age group; and there is a legitimate concern that poverty is still heavily concentrated among children, who represent future generations of citizens, producers, and taxpayers. Nonetheless, a comprehensive distributional analysis must also take into account in-kind transfers and public outflows (taxes). The NTA time series under construction is generating an appropriate data base for such an analysis in generational terms.

Private transfers were the main source of financing consumption for children, but they were not of great importance for any other age group. The elderly relied to a very large extent on net public transfers, but they were not substantial receivers of net private transfers. Interestingly, though, persons in all the adult age groups both gave and received private transfers, thus confirming previous evidence from Chile and other Latin American countries that private support tends to be mutual.

Even though asset reallocations financed just over 11% of the consumption of the elderly in Chile in 1997, we expect their share to increase over time, especially for the generations reaching retirement age after 2000, which are affiliated in greater proportion to the privatized pension system. The full extent of this effect, however, will

not be felt until after 2020, when the first cohorts fully covered by the private system instituted in the 1980s will begin to retire.

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