

Socioeconomic Differences in the Distribution by Age of Public Transfers in Mexico

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This paper reports the study of public transfers in terms of their distribution by age and the number of years of education of the the household head. The educational level is used as a reference variable to define socioeconomic status, due to the correlation of this variable with the general socioeconomic status of households, as documented extensively in the past (Székely, 1999) (Lustig and Székely, 1997). The study of public transfers by socioeconomic level is relevant because, on the one hand, taxes have effects on the purchasing power of families and; on the other hand, in-kind transfers contribute to ease the burden on the cost of important services, such as education and health. Additionally, monetary transfers serve as a support mechanism to mitigate the effects of extreme poverty and lack of opportunities for specific population groups. Two years of study are reported in this paper to evaluate policy changes taken by the Mexican Government within a period of ten years.

Motivation

The study of public transfers by socioeconomic status is relevant because of two fundamental facts. First, the enormous inequality prevailing in Latin America, recognized by many studies (López-Calva and Lustig, 2010) as the most unequal region around the globe in recent times. Mexico, being part of this region is not exempt from this phenomenon, because in a sample of 17 countries in 2009, it is located in the middle, below (with respect to their Gini index) countries like Brazil and Chile, but above of Costa Rica, El Salvador, Argentina, among others (López-Calva and Lustig, 2010). Second, the net impact on the socioeconomic status of families that such transfers may affect because, on the one hand, taxes limit the purchasing power of families but; on the other hand, in-kind transfers contribute to ease the burden on the cost of important services, such as education and health. Additionally, monetary transfers serve as a support mechanism to mitigate the effects of extreme poverty and lack of opportunities for specific population groups.

National Transfer Accounts (NTA) have been designed to measure the amount and direction of economic flows between age groups in a way consistent with National Accounts (<http://www.ntaccounts.org>). Public transfers are part of this scheme as a mechanism for redistribution of intergenerational flows among individuals in different age groups, where the government mediates in this process. The study of NTA, however, has not yet been fully developed because, under the current scheme, it is not possible to analyze the impact of transfers on particular groups of the population. In the case of Mexico, Mejía-Guevara (submitted) has reported a life cycle study by subgroups in Mexico, where the sub-populations are defined according to the geographical distribution of households. This study introduces the analysis by subgroups, defining socioeconomic strata from the level of education attained by the household head.

Public transfers under the NTA framework

Public transfers are an important element in the NTA framework for its role in financing economic life cycle. They serve as a mechanism for intergenerational transmission, with the government as a mediator, to raise funds for certain age groups of the society, mainly in working age, and redistribute them to specific age groups, primarily young and elderly. There are two kinds of public transfers: inflows and outflows. On the one hand, transfer inflows include taxes and social security contributions; on the other hand, transfer outflows may take the form of in-kind and in cash. Table 1 lists the components of transfer inflows and outflows which are considered in this study.

Table 1. Composition of public transfer inflows and outflows in 2004

Entry	Exit
1. Tax	1. In-kind
a. ISR	a. Education
b. VAT	b. Health
c. IEPS	c. Other
d. Tenencia	2. Cash (social programs)
e. ISAN	a. OPORTUNIDADES
f. Other	b. PROCAMPO
2. Social security contributions	c. Other

Source: own with information from the Ministry of Finance in 2004.

As detailed in Table 1, these are the taxes included in this paper: Income taxes (ISR), the Value Added Tax (VAT), Excise taxes (IEPS) -which include taxes on tobacco, alcohol, and gasoline and diesel-, Taxes to housing property (Tenencia), New Car Tax (ISAN) and Other. In terms of revenue, ISR, VAT and IEPS taxes are the most important, since the sum of them represent over 90% of the public sector fiscal revenue in 2004. In-kind taxes consist of the expenditures made by the government in the form of education, health, and public administration and defense. Cash transfers include expenditures on public programs (OPORTUNIDADES and PROCAMPO are the most important programs), basically, in the form of cash transfers and government welfare.

Details of the age distribution of public transfers for the same year are shown in Mejía-Guevara (2011). The age distribution obtained by the author, however, represent national mean values, although it provides the direction and the amount of these intergenerational flows, they do not allow to see the magnitude of the contribution made by individuals in different socioeconomic groups.

