How effective are cash transfer programs in mitigating income instability ? evidence from the AUH in Argentina

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Abstract: Income instability is one crucial determinant of household vulnerability to falling back into poverty in developed and developing countries. This paper examines the effectiveness of a nationally implemented cash transfer program as a buffer against income instability among vulnerable households in Argentina. Using nationally representative household surveys from 2004 to 2015, it compares the income stability of eligible and non-eligible households to the Universal Child Allowance (AUH) program by measuring the coefficient of variation of income and transitions into poverty over one and a half years. The findings reveal that the AUH significantly reduces the time spent in poverty by 16% compared to a scenario without the program. Additionally, the program demonstrates a capacity to smooth income fluctuations among eligible households, with an average reduction of 10%. This effect is more pronounced when households experience a drop in income during the observed period. However, the program's impact diminishes in households with lower resilience to economic shocks, such as single mothers or those with dependent grandparents.

Keywords: Income instability, poverty, difference-in-difference, social protection, public policy

JEL: H53, I38, J31, J6

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1. Introduction

While the 2030 Agenda for Sustainable Development from the United Nations makes access to social protection a priority worldwide (Target 1.3), the coverage is still limited notably in the Global South (UN, 2015; UNICEF, 2019a). As of 2020, less than one person in two was covered by social protection schemes, leaving more than 4 billion people unprotected (ILO, 2021). Many people have been lifted out of poverty in recent decades but remain largely vulnerable, far from Western middle-class standards (Ravallion, 2010). In particular, individuals with informal or insecure jobs are often excluded from existing contributory social protection systems and anti-poverty programs when their income slightly exceeds eligibility limits (Busso et al., 2021). Lack of access to social protection mechanisms and insurance market leave them largely exposed to idiosyncratic shocks such as job loss or illness, which can keep them or push them into poverty, reducing prospects for economic mobility (De Janvry et al., 2008).

A burgeoning literature has started addressing how income instability profoundly impacts household well-being, both economically and cognitively (Morrissey et al., 2020). Several studies find associations between income instability and various adversities such as material deprivation, deteriorating health, psychological distress, and diminished parenting quality (Gennetian et al., 2015; Hill et al., 2017; Shaefer et al., 2018). Income instability also has detrimental consequences on household's spending patterns and human capital investment, with potentially large negative impact on children's development (Hill et al., 2013). While anti-poverty policies have as their objectives to ease and foster economic mobility for vulnerable households, very few studies have tried to measure precisely the impact of cash transfer (CT) programs on recipients' income stability so far, which is crucial for effective policymaking (Wolf et al., 2014).

This paper fills this gap by investigating the impact of a CT program on income stability and poverty transitions within economically vulnerable households engaged in informal activities[2]. Specifically, this paper focuses on Argentina's largest CT program implemented nationally in late 2009, the Universal Child Allowance (AUH), one of the most generous non-contributory programs in Latin America (LA). As in many developing countries, informal work is widespread in the LA region, particularly among workers in the two lowest income quintiles (Busso et al., 2021). Argentina provides a highly relevant setting for examining how a massive and nationally coordinated CT program affects household income stability. The AUH program aims at extending social protection to children in poor and economically vulnerable households excluded from the contributory social protection system, such as informal workers, domestic workers, or unemployable individuals. The data used come from several waves of nationally representative household surveys from the *Encuesta Permanente de Hogares* (EPH) covering a broad period from 2004 to 2015. The survey's rotating panel structure allows to track each household's income throughout one and a half years through four observations. Household income stability is measured by looking at household poverty transitions, i.e. the time spent in poverty across the observation period, and by computing the coefficient of variation (CV) of income[3].

The empirical strategy leverages Garganta and Gasparini's (2015) methodology to estimate the intention-to-treat effect by comparing potentially eligible and non-eligible households based on socioeconomic characteristics. A difference-in-difference (DD) strategy is applied to mitigate selection bias produced by the non-random allocation of the program among the population. To the best of my knowledge, this paper is the first to use a quasi-experimental method to assess

[2] There is no consensus in the literature on how to refer to income variability. Thus, terms such as "income instability", "income variations", "income volatility" or "income fluctuations" will be used synonymously.
[3] To consider that income fluctuations impact household welfare differently depending of the direction on income change, the CV is also analyzed separately according to household income's positive or negative evolution. Further details in section 3.

the effect of a safety net program on income stability outcomes. We also conduct heterogeneity analyzes for differences in family structures and differences in the income shocks to which potential beneficiaries are exposed.

