

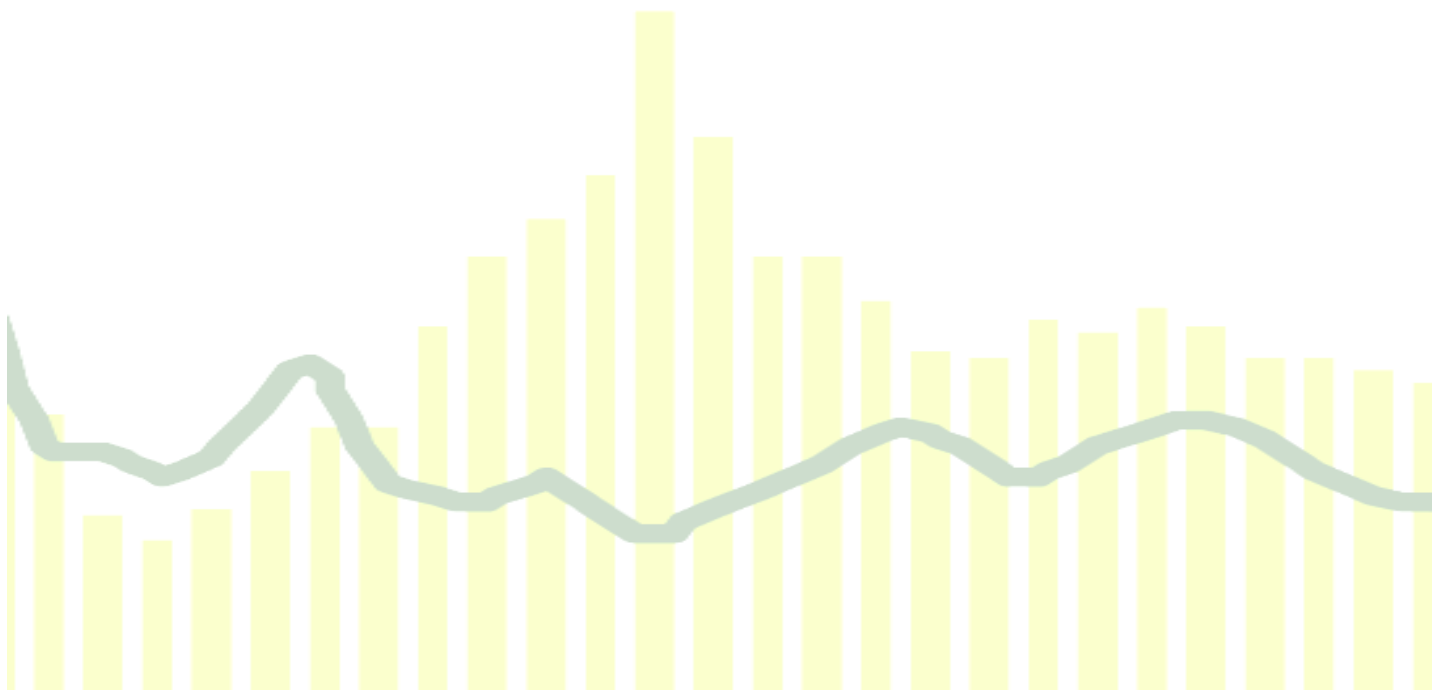


United Nations
Department of Economic and Social Affairs

Population Division

Technical Paper
No. 2015/3

Population Ageing, Intergenerational Transfers and Demographic Dividend in Ecuador



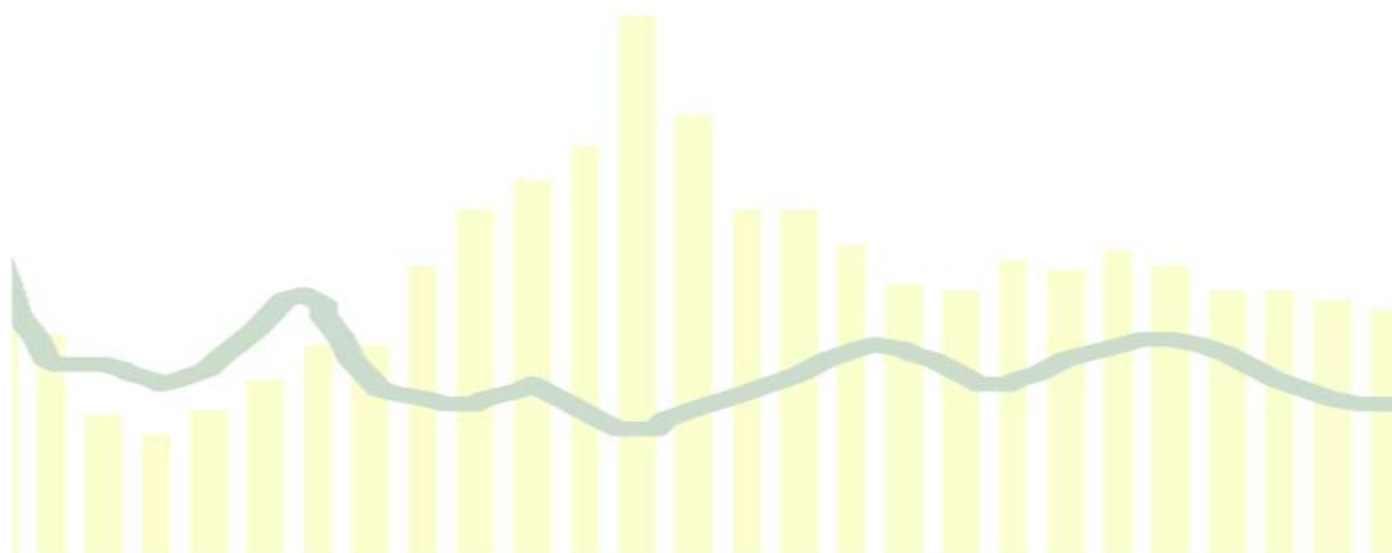
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Population Ageing, Intergenerational Transfers and Demographic Dividend in Ecuador

Luis Rosero-Bixby, Lilianna Roldán and Francisco Caravajal



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PREFACE

The Population Division of the Department of Economic and Social Affairs provides the international community with timely and accessible population data and analysis of population trends and development outcomes for all countries and areas of the world. To this end, the Division undertakes regular studies of population size and characteristics and of all three components of population change (fertility, mortality and migration). Founded in 1946, the Population Division provides substantive support on population and development issues to the United Nations General Assembly, the Economic and Social Council and the Commission on Population and Development. It also leads or participates in various interagency coordination mechanisms of the United Nations system. The work of the Population Division also contributes to strengthening the capacity of Member States to monitor population trends and to address current and emerging population issues.