Data and methods

The Household Income and Expenditure Survey (called ENIGH in Mexico) from 2004, which is administered by the National Bureau of Statistics in Mexico (INEGI), is the main source used in this study to define socioeconomic strata and the age distribution of public transfers. Information for the macroeconomic adjustment of public accounts has been obtained with information from

the Ministry of Finance in 2004 (SHCP, 2004) and the System of National Accounts of Mexico (SCNM, 2004), based on the methodology of the United Nations System of National Accounts agreed in 1993 (UNSNA, 1993). The number of years of schooling of the household head was used as a reference variable in the definition of socioeconomic groups. The household head is the one who so reported in the ENIGH.

The number of years of education was constructed with information obtained from this source, as shown in Table 2. The first column indicates the level of education reported in the survey, whereas the second contains the number of degrees that should be attended to complete the respective level. The final column illustrates the equivalence, in years of instruction with respect to the first and second columns in the table. For example, an individual with primary education will be assigned a value from 1 to 6 depending on the number of degrees completed in this educational level, whereas individuals with secondary education will be assigned values between 7 and 9 years of education (6 for completing primary school plus the number of grades of secondary education completed), and so on.

Table 2. Educational attainment of household head and number of years of education

Level of education	Level	Years of education
None	0	0
Preschool	1-3	0
Primary	1-6	1-6
Secondary	1-3	7-9
High school	1-3	10-12
Normal*	1-4	10-13/13-16
Technical Career **	1-4	7-10 / 10-13 / 13 -16
Professional	1-6	13-18
Master	1-4	19-20
PhD	1-3	21-23

* The allocation of the number of years of schooling is done based on the following criteria: a) 10-12 years when one has previously completed secondary education, b) 13-16 years of education when one has completed the high school level.

** The assignment of the number of years of schooling is done based on the following criteria: a) 7-10 years with primary education completed, b) 10-12 years old when one has completed high school, and c) 13-16 years of education when one has completed the high school level.

Source: Own with information from the ENIGH 2004.

Based on the number of years of education of household head -built in the Table 2 - there are four strata reported in the first column of Table 3. That is, the stratum I is composed of households whose head has reported having no education or she only has completed kindergarten, but only a few (or none) years of primary education. For its part, the stratum II includes households whose head reported having completed elementary education, but did not complete secondary education, even if she would have attended a few degrees. Stratum III is comprised of households headed by secondary or incomplete high school educated and, finally, the fourth stratum includes households with heads with undergrad and/or graduate education.

Table 3. Educational attainment of household head and number of years of schooling completed

Stratum	Level	Years of education
I	None, preschool or primary incomplete	[0-6)
II	Incomplete primary and secondary	[6-9)
III	Secondary and incomplete high school	[9-16)
IV	Professional, Masters and PhD	16+

Source: Own using information in Table 2.

Macroeconomic adjustment

All accounts reported in the NTA project must be tailored to their national totals. In practice, however, is difficult to locate or there are no reports on National Accounts of public transfers by the subgroups defined above. The solution to this problem is addressed by adjusting the national total, built by Mejía-Guevara (2011), in proportion to the respective totals obtained from the sample information.

Preliminary Results

Figure 1 shows the age composition of each of the four groups formed from the educational level of household head. The table shows that the largest number of children, between 0 and 14 year old, is concentrated in households whose head reported between 9 and 15 years of education, followed closely by the group whose household head has reported no instruction. In the third and fourth places are the groups with heads of family reporting 6 to 8, and more than 16 years of schooling, respectively. Groups of adolescents and working-age adults, show similar patterns, except for strata I and III.

[Figure 1 around here]

Figure 2 displays the distribution of the components of public transfer inflows. The graph 2 (a) shows that the poorest (red curve) benefit largely from social assistance, which is not surprising, considering that the design of the major social programs in the country are focused on those groups. Elderly also benefit substantially from cash transfers. Then, rich strata benefit the less from this kind of transfers, but poor strata benefit the most.

For pension benefits, illustrated in Figure 2 (b), we observed the opposite behavior, because more educated strata are the main beneficiaries for this kind of public support. The distribution of pension benefits reveals discrepancies in the labor market, accentuated in recent times, as well as its rigidity, where only some groups of the population have access to this type of support: composed by formal sector workers, from public and private sectors.