Overall, the results confirm the AUH’s protective role in preventing households from income swings that lead to poverty and its stabilizing effect on household income flows. The direct income effect of the program reduces potential beneficiaries’ time spent in poverty over the observation period by 16% compared to what would have happened without the AUH implementation. This constitutes a substantial positive effect aligned with the program’s objective of alleviating child poverty. Furthermore, the program stabilizes recipients’ income flows, notably for those having experienced a negative income change in prior income, with a 15% reduction in the CV compared to the counterfactual. For those with a positive change in income, the program also lowers income variations by around 7%. These findings underscore the program’s effectiveness in mitigating and smoothing income streams, particularly in the face of losses from insecure revenue sources. Robustness tests and heterogeneity analysis further confirm and qualify these results. The program’s capacity to mitigate income instability holds across different family structures, although the impact is heterogeneous. The AUH's effect on poverty reduction is higher in households with poorer initial economic conditions or facing significant expenses, such as larger families or households with a young child. The impact is considerably reduced in households headed by a woman. Given that most female heads of household are single in the sample (88%), households’ adaptation or resilience to shocks is likely to be more challenging than for households with both parents. The value of the transfer is not affected by the parents’ family situation but by the number of children. Finally, the presence of grandparents within the household also diminishes the program’s effectiveness, likely due to their predominantly inactive status, which increases households’ economic burden.

These results contribute to the literature dealing with safety net programs and income stability. A large literature has extensively examined the impact of CT programs on various economic and human capital outcomes (Fiszbein et al., 2009; Papadopoulos and Leyer, 2016; Millán et al., 2019; Abramo et al., 2020) as well as their role in enhancing households' resilience to shocks and ability to manage risks (Haushofer and Shapiro, 2016; Ralston et al., 2017; Premand and Stoeffler, 2020; Macours et al., 2022). By contrast, very few studies have assessed the effects of these programs on the income stability of the growing number of economically vulnerable households relying on informal activities and sources of revenues. While the receipt of regular financial aid is expected to affect households' welfare by protecting living standards, smoothing consumption, mitigating material hardship, and limiting income loss from other sources (Holzmann and Jorgensen, 2001; Dercon, 2002; De Janvry et al., 2008; Shaefer et al., 2018), safety net policies might exacerbate income instability if households frequently enter and exit programs based on their design and conditionalities (Wolf et al., 2014; Morrissey et al., 2020). The findings of this present paper corroborate recent studies on the stabilizing role of social safety net programs in the US (Hardy, 2017, Bitler et al., 2017) and confirm prior findings of Micha and Trombetta (2020), also for the AUH in Argentina, using a different estimation method. Applying a microsimulation strategy in the post-AUH period (2010-2014), they quantified the contribution of each income source to the total income fluctuations among eligible households and came to a similar conclusion.

Secondly, this article contributes to the limited literature on income stability in developing countries. Mainly due to the scarcity of longitudinal studies in these countries, existing studies dealing with income instability have historically focused on the United States or Western European countries (Dynan, 2012; Hardy, 2017; Avram et al., 2022). In a recent illustrative study, Beccaria et al. (2021) underscore a high level of short-term income mobility in seven countries of the LA region during the 2000s (with mobility defined as income flux or instability). Despite a general improvement in the economic and social situation of countries over the period, a large proportion of households (40%) experienced a loss of income during the period, highlighting a high degree of income insecurity, especially in countries with a large informal sector and lacking adequate social protection systems.