The purpose of the Technical Paper series is to publish substantive and methodological research on population issues carried out by experts within and outside the United Nations system. The series promotes scientific understanding of population issues among Governments, national and international organizations, research institutions and individuals engaged in social and economic planning, research and training.

This paper analyses economic flows over the lifecycle in Ecuador, a middle-income country that is anticipating rapid population ageing. Using the National Transfer Accounts (NTA) framework, the paper develops estimates of age patterns of production and consumption, as well as the magnitudes of the various types of economic transfers between age groups for Ecuador for 2006 and 2011. These estimates add to the database of countries participating in the international collaborative NTA project. Analyses of the estimates point to important socioeconomic transformations that took place in Ecuador between 2006 and 2011, such as increases in public transfers to older persons and in older persons' net transfers to younger people. The paper concludes with an assessment of the demographic dividend in Ecuador, noting that the window of accelerated economic growth associated with the favourable demographic shifts that led to an increase in the ratio of producers to consumers would soon close. This paper was prepared by Luis Rosero-Bixby, Lilianna Roldán and Francisco Caravajal and benefited from comments received from Jorge Bravo and Mun Sim Lai.

The Technical Paper series as well as other population information can be accessed on the Population Division's website at www.unpopulation.org. For further information concerning this publication, please contact the office of the Director, Population Division, Department of Economic and Social Affairs, United Nations, New York, 10017, USA, telephone +1 (212) 963-3209, fax +1 (212) 963- 2147, email: population@un.org.

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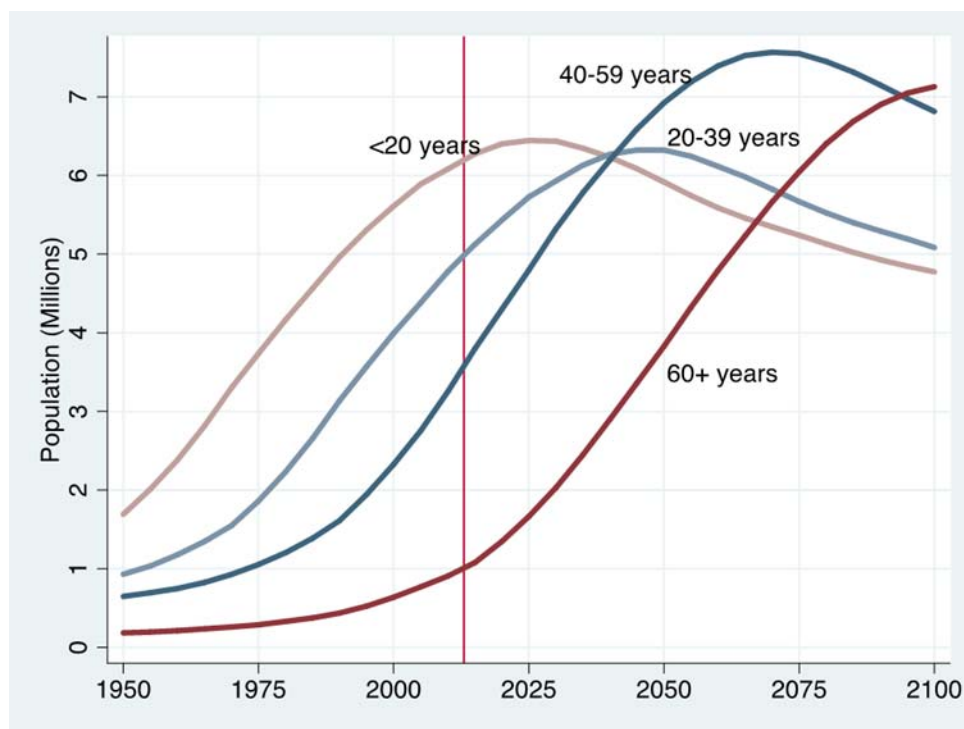
POPULATION AGEING, INTERGENERATIONAL TRANSFERS AND DEMOGRAPHIC DIVIDEND IN ECUADOR

Luis Rosero-Bixby, Consultant; Liliana Roldán, Secretaría Nacional de Planificación y Desarrollo del Ecuador; Francisco Caravajal, Banco Central del Ecuador

1. INTRODUCTION

Ecuador, an Andean country of about 15 million inhabitants, is moving into the final stages of a demographic transition towards high levels of life expectancy, low birth rates and an ageing population. Whereas, fast population growth was a major expression of the demographic transition in the twentieth century, a radical re-composition of the population by age will be the main demographic feature of population change in the twenty-first century. In Ecuador, as in the rest of Latin America, demographic changes by age groups can be seen as occurring as a succession of waves as shown in figure 1. The overall transition process entails a shift from a numeric predominance of young people towards middle-aged adults and ultimately to the reign of older people. The six million Ecuadorians under age 20 years in 2010 represented 40 per cent of the total population, following a peak share of 55 per cent in 1970. But people under age 20 will constitute only 20 per cent of the population at the end of the twenty-first century, yielding their status of the largest 20-year age group by the year 2040 to two older age groups: the group of 20-39 year-olds and of 40-59 year-olds. The under-20 age group is expected to be surpassed in size by the group of adults aged 60 years or over (older persons) by the year 2070. By the end of the century, older persons are expected to outnumber each of the younger 20-year age groups. By then, the 60 years or over age group will constitute about 30 per cent of the Ecuadorian population—a big jump from their 6 per cent share in 2010.

Figure1. Population by broad age groups, Ecuador, 1950-2100



Source: CELADE, 2011.

This transition from a youthful to an ageing population—a process that normally happens only once in the history of nations and unfolds over a period of several decades—has important social and economic repercussions that bring both challenges and opportunities for public policies. Underlying these challenges and opportunities is the human economic life-cycle, which usually includes long initial and final period of lifecycle dependency in which production is insufficient to meet consumption needs. The economic life-cycle also includes a critical intermediate period or age range in which individuals produce more than what they consume. To cover for the “life cycle deficit” (LCD) of the early and late ages, Ecuador, like other societies, has developed institutions and mechanisms to transfer resources from surplus to deficit ages, either inter-generationally at a given point in time, or across time within the same generation. The retirement pension system is an example of such an institution in the public realm. In the private sphere, the family stands out as the main institution that provides for the needs of children, and in some cases, for older people as well. Private institutions such as banks, savings and loans corporations, the housing market that allow for the accumulation and disposal of savings and wealth are a third example of the mechanisms allowing the transfer of resources over time from surplus to deficit ages (Lee and Mason, 2011).

The “generational economy” (Lee and Mason, 2011) provides an analytical framework to study economic flows with a generational perspective, including the aforementioned institutions and mechanisms to produce, consume, save and share resources over the economic lifecycle. The “National Transfer Accounts” (NTA) is the accounting instrument developed for describing the generational economy (United Nations, 2013). In addition to the measurement of the inter-age economic flows, NTA allow to assess the economic effects of the changes in the age-structure of a population. NTAs can be viewed as a disaggregation by age of national account aggregates.