[Figure 2 around here]

Figure 3 illustrates the most significant components of public transfer outflows. The four figures depicted in the graph clearly shows that the higher strata bear the tax burden and, in particular, individuals in the productive age groups. The stratum IV excels, whose contributions are higher in two or three times those received by the stratum that follows -in descending order. The distribution of taxes and social security contributions [Figures 3 (a) and (b), respectively], are characterized by a significant drop in contributions from the wealthier strata, around ages 40 to 45 year old, that could be explained because at this stage of the working life, mature individuals may begin to lose their jobs. It also highlights the stratum III, because of its proximity to the national average (black line) in income-related contributions.

[Figure 3 around here]

When adding all the components of the transfer inflows, and comparing them to the national average [Figure 4 (a)], we can see that there is no significant difference in the distribution of children and prime-aged adults, but there is an important difference for elderly groups. The effect of pension benefits stands out clearly in the case of stratum IV, and that triggers the average transfers to these age groups, which show values much higher than the national average. Total transfer outflows are display in Figure 4 (b), the effect of the two upper strata is much more pronounced in this case, as the values in the stratum IV represent around three times the national mean. Meanwhile, the lower two strata lie always below that average.

[Figure 4 around here]

Finally, net transfers result from the difference between transfer inflows and outflows, for each stratum considered throughout so far. The results are shown in Figure 5, where we can see the relative size, age and socioeconomic status, between transfer inflows and outflows. That is, for the upper strata, III and IV, transfer outflows dominate for most age groups, except for very old age groups, while transfers inflows dominate for strata I and II. In other words, the largest contributors are individuals in the upper strata, but those who receive higher average benefits are in lower strata. As expected, the effect of transfer inflows is stronger in the productive age groups, significantly different from the national average in the stratum IV, but less negative (or positive) in the two lower strata.

[Figure 5 around here]

The final version of the paper will include results from 1994. Then, a comparison with the results presented here will be possible. We think that a comparison will be very important since in the period from 1994 to 2004, there have been important policy changes in Mexico. For instance, the NAFTA (North America Free Trade Agreement) started in 1994, the economic downturn of 1995, the transition from the unfunded PAYGO system to the funded benefit program for formal workers in the private sector that took place 1997, and the recession of 2002. All these events have to be taken into account in the last version as well as the consideration of the incidence of the public transfers by each socioeconomic group considered here.

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Figure 1. Age distribution of population by age and years of education of household head: Mexico 2004

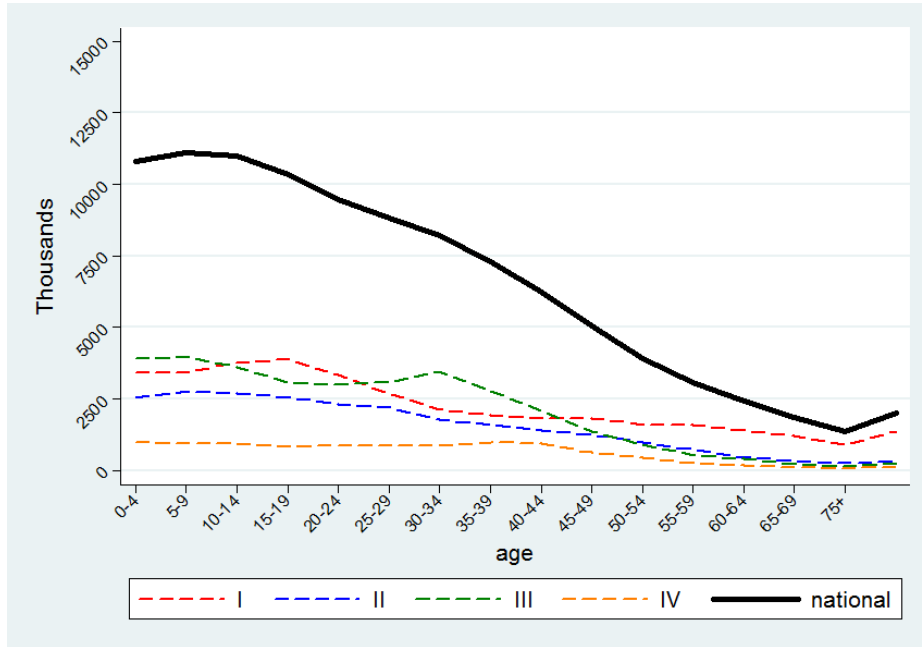


Figure 2. Composition of public transfer inflows by age and education of household head: (a) cash, (b) pensions: Mexico 2004