Thirdly, this article provides new evidence supporting the effectiveness of extending social protection to excluded or marginalized populations. We show that transfers ensure a "floor" income that helps vulnerable households to cope with the shocks that harm their disposable income and limits the risk of a loss in living standard, often involving an increase in out-of-pocket expenses, asset sales or indebtedness. These findings carry particular relevance for Argentina, a nation frequently exposed to macroeconomic fluctuations (debt crisis, financial market confidence issues, high inflation), but more generally for all developing countries characterized by widespread informal labor, inadequate investments in social protection and healthcare services, and where political turnover significantly impact access to program benefit (Abramo et al., 2020).

The rest of the paper is structured as follows. Section 2 briefly details social programs in Argentina and describes the data used. Section 3 presents the methodology adopted to measure income stability, and the identification and estimation strategies. Section 4 shows the results, the robustness tests performed, and the program's heterogeneous effects. Section 5 concludes.

2. Context and data

2.1. Context and social programs in Argentina

While poverty and extreme poverty have fallen sharply in LA in the 2000s, 40% of the population is still not covered by a social protection mechanism in 2021[4]. Predominantly

[4] Data from ILOSTAT (International Labour Organization) for 2020 or 2021, depending on the latest available period. More details on https://ilostat.ilo.org/data/.

adopted in the region since the late 1990s, CT programs have become increasingly popular as policy instruments, mainly through conditional cash transfer (CCT) programs, focusing on specific populations and necessitating compliance with various health and education conditions to foster human capital accumulation[5]. However, the target of these programs still leaves many households uncovered, particularly economically vulnerable households at high risk of poverty whose members work in the informal sector (Busso et al., 2021). In Argentina, the country's main social programs were set up in response to the 2001 economic crisis, which had a devasting impact on the country, dramatically increasing unemployment and poverty rates[6] (Galasso and Ravallion, 2004). The first large-scale emergency program was implemented in 2002 with the *Plan Jefes y Jefas de Hogares Desocupados* (PJJHD) to economically support households with children affected by the economic crisis. This program consisted of a fixed CT of 150 pesos (around $50 US) per household where the head was unemployed. In 2005, because of improved labor market conditions, the *Plan Familias* program progressively absorbed a substantial part of the PJJHD beneficiaries, restricting access to unemployable individuals with low education levels with two or more children (Ceballos and Lautier, 2013).

After several years of sustained economic growth during the mid-2000s, the Argentine government significantly reorganized its social protection system (Pautassi et al., 2013). In late 2009, the government extended the family allowance system to the informal sector with the non-contributory AUH program, replacing all other safety nets. Unlike previous social programs which depended on a specific ministry, the AUH was added as the second pillar of the existing family allowance system administrated by the *Administración Nacional de la Seguridad Social*, or ANSES (Bertranou, 2010, UNICEF et al., 2017). Its high degree of

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[5] Multiple studies underscore the proliferation of social safety net programs in the LA region since the late 1990s, highlighting the bifurcation of the social protection system into formal contributory structures and non-contributory assistance programs (Lavinas, 2015; Barrientos, 2019).

[6] The feeling of pauperization, described as the "new poor", is well documented in Argentina and the LA region (De Riz, 2009; Kessler and Di Virgilio, 2010).

institutionalization enables it to operate over the long term, independent of the pressures of the political powers in charge (Zucco, 2013; Arcidiácono, 2016).

The AUH aims to reduce the number of children living in households at high risk of poverty[7] by extending social protection coverage to households with under-18 children whose parents are unregistered in the contributory system. Parents must work in the informal sector or be unemployed or inactive without pensions (the AUH is incompatible with other social transfers). Even if the AUH is not exclusively reserved for the poor, the program targets relatively low-income workers, officially earning less than the minimum wage. Although both parents must be eligible, nearly all the program transfers go directly to mothers (more than 90%). The initial transfer value per child was 180 monthly pesos (around 48 US$ per child) and 720 pesos for one disabled member. For a typical eligible household with two children, the cash transfer accounts for roughly 30% of its monthly income. The transfer value is regularly adjusted for inflation and is one of the most generous programs in the LA region (Stampini and Tornarolli, 2012). Like traditional CCT programs, the AUH requires compliance with regular health checks and immunization for children under age four and school attendance for children aged 5 through 18 (Garganta et al., 2017). Most of the transfer is paid monthly (80%), with the remainder paid at the end of the year when the required conditions are met. It is important to note that even though these conditions are standard for this type of program, compliance with them is a prerequisite for renewal the following year, which can be restrictive if certificates are not issued