This paper reports on the results of the NTA estimates for Ecuador for 2011, complemented with estimates for 2006, to assess the important socioeconomic transformations which occurred in Ecuador in this period. The estimates developed here add to the database of about 50 countries participating in the international collaborative NTA project.¹

Ecuador is a middle-income country with a GDP per capita at purchasing power parity (PPP) close to US\$10,000 in 2012 (World Bank, 2014). The most important driver of Ecuador’s economy is crude oil production and exports. The government owns the oil proper and private firms work under government subcontracts. Oil represented close to 20 per cent of the Ecuador’s GDP, 40 per cent of government revenue and more than 50 per cent of national exports in 2011 (Banco Central del Ecuador, 2014). Ecuador’s model of development and its economic policies changed dramatically in 2007 from a neoliberal, market orientation to a “neo-structural” model with strong state controls in the economy and prominent welfare role government (Grugel and Riggirozi, 2012). The NTA estimates reported here thus refer to the final year of the neoliberal model in 2006, which can also be taken as a baseline for evaluating the newly implemented neo-structural policies whose effects should show up in the 2011 NTA estimates.

2. DATA AND METHODS

NTA calculations require two types of data: (1) micro-data from household surveys to estimate the age profiles of the accounts, and (2) macro aggregates from the National Income and Product Accounts (SNA), which in Ecuador are estimated by the Central Bank (BCE). The macro aggregates serve as “controls” to ensure that the age-specific NTA profiles match the aggregate SNA figures. The micro

¹ Information on the NTA project and repository of country’s estimates is available from <http://www.ntaccounts.org/>.

database for estimating age profiles in 2006 was the national survey of living standards (acronym ECV, in Spanish) conducted by the National Institute of Statistics and Censuses (INEC) in 2005-2006 following World Bank methodology, including a sample of 13,600 households and 55,700 persons. The micro database for estimating age profiles in 2011 was the National Household Income and Expenditure Survey in Urban and Rural Areas (ENIGHUR) conducted by INEC mostly in 2011, with a sample of 40,000 households and 153,000 individuals. The micro-databases of these surveys are publicly available in the web site of INEC. The BCE provided detailed SNA tables, some of them unpublished, to determine the NTA macro controls. Since the detailed SNA data was available for only 2007-2011, some macro-controls for 2006 were derived by extrapolation from 2007 using available SNA data using the change in 2006-2007 for those missing.

The estimates of accounts in Ecuador followed the methods described in the NTA manual (United Nations Population Division, 2013). Estimating age profiles of public health services required, however, some ad-hoc procedures. In 2011, the age profile of public health was estimated with data on the use of services from the National Survey of Health and Nutrition 2012 (ENSANUT, 2012) and administrative data on the average cost of those services. In 2006, a logistic regression model of the odds of using public health services by age was estimated with the available information in the ECV on use of health services for certain conditions (prenatal care, delivery, immunization, family planning and some infectious diseases). The corresponding parameters were used to derive estimates of age-specific public health consumption, which were then adjusted to match the macro-control from SNA.

The following seven NTA components were estimated: (1) consumption and its public and private components, including health and education; (2) labour income and its components (earnings and self-employment); (3) six types of tax revenues or public transfers to the government including payments to social security; (4) public transfers (cash and in-kind services) from government to the population; (5) private transfers received and given within and between households, including remittances from abroad; (6) asset income (from capital and property) received and paid by households and by the government; and (7) savings (positive or negative) private and public.

The INEC provided population estimates by single years of age for the years 2006 and 2011 (based on the 2000 and 2010 censuses); these were used to aggregate the age-profiles to the NTA macro controls. Population estimates and projections for the period 1950-2100 come from the Centre for Latin American Demography (CELADE, 2011).

3. RESULTS: THE ECONOMIC LIFECYCLE IN ECUADOR

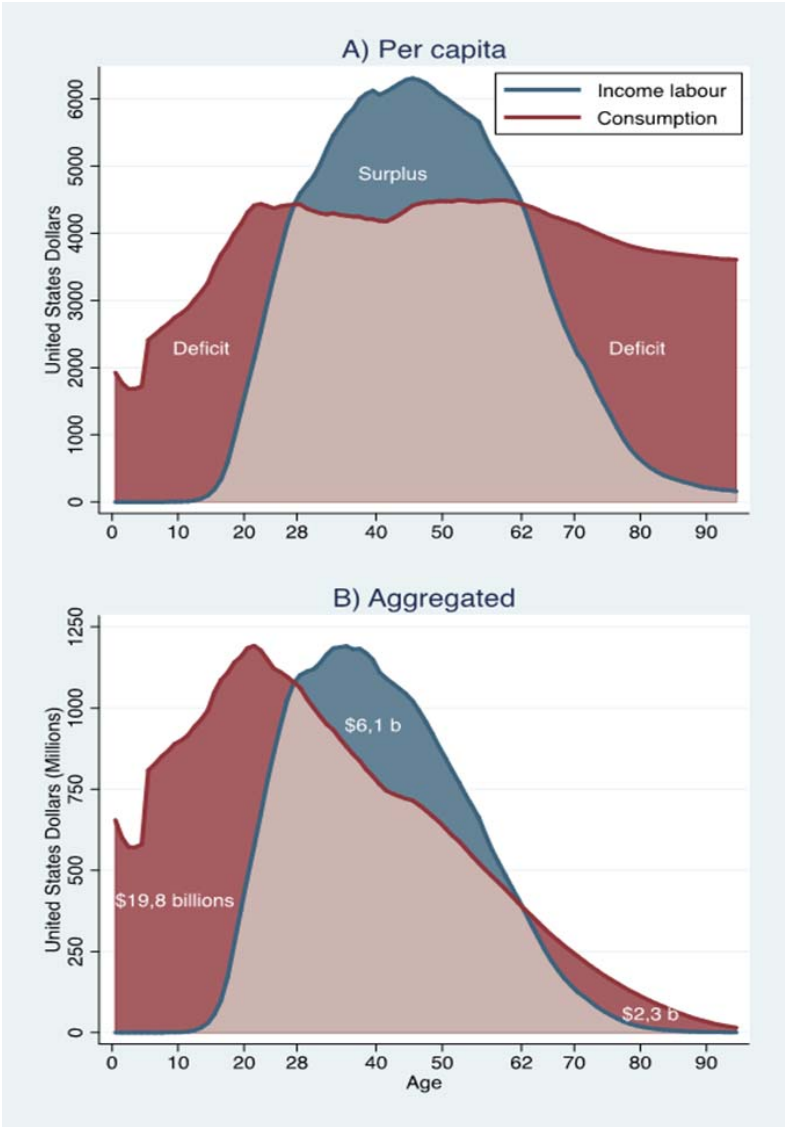
The age-specific per capita production of individuals (measured by the average labour income at each age) and the age-specific per capita consumption summarize the economic lifecycle as estimated for Ecuador in 2011 (figure 2a). The crossings of the curves of production and consumption show that there is a “lifecycle deficit” (denoted by LCD) between birth and 27 years of age, and from age 62 years onwards. In 2001, individuals in these age ranges consume more than what they produce on average, whereas from ages 28 to 61 years, Ecuadorians experienced on average a surplus of production over consumption. Labour income peaked at \$6,000 per year at age 50 years. Per capita consumption peaked at age 20 years, hovered above \$4,000 until about age 60, and then decreased. The per capita deficit at old age was much larger than that of the younger ages.