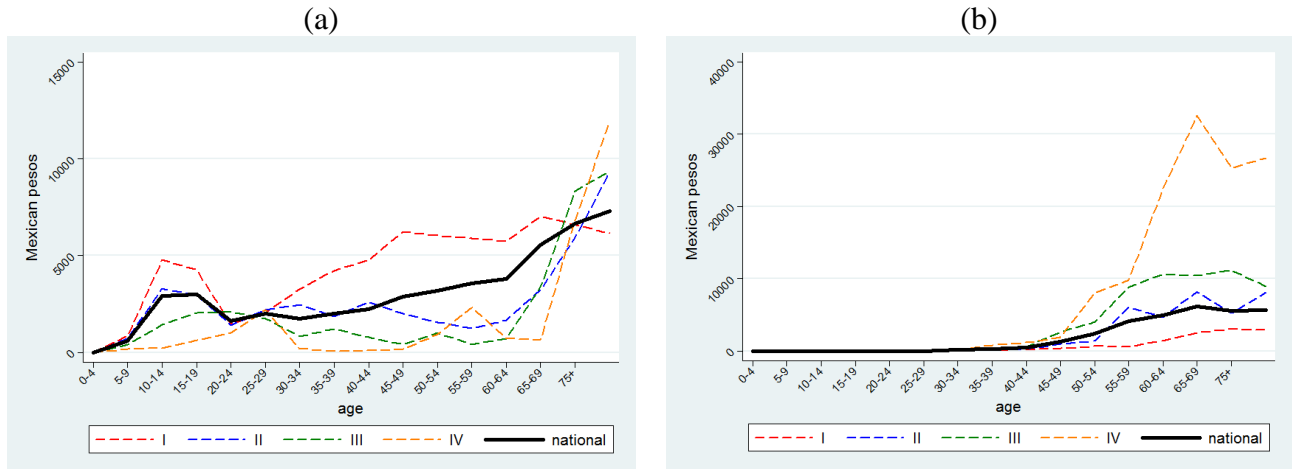


Figure 3. Composition of public transfer outflows: (a) ISR, (b) SSC, (c) VAT (d) IEPS by age and years of education of household head: Mexico 2004