[7] Since its implementation, the government has made a few extensions to include more children not covered yet. First, in 2011, the AUH widened for pregnant women from their 12th week of pregnancy until birth with the Asignación por Embarazo. In 2015, the transfer was adjusted according to the household's residence region to account for geographical disparities and living standards. It also provided supplementary transfers to finance school fees in the same year. In 2016, the program also extended the coverage for children from *monotributistas* parents (specific independent workers).

on time. In 2019, the AUH covered around 4 million children, representing more than 30% of the child population in the country[8] (UNICEF, 2019b).

2.2. Data

This study uses nationally representative microdata from the EPH survey collected by the *Instituto Nacional de Estadistica y Censos* (INDEC) from 2004 to 2015. The EPH is a widely used national household survey carried out quarterly for around 18,000 households per wave and covers 31 large urban areas accounting for around 68% of the Argentine population. However, the survey does not cover rural areas. It addresses work and income-related dimensions and provides various socioeconomic information on households (education, housing equipment, geographical information). The survey is carried out quarterly and has a rotating panel structure, with 25% of the sample replaced in the next wave (see Figure A1 in Appendix). The data structure allows the construction of several short panels from 2004 to 2015[9].

In each panel, households are interviewed a maximum of four times over one and a half years. A household with a complete follow-up is interviewed in two consecutive quarters of a year *t* when it enters the survey, exits the survey for the following two quarters, and is interviewed again in the same two quarters the following year in *t+1*. In this case, a household has two pairs of observations between years *t* and *t+1*. However, for some households, the follow-up is not fully complete. Only households interviewed three or four times are kept in the sample for

[8] Yet, around 16% of children in 2016 were still not covered by any social protection scheme because of administrative barriers, such as the lack of identity documents or birth certificates, or parents having migrated for less than three years (Pautassi et al., 2013; UNICEF, 2019b). Similarly, delays on the supply side (administration, health services) in receiving certificates of compliance with conditionalities can sometimes compromise program renewal for the following year, particularly for rural or geographically remote populations.

[9] The EPH data includes only the first semester of the 2014-2015 panel.

analysis to measure income stability more accurately and to cover a broader period. The percentage of households meeting this condition accounts for around 56% of the total sample[10].

Another point concerns income imputation. In some cases, a household member may not declare all sources of income at the time of the survey. Around 20% of households are in this situation. Although this could lead to a measurement bias in the variation of income at the household level, it should be noted that this phenomenon is more prevalent among the wealthiest households, i.e. those in the bottom top deciles of the per capita income distribution (around 14% for deciles D1 and D2, against 25% for D9 and D10). Since the AUH does not target these households, these households are kept in the analysis. Further tests check the results' robustness to the sample size's extension or restriction in Section 4.

Finally, all income values are deflated to 2018 Argentine pesos and converted to 2011 purchasing power parity (PPP) dollars[11]. Given the consensus in the literature on the poor quality of INDEC's official data on consumer price index (CPI) over the 2007-2015 period, two different sources are used. From 2004 to 2007, the official CPI data is used, but an alternative source is preferred for the following years from the Billion Prices Project[12] (Cavallo et al., 2016; Cavallo and Rigobon, 2016).

3. Methodology

3.1. Income groups and income stability measurement

Two indicators are used to offer a more comprehensive understanding of household income dynamics: the poverty trends indicator and the CV. The first one measures the share of periods

[10] Households with no follow-up account for 18% in the sample, and those with only two interviews for around 26%. Robustness checks also include households with only two interviews over time and find similar results.
[11] The 2011 PPP factor conversion for Argentina in 2018 is 14.23 (World Bank, last access in November 2023).
[12] Their CPI data come from numerous online prices available on the web that correct for bias coming from INDEC sources. See Cavallo and Rigobon (2016) for further details.