By introducing demography (that is, population by age) into the picture, the aggregate levels of production and consumption by age shown in figure 2b, was obtained. In this aggregated view of the lifecycle, the old-age deficit is much smaller than the deficit at young ages because there are much fewer

people in the older ages than in the younger ages. The aggregate surplus between ages 28 and 61 years is \$6 billion, which is not enough to cover the deficits of the early and later stages of the lifecycle, which amounted to \$20 billion and \$2.3 billion, respectively. Private and public asset income (including oil revenues) and remittances from Ecuadorian migrants living abroad covered the nearly \$16 billion LCD of the Ecuadorian economy in 2011, as detailed in the annex table.

The aggregate transfer accounts reflect the notable changes that took place in the economy of Ecuador from 2006 to 2011 (annex table). During this five-year period, consumption, labour income, the LCD and domestic private transfers increased between 53 and 69 per cent. The growth of the public sector was even faster: public transfers multiplied by a factor of 2.4 and public asset reallocation (which is strongly linked to oil rents) by a factor of 3.1. By contrast, income from private assets grew by only 18 per cent in five years.

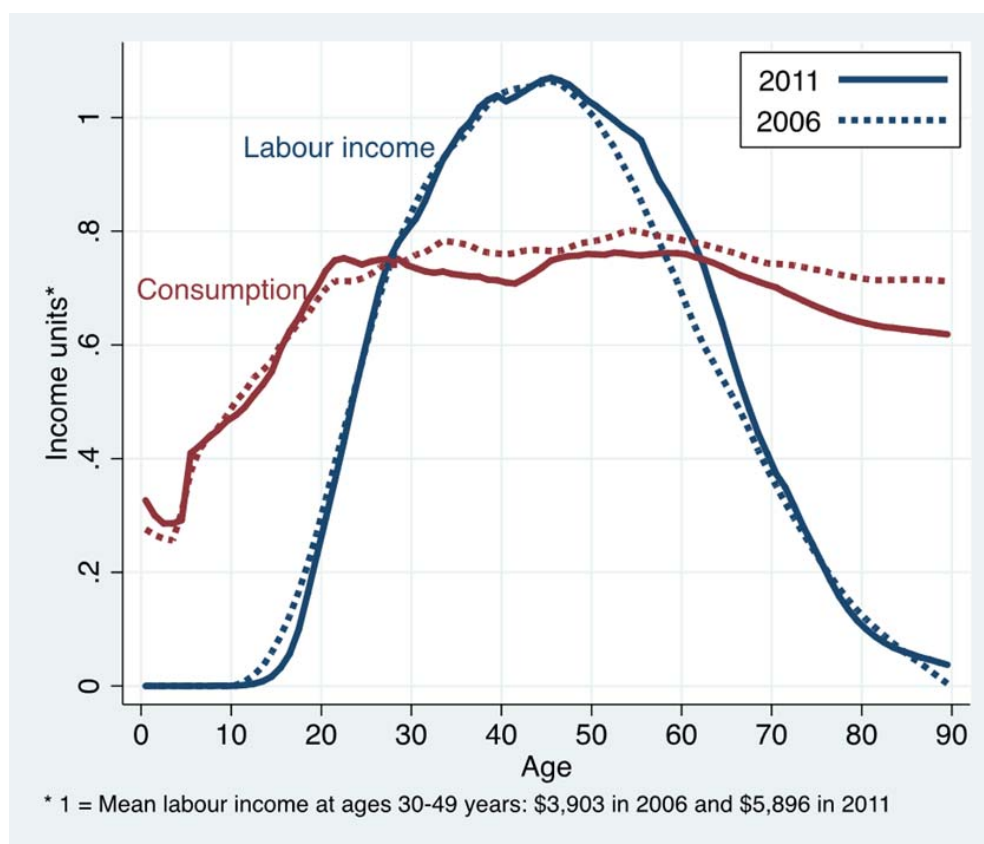
Figure 2. The per capita and aggregate economic lifecycle (ELC), Ecuador, 2011



Source: Author’s calculations based on data and methods described in section 2.

To what extent did this dramatic re-composition of the public and private sectors change the age profile of the lifecycle deficit and generational transfers in Ecuador? Figure 3 shows that the *shape*² of the economic lifecycle curves for 2006 and 2011 are similar, although some small changes can be observed. Perhaps the most significant change during this period was the reduction of the per capita old-age deficit, driven mostly by an upward shift of the normalized labour income curve at ages 50 to 70 years. This is likely the result of the increases in minimum wages and remunerations to low-skilled workers, who are proportionally more numerous at these ages. Consequently, the upper limit of the surplus age range increased from 56 to 61 years. Interestingly, this shows that rising statutory retirement age is not the only way of reducing the LCD at older ages.

Figure 3. The normalized, per capita economic lifecycle, Ecuador, 2006 and 2011



Source: Author's calculations based on data and methods described in section 2.

Another minor change observed during the aforementioned period is the reduction of labour income at young ages, a likely consequence of higher school attendance and stricter laws against child labour. In turn, the normalized consumption curve of adults shifted a bit downward during this period. This did not entail a reduction in living standards (absolute income levels were 50 per cent higher in 2011 than in 2006) but it does reflect slightly higher savings rates.