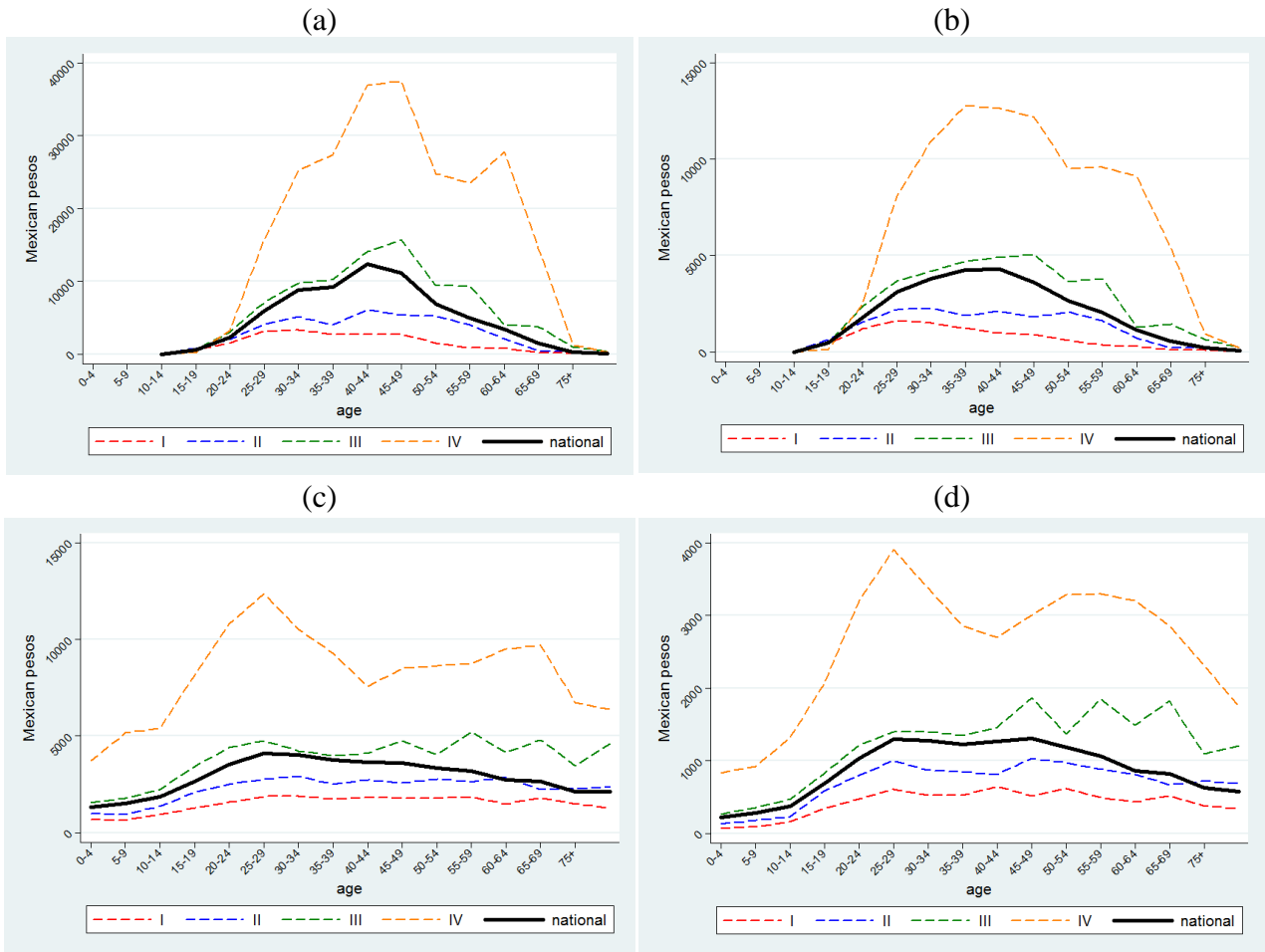


Figure 4. Public transfers by age and socioeconomic status: (a) inflows, (b) outflows: Mexico 2004

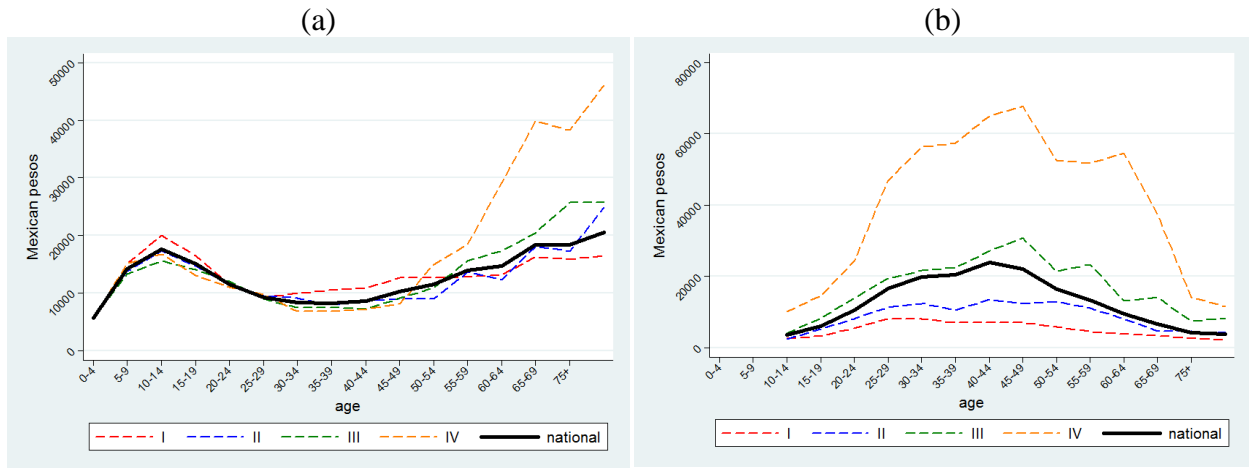


Figure 5. Net public transfers by age and socioeconomic status: Mexico 2004