during which a household is in poverty during its observation period, i.e. the time spent in poverty during its observation period. It shows how much income swings push a household below the poverty line. In the manner of transition matrices, it identifies households that are always, transiently or never poor during their observation period, based on four interviews over one and a half years. Three income groups are built based on the LA context to establish a relevant poverty line: the poor, the vulnerable, and the middle and upper groups. The identification of the vulnerable group is based on that of the "strugglers" by Birdsall et al. (2014), comprising economically vulnerable households earning between $4 and $10 per capita per day (expressed in 2005 PPP). The lower threshold of $4 is sufficiently above the (older) international poverty lines of $1.25 and $2 a day for extreme and modest poverty to not include people who are likely to be poor in the vulnerable group. López-Calva and Ortiz-Juarez (2014) also find that the $4 threshold provides a more accurate estimate of poverty in LA than using standard international poverty lines for low-income countries. On the other hand, they also demonstrate that the upper limit of $10 is associated with a low probability of falling into poverty (around 10%), which depicts the beginning of the (lower) middle class in LA. Then, the vulnerable group includes people who are not economically secure enough to be inside the middle class because of their substantial risk of falling back into poverty (Ferreira et al., 2012).

As the cut-off values discussed above are from the 2005-era PPP, all values used to construct income groups are converted to 2011 PPP to adjust to global price changes. The adjusted absolute thresholds in 2011 PPP for the vulnerable group are $5.5 for the lower bound, and $11.5 for the upper bound. A household with a daily per capita income of less than $5.5 will be considered poor, and vulnerable if it does not exceed $11.5. Otherwise, it will be considered middle class and upper groups. Table 1 summarizes the size of the monetary groups in the total EPH survey and in the sample of households with at least three interviews between 2004 and

2015. Group sizes are very similar in both cases. As expected for Argentina, many households belong to the middle and upper groups.

Table 1: Identification of income-groups in the EPH

Income groups	\$US per capita/day (PPP)	Group sizes in total EPH survey (%)	Group sizes in the sample used (%)
Poor	[\$0; \$5.5[	8.7	7.9
Vulnerable	[\$5.5; \$11.5[	16.1	17.0
Middle and upper groups	≥\$11.5	75.3	75.1

Source: Authors' elaboration based on the EPH microdata (2004-2015).
Note: Households are classified by averaging their per capita income over the first year of interview, or first interview when follow-up is not carried out. The sample of households used for the last column includes households interviewed at least three times in the survey. PPP = purchasing power parity. The PPP (2011) factor conversion is 14.23 adjusted for 2018 prices in Argentina (World Bank). CPI come from official sources (INDEC) and the Billion Prices Project (BPP) for 2007-2015 period (Cavallo and Rigobon, 2016).

In addition to the first indicator, the CV of per capita household income is calculated to quantify how much household income fluctuates over its observation period. This traditional indicator has been used in the literature to examine household income variability in the US (Newman, 2008; Gennetian et al., 2015) but also in LA (Beccaria and Groisman, 2008; Micha and Trombetta, 2020; Beccaria et al., 2021). The CV for a household *i* is computed as the ratio of the standard deviation of income measured over time to the mean income:

$$CV_i = \frac{\sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(y_{i,t} - \overline{\mu}_i\right)^2}}{\overline{\mu}_i} \tag{1}$$

Where $y_{i,t}$ is the per capita income of household *i* observed at period *t*, and $\overline{\mu}_i$ the average income of household *i* over its entire observation period. However, the variation in household income measured by the CV does not consider the direction in which income evolves. Since an upward or downward change in income does not have the same impact on a household's welfare, the CV analysis will also be carried out on two sub-samples, taking into account the change in average household income $\overline{y}_i$ between the first and final year of interview. Thus, the CV-up computes the CV for household experiencing an upward income mobility between year *t* and *t+1*, i.e. when $\bar{y}_i^t < \bar{y}_i^{t+1}$. The CV-down, for those with a downward income mobility between *t* and *t+1*, i.e. when $\bar{y}_i^t \geq \bar{y}_i^{t+1}$.