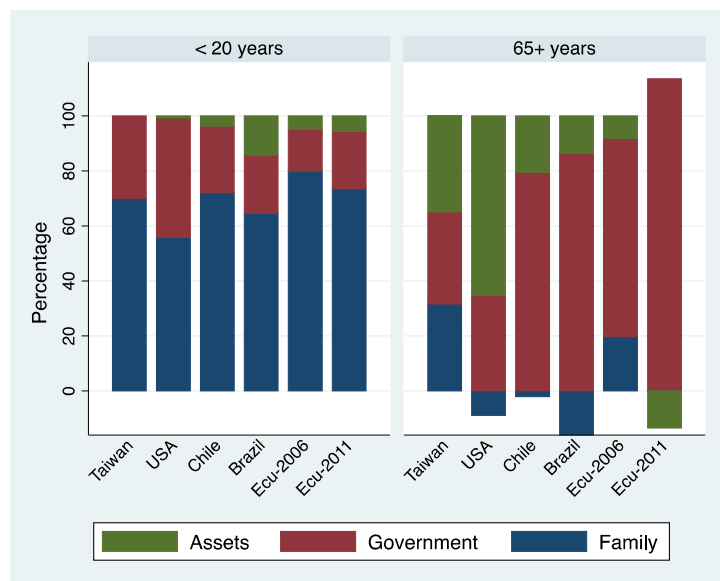
² Note that the curves for 2006 and 2011 in figure 3 (and those in the remaining figures in this report) are normalized by “income units”, meaning that they are divided by the average labour income from ages 30 to 49 years.

4. RESULTS: GENERATIONAL TRANSFERS IN ECUADOR

To finance the lifecycle deficits (LCDs) of the young and older ages, societies have developed systems of generational transfers. Understanding these transfer systems is essential to assessing the magnitude of the demographic dividend and formulating medium and long-term public policies to reduce generational inequities and to meet the challenges of demographic ageing. There are three types of generational transfers. The most straightforward and traditional type is the private transfers that occur within the family: adult providers transfer some of the income they earn to cover the needs of children and sometimes of parents and grandparents as well. These familial transfers are the bulk of the “private transfers” in NTA, which also include transfers between households and remittances. The second type of transfer is “public”, namely, those transfers that take place through the government. In public transfers, the government acts as intermediary between individuals who pay taxes and the beneficiaries who benefit from the government spending in the form of in-kind services such as education, health, justice and police, as well as cash transfers such as retirement pensions and other welfare payments. In addition to public and private transfers between generations, a third mechanism to cover old-age deficit are asset-based reallocations within the lifecycle of the same individual. These reallocations consist of the accumulation of assets in surplus ages to be used for financing consumption at older ages. An example of asset accumulation is the acquisition of a family house with mortgage payments during mostly young and middle ages.

Figure 4 shows the importance of the three types of transfers to fund the LCD in the population under 20 years and over 65 years of age in Ecuador in 2006 and 2011, as compared with a few other countries or areas with available data. Familial, private transfers are by far the main source of support for young people in all countries. The government funds 20 to 40 per cent of young-age deficit mostly through the provision of public education. Asset-based reallocations are very small or zero at these young ages in most countries. The main source of variation of transfers to the younger ages is that high-income economies such as the United States of America and to a lesser extent, Taiwan, Province of China, transfer more resources to children and adolescents in the form of public education, in both absolute and relative terms.

Figure 4. Sources of finance of the lifecycle deficit at young and older ages, Ecuador and other select countries or areas (2006-2011)



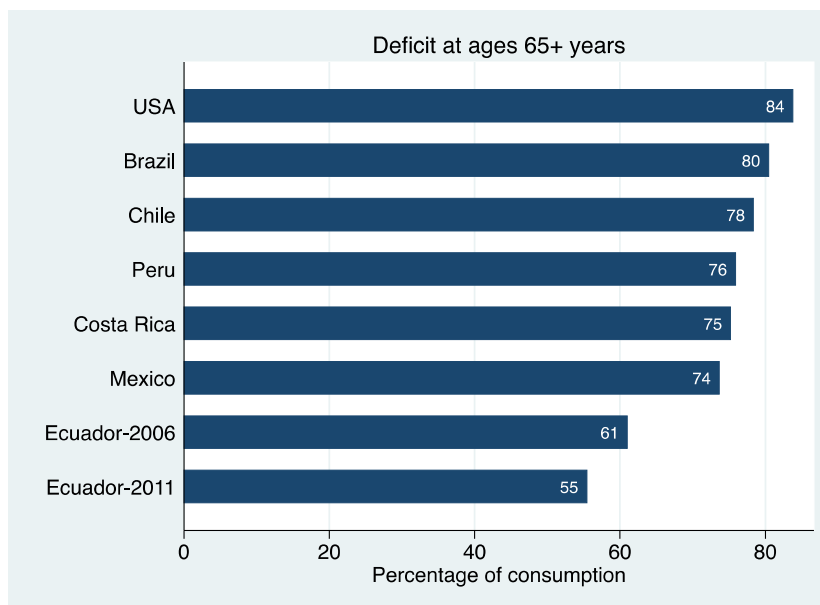
Source: Author’s calculations based on data and methods described in section 2.

By contrast, countries differ a lot in the types of transfers they use to cover the deficit at old ages (figure 4). In Ecuador, as well as in other countries in the Americas, older persons usually depend little on upward private transfers (from children to parents). On the contrary, the dominant direction of transfer flows is downwards, as shown by negative or insignificant transfers in Brazil, the United States of America, Chile and Ecuador in 2011. Taiwan Province of China (like other economies in East Asia) is different in this regard, in that private transfers from children to parents are as important as public pensions. In some countries like the United States of America that have more developed capital and property markets, asset income as well as dis-savings are often the most important source of funding at old ages. In Ecuador and in other countries of Latin America, the government is the most important source of funding of the old-age LCD.

Figure 4 also shows the notable increase in public transfers (red portion of the bars) over the period 2006 and 2011 for both the young, and, especially, the older ages. Net public transfers to persons aged 65 years or over were greater than 100 per cent of LCD of Ecuador in 2011, which enabled older persons to have negative asset-based reallocations (green portion of the bars), meaning, to keep saving and to make “downward” transfers, to younger people in the population.

A peculiarity of Ecuador is its relatively high level of labour income at old ages, which has its origin in a traditionally weak social protection system. This means that labour income covers a high proportion of consumption of older people—about 40 per cent of those aged 65 years or over. In other words, the LCD at old ages, measured as a percentage of consumption at those ages, is relatively small in Ecuador, as shown in figure 5. The LCD of older persons in the United States of America is 84 per cent of consumption at those ages and it is 80 per cent of old-age consumption in Brazil. In Ecuador, the LCD at the older ages was only 61 per cent and 55 per cent of consumption in 2006 and 2011, respectively. Although this relatively smaller LCD at older ages puts Ecuador in a favourable position to deal with the upcoming fiscal pressures of population ageing, it is not something to be proud of since it signals adverse well-being of many elderly Ecuadorians who lack access to retirement benefits.