3.2. Empirical approach: groups identification

The rotating structure of the EPH allows the construction of eleven yearly panels covering 2004-2015. Since the AUH program appeared during the last quarter of 2009, the 2009-2010 panel is excluded from the analysis to delimit a clear cut-off between the pre- and post-implementation of the program[13]. Then, five-yearly panels are entirely located in the pre-intervention period (from 2004-2005 to 2008-2009), and the following five panels after the AUH implementation (from 2010-2011 to 2014-2015). However, the EPH survey does not include questions allowing us to identify AUH beneficiaries directly. The questionnaire asks only: “Did you receive any monetary transfers from the State, church, etc., in the past three months ?” with the corresponding monetary amounts. There is no way to be sure that households are part of the AUH program and that the amount received does not come from other public institutions or alternative sources. Therefore, the methodology Garganta and Gasparini (2015) adopted is followed to estimate the program’s intention-to-treat. Households are assigned to treatment or control groups according to their initial labor and socioeconomic characteristics, which mimic the program’s official eligibility criteria. The treatment group includes households with children under 18 years old whose parents are either working in the informal sector, as domestic employees, inactive, unemployed, or retired without health coverage, in the first year of interview[14]. Only households meeting these criteria in their first two interviews are considered eligible (i.e. the first year of entry into the survey) or non-eligible otherwise[15]. The status of the declared head of household and the spouse are checked for

[13] Similarly, households interviewed during the implementation of the AUH are not considered.
[14] Workers in the domestic service, even those registered in the formal sector, are specifically targeted by the AUH program (Edo et al., 2017).
[15] Only 5% of households in the sample change category between the first two quarters of interview. In the next section, some robustness checks introduce additional eligibility constraints to test the sensitivity of the results. It restricts the analysis to households “stable” in their formal/informal categorization over the entire period, instead of the first year. Results remain mostly unchanged.

program eligibility. In cases where one of the child's grandparents is declared head of household, only the status of the child's parents is considered.

For parents with employee status, the distinction between formal and informal is approximated by asking whether pension contributions are deducted from wages. Lack of contribution to the pension system through deductions from wages is the most commonly used proxy in the literature to determine informality in LA (Tornarolli et al., 2014). Self-employed are also considered eligible since social protection is poorly developed for them in Argentina (Gasparini et al., 2009). In this income bracket, most are unskilled self-employed (73% with less than a secondary degree) and have no healthcare coverage (78%). Unemployed are also included in this group given that only 3% report receiving unemployment benefits. Finally, retired people are considered eligible if they have no healthcare coverage. On the other hand, the control group is made up of households with a similar family structure with minor children but with different labor characteristics since they are registered or are paying contributions to the social system (employers, formal employees, retired with health coverage), which is not compatible with the AUH eligibility criterion.

A final condition for access to the program is that household members should earn less than the national minimum wage. However, measuring income from informal activities (non-declared income, reporting error, no or poorly developed accounting) remains difficult for the ANSES and this requirement is rarely met in practice (Garganta and Gasparini, 2015). Given that the AUH program targets economically vulnerable households, only those classified as vulnerable or poor during the first year of interview are kept, i.e. with an average per capita income of less than $11.5 per day. Households belonging to the middle and upper-income groups are excluded due to their low probability of being targeted by the program and to limit the inclusion of households that are too wealthy. To ensure that potential AUH beneficiaries are correctly identified and similarly distributed across the income groups, an alternative database allowing for direct identification of AUH beneficiaries is used. The *Encuesta Nacional de Gastos de los Hogares* (ENGHo) is a household expenditure survey only available for the year 2012 until March 2013 that is also nationally representative[16]. Table 2 shows the distribution of AUH beneficiaries across income groups for 2012 using the ENGHo and EPH database. The direct identification is based on the ENGHo survey (Column 1), while the non-direct identification is made via the EPH survey (Column 2). For 2012, the proportion of beneficiaries in each income groups are very similar using both methods. Using the direct method, around 60% of the AUH beneficiaries are classified in the poor and vulnerable income groups, and 67% for the non-direct method. The majority of beneficiaries belong to the poor and vulnerable groups. As 40% of beneficiaries' households are classified in the middle and upper-income groups, several methods verifying the sensitivity of the results to various sample sizes are presented in Section 4.