Figure 5. Old-age-lifecycle deficit in Ecuador and other countries or areas (2006-2011)

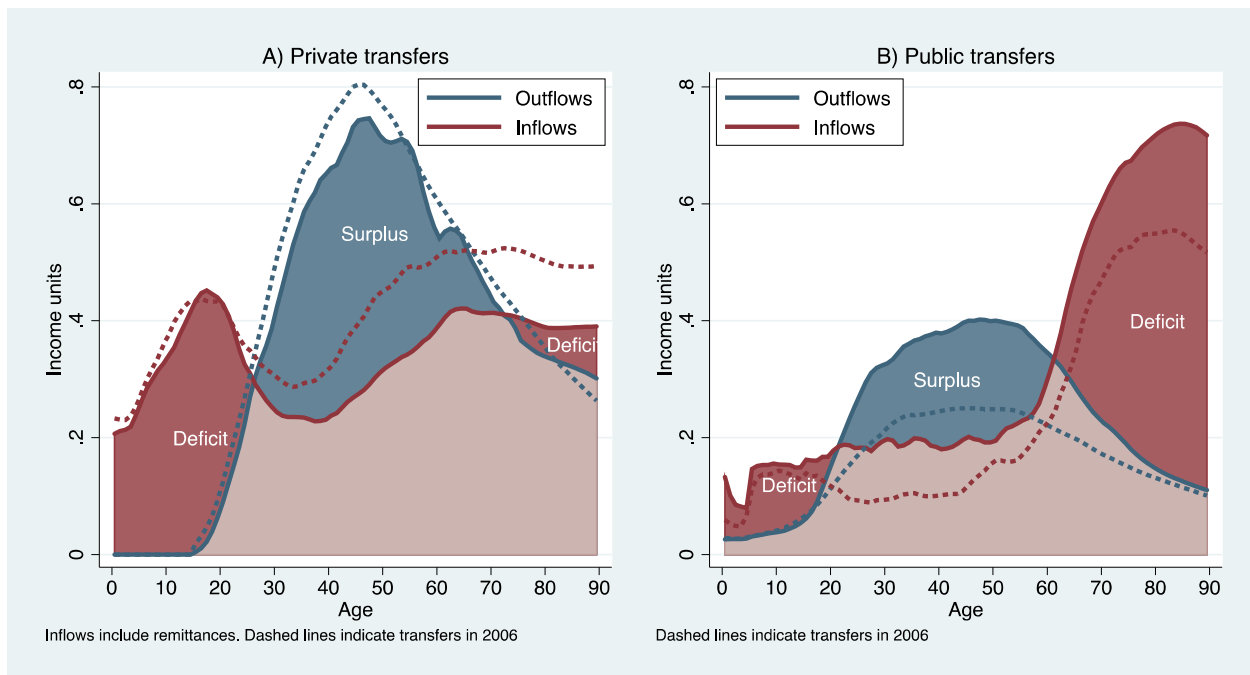


Source: Author’s calculations based on data and methods described in section 2.

5. RESULTS: FISCAL AND FAMILY LIFECYCLE DEFICIT

The curves of inflows and outflows of private and public transfers shown in figure 6, depict the equivalent of the economic lifecycle for Ecuadorian families and the Treasury. In the private sector (figure 6, panel A), the surplus ages during which Ecuadorians give to their families more than what they receive, ranged from 26 to 71 years in 2011 (26 to 66 years in 2006). People aged 45 years, registered the largest private transfer outflows, of 0.75 and 0.80 income units in 2011 and 2006, respectively (that is, an average of \$4,400 in 2011 and \$3,200 in 2006). These transfers go almost entirely to young household members.³ In 2011, older people were “net givers”, that is, they gave more than they received to family until age 71, and thereafter deficit is small. On average, people aged 65 years or over give as much as they receive in private transfers, including remittances received from foreign countries (see annex). If remittances are excluded, the aggregate domestic transfers to younger family members are 28 per cent higher than domestic transfers received (see annex). On balance, therefore, persons aged 65 years or over do not impose a financial burden on younger family members.

Figure 6. The lifecycle deficit of families and government, Ecuador, 2011



Source: Author’s calculations based on data and methods described in section 2.

In the public sector (figure 6, panel B), the curve of outflows from taxpayers to the government shows the tax burden by age and the curve of inflows represents the transfers made by the government to individuals, including in-kind and cash transfers. The surplus age period of this “fiscal lifecycle” goes from 21 to 60 years of age, and is similar in 2006 than in 2011. The per capita fiscal LCD shown in figure 6, panel B, is much bigger at old ages than at young ages. For example, in 2011, 80-year-olds received

³ Detailed NTA estimates showed that 97 per cent of domestic private transfers were within the household. The transfers to other households, consisting of gifts, alimony payments and the like, amounted to just 3 per cent of total transfers.

public transfers in the amount of \$4,250 on average, while 12-year-olds received on average just \$900 in that year.⁴

Public transfers, both inflows and outflows, increased substantially at all ages between 2006 and 2011. For example, among 50-year-olds, taxes paid increased from 0.25 to 0.40 income units from 2006 to 2011 (figure 6, panel B), or from \$980 to \$2,400, in absolute terms. In turn, per capita public transfers to 80-year-olds doubled from \$2,150 to \$4,250 over the same period. By contrast, private transfers declined in relative terms, especially in adult ages. For example, an average 80-year-old received family transfers in the amount of 0.39 income units in 2011 compared to 0.50 in 2006, although, in absolute terms, there was an increment from about \$2,000 to \$2,300 from 2006 to 2011. It is quite possible that the increase in public transfers “crowded out” (that is, reduced the need for) private transfers to older persons.

6. RESULTS: THE SUPPORT RATIO AND THE DEMOGRAPHIC DIVIDEND

The so called “demographic dividend” occurs when the population of lifecycle surplus ages grow faster than the population of deficit ages, that is to say, when the number of equivalent producers grows faster than the number of equivalent consumers in the economy. In the public sector, a “fiscal demographic dividend” occurs when taxpayers increase faster than recipients of public transfers and in the private sphere, when the number of household providers grows faster than the household size (Lee and others, 2014). The overall *support ratio* is an indicator that summarizes this balance between providers (or producers) and consumers. This ratio shows how many *effective workers* there are for each *effective consumer*.⁵ Its computation combines the information about the age profiles of the economic lifecycle of figures 3 and 6 (assuming these stay constant over time) with the changing population by age at different time periods. The support ratio in Ecuador increased from 44 effective producers per 100 effective consumers in 1970 to a ratio of 55 per 100 in 2011. The support ratio is projected to continue to rise, to a maximum of 60 effective producers in 2050 (figure 7a). This increase of 38 per cent over the 80-year period from 1970 to 2050 is an estimate of the demographic dividend.

The demographic dividend can also be calculated over any prescribed period and can be expressed as the annual growth in the support ratio (figure 7b). In 2011, base year of the estimate, the dividend 0.5 per cent, meaning that the standard of living should increase that year by a ½ percentage point due to demographic change alone. Ecuador has enjoyed a positive demographic dividend since the early 1970s, with historical highs around 1995. Although the value of the dividend is declining, it is not expected to disappear until after 2050. After that year, Ecuador will have a negative demographic dividend, which means that, if other things remain the same, the advanced population ageing will make a negative net contribution to economic growth thereafter.

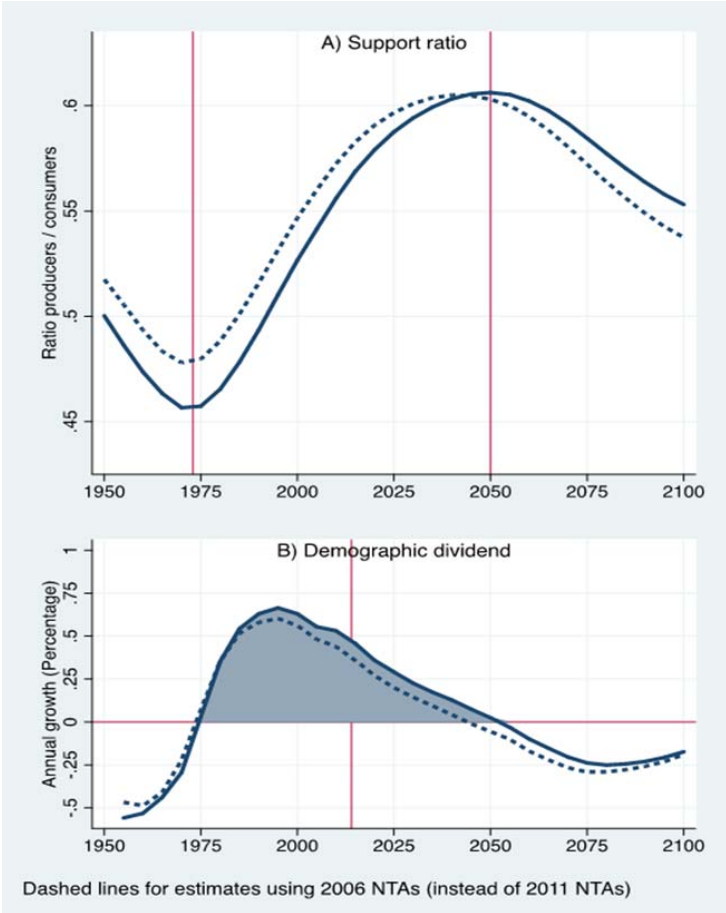
Figure 7 also shows that using the economic lifecycle curves of 2006 instead of 2011, results in slightly different time trends in the support ratio and demographic dividend. The economic changes in Ecuador between 2006 and 2011 already mentioned, have resulted in a higher and longer lasting (5 years longer) demographic dividend. The upward shift in per capita labour income at ages 50-70 years and the consequent reduction in the old-age LCD appear to be the direct determinants of this increased and longer lived dividend. The return of many migrants from Spain may have further contributed to enhance the dividend.

⁴ Public transfers to persons aged 65 years or over were mostly retirement pensions (48 per cent) and non-contributory pensions (36 per cent). The “*bono de desarrollo humano*” was established in 1999 and substantially increased since 2007. Public health services, which in other countries are of great importance, contributed only 7 per cent of transfers in Ecuador.

⁵ “Effective” consumers or producers are normalized by the average consumption or production of individuals aged 30 to 49 years. For example, if five-year-old children consume half the average of people aged 30-49 years, these children will count as 0.5 effective consumer and as zero effective worker, since labour income at that age is nil (United Nations, 2013).

The demographic dividend materializes through and impacts two different sectors: a) households or families, and b) the treasury or the government. Put simply, for families, the dividend means there are more breadwinners relative to mouths to feed in the household. For the treasury, the dividend means more taxpayers relative to beneficiaries of public transfers.⁶ Figure 8 shows the estimated fiscal and family demographic dividends. For the family, the dividend is substantially higher and of longer duration than for the government. This is due to a substantially lower LCD at old ages for families, which makes population ageing less of a problem. The estimates suggest that households in Ecuador would be currently increasing their standard of living by about 1 per cent per year thanks to the family dividend. This dividend is expected to decline until its extinction around the year 2070.

Figure 7. The support ratio and the demographic dividend, Ecuador, 1950-2100



Source: Author’s calculations based on data and methods described in section 2 and definitions in the main text of this section.

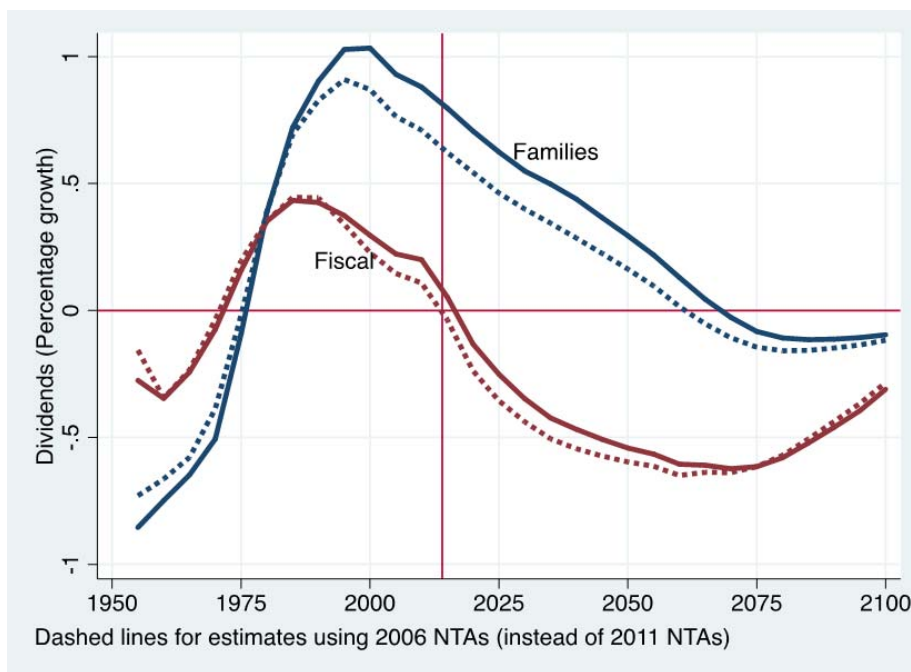
Ecuadorian fiscal position has benefited (although more modestly than for families) from a demographic dividend that spanned more than three decades (roughly, from 1960 to the present), when tax collection has grown faster than public spending because of demographic changes. These good times are coming to an end; starting in 2015, the treasury will face a negative fiscal dividend, meaning

⁶ Both the fiscal and family dividends are driven by the number of people, not by monetary figures or productivity values.

demographic conditions adverse to the fiscal balance, which are expected to persist in the foreseeable future.

As with the general demographic dividend, the changes that occurred in Ecuador’s economy between 2006 and 2011 have extended the duration and enlarged the size of the dividends, especially for the family (figure 8).

Figure 8. The demographic dividend for families and government, Ecuador, 1950-2100



Source: author’s calculations based on data and methods described in section 2 and definitions in the main text of this section.

7. DISCUSSION: DEMOGRAPHIC DIVIDEND AND PUBLIC POLICIES

The demographic dividend does not mean automatic increases in income or well-being, but just the *potential* of a growth that may or may not materialize. This dividend presents an opportunity that the country may or may not realize; depending on what behaviours are changed and policies are implemented, countries can take advantage of it in different degrees. The magnitude and duration of the dividend may change as it did after the economic transformations of 2006-2011.

A relatively fast-growing labour force is at the origin of the demographic dividend, so taking advantage of it requires creation of job opportunities in accordance with the growing labour force. If a larger working-age population translates into unemployment or lower wages, the dividend would not materialize; on the contrary, frustrations and social unrest might emerge as a result. To the extent that Ecuador’s economy has been at or near full-employment in recent years, it looks like the dividend did indeed materialize into its two components: higher well-being in households and a respite to fiscal pressures.

The negative fiscal dividend that will soon hit Ecuador will be an important challenge that requires the timely adoption of pertinent policies. Examples of policies to address this potential problem are to promote savings and asset accumulation, especially among middle-aged adults, which would help to reduce the dependency at older ages on public transfers. Another policy worth evaluating would be to induce changes in the age-profile of the tax burden, so that population ageing could act not negatively but favourably for tax collection. This could be achieved by gradually shifting the balance of taxes away from taxes on labour and production and toward taxes on wealth and asset income. By contrast, short-sighted policies should be avoided, for example those seeking to improve the fiscal position by reducing public funding for education, or those that would increase unfunded transfers to the older population taking advantage of the shrinking proportions of the younger population. Conversely, a wise investment linked to the demographic dividend would be to improve human capital through investments in education and health for all, which could result in a healthier, more economically self-sufficient, less vulnerable older population in the future.

REFERENCES

- Banco Central del Ecuador (2014). Web Site of the Banco Central del Ecuador: Cuentas Nacionales. Available from <http://www.bce.fin.ec/index.php/cambio-de-ano-base>. Accessed 30 October 2014.
- Centro Latinoamericano de Demografía (CELADE) (2011). Long-range population projections. Demographic Observatory N. 11. Santiago, Chile: United Nations ECLAC Publication E/S.12.II.G.10
- Grugel, J. and P. Ruggirozzi (2012). Post-neoliberalism in Latin America: Rebuilding and reclaiming the State after crisis. *Development and Change*, vol. 43, No. 1, pp. 1-21.
- Instituto Nacional de Estadística y Censos (INEC) (2014). Electronic data files available for download from <http://www.ecuadorencifras.gob.ec/>. Accessed 14 July 2013.
- Lee, Ronald and Andrew Mason (2011). *Population Aging and the Generational Economy*. Cheltenham, United Kingdom: Edward Elgar Publishers.
- Lee, Ronald and others (2014). Is low fertility really a problem? Population aging, dependency and consumption. *Science*, vol. 346, No.6206, pp. 229-234.
- National Transfer Accounts Project (NTA) (2014). NTA project and repository of the NTA estimates for world countries. Available from <http://www.ntaccounts.org/>.
- United Nations Population Division (2013). *National Transfer Accounts Manual: Measuring and Analysing the Generational Economy*. Sales Number E.13.XIII.6.
- World Bank (2014). The World Bank Data by Country. Available from <http://data.worldbank.org/country>. Accessed October 30, 2014.

ANNEX

NTA BY BROAD AGE GROUPS, ECUADOR, 2006 AND 2011
(AGGREGATE FIGURES IN MILLIONS OF CURRENT US DOLLARS)

<i>Flow Transfer</i> <i>Accounts</i>	<i>Total</i>	<i>Age groups</i>				
		0-19	20-29	30-49	50-64	65 +
Year 2011						
(Population millions)	(15.27)	(6.36)	(2.55)	(3.73)	(1.62)	(1.00)
Labour income	41,774	1,041	8,626	21,823	8,564	1,721
Consumption	56,008	17,486	11,203	16,057	7,256	4,006
Lifecycle deficit	14,233	16,445	2,577	-5,767	-1,307	2,285
Private transfers						
Net domestic	0	12,054	1,095	-9,190	-3,440	-520
Received, domestic	26,007	12,288	4,655	4,509	2,684	1,872
Provided, domestic	26,007	234	3,560	13,699	6,124	2,392
Remittances from abroad	2,685	40	336	995	790	524
Public transfers						
Net public transfers	0	3,415	-1,052	-3,998	-954	2,589
Received by the population	18,537	5,235	2,763	4,214	2,566	3,760
Outflows to government	18,537	1,820	3,815	8,212	3,520	1,171
Asset based reallocations						
Net private	1,575	-287	313	2,289	338	-1,078
Private asset income	20,877	14	942	8,235	7,268	4,419
Private savings	19,302	301	628	5,946	6,929	5,497
Net public	9,974	1,223	1,884	4,137	1,958	771
Public asset income	2,605	319	492	1,080	511	201
Public savings	-7,369	-904	-1,392	-3,057	-1,446	-570
Year 2006						
(Population millions)	(13.96)	(6.01)	(2.40)	(3.39)	(1.34)	(0.82)
Labour income	24,711	1,049	5,445	13,126	4,206	885
Consumption	34,278	10,832	6,776	10,183	4,124	2,363
Lifecycle deficit	9,567	9,783	1,331	-2,943	-82	1,478
Private transfers						
Net domestic	0	7,773	315	-6,018	-1,857	-213
Received, domestic	16,971	8,040	2,993	3,173	1,620	1,145
Provided, domestic	16,971	267	2,678	9,191	3,477	1,358
Remittances from abroad	3,141	47	385	1,253	951	506
Public transfers						
Net public transfers	0	1,493	-632	-1,757	-169	1,064
Received by the population	7,590	2,629	912	1,432	1,052	1,565
Outflows to government	7,590	1,136	1,544	3,188	1,221	500
Asset based reallocations						
Net private	3,236	-80	657	2,309	467	-116
Private asset income	17,747	5	863	7,386	5,720	3,773
Private savings	14,511	86	207	5,077	5,253	3,889
Net public	3,190	550	606	1,270	526	237
Public asset income	1,227	212	233	489	202	91
Public savings	-1,963	-339	-373	-782	-324	-146

Source: Author's calculations based on data and methods described in section 2.