Table 2: Identification of the AUH beneficiaries (2012/2013)

Income groups (per capita/day)	(1) Direct identification (ENGHo)	(2) Non-direct identification (EPH)
Poor (< $5.5)	18.6%	14.3%
Vulnerable ($5.5 ; $11.5)	40.6%	43.1%
Middle and upper groups (> $11.5)	40.5%	42.6%
Observations	2806	2261

Source: Authors' elaboration based on the EPH (2012) and ENGHo (2012/2013).
Note: Households are classified according to their average per capita income in the first year of interview. Incomes were adjusted to 2018 pesos and converted to US PPP (2011). The conversion factor used comes from the World Bank (=14.23). In the ENGHo survey, the following question is asked: "Did you receive any income in cash or in-kind in the last 6 months from Universal Child Allowance (AUH) ?"; In the EPH survey, potential beneficiaries are households with an under-18 child and whose parents are either working in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview.

3.3. Empirical approach: impact identification and assumptions

Since the AUH program was not randomly assigned to the population across the country, the analysis may suffer from a selection bias, bringing endogeneity concerns. The treatment and control groups have many observable and unobservable differences (consumption behavior, saving strategies, and budget allocation like health expenditures) that could prevent us from

[16] Descriptive statistics of the AUH beneficiaries from the ENGHo are available in Appendix (Table A1).

identifying the program's causal effect on household income stability. Table (3) below presents some household characteristics of the treatment (eligible) and control (non-eligible) groups before the implementation of the AUH.

Table 3: Characteristics of eligible and non-eligible households before the AUH implementation

	Pre-AUH			
Variables	Eligible (1)	Non-eligible (2)	Difference (2)-(1)	t
Poverty trends (%)	48.6	21.1	-27.5	**-51.46**
CV	0.43	0.35	-0.08	**-20.28**
CV – Down	0.40	0.33	-0.07	**-9.58**
CV – Up	0.45	0.36	-0.09	**-18.62**
Mean income per capita/day (initial year)	5.52	7,78	2.26	**54.40**
Mean income per capita/day (final year)	7.66	10.51	2.85	**28.31**
Household size	5.15	5.34	0.19	**5.73**
Nb. of minor children	2.57	2.57	0.00	0.19
Nb. of major children	0.70	0.71	0.01	0.40
Age of the youngest child	5.90	6.21	0.31	**3.75**
Age of the head	42.9	43.16	0.23	1.14
Woman head	0.37	0.19	-0.19	**-26.25**
Single parent household	0.34	0.16	-0.19	**-27.80**
Parents' pluri-activity	0.11	0.07	-0.05	**-10.25**
Grandparents in the household	0.25	0.16	-0.09	**-12.95**
Parents' highest level of education				
Primary incomplete	0.13	0.07	-0.06	**-11.78**
Primary complete	0.36	0.27	-0.09	**-12.01**
Secondary incomplete	0.25	0.23	-0.02	**-2.59**
Secondary complete	0.17	0.24	0.07	**10.29**
University incomplete	0.06	0.09	0.03	**7.51**
University complete	0.03	0.09	0.06	**14.61**
Observations	9795	5676		

Source: Author's calculation based on the EPH microdata, 2004-2009.
Note: The poverty trends indicator measures the time spent in poverty by a household during its observation period. i.e. income per capita below $5.5/day (PPP 2011). The CV is the coefficient of variation of household income. CV-down and CV-up measure the CV of sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day. A household is eligible if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. Values in bold indicate significant differences between the two groups at 95% level.

As expected, both groups differ in income stability and poverty levels. On average, households eligible (1) for the AUH have a 48% probability of being in poverty during their observation period, i.e. around two periods out of four, compared with 21% for non-eligible (2) households. Eligible households also have higher income fluctuations than non-eligible households, confirming that income from individuals working in the informal sector is more volatile[17]. While the family structure is quite similar between groups (number of members in the

[17] It should be noted there are no significant differences between the two groups in terms of income imputation by one or more household members before and after the AUH implementation.

household, age of the head, number of children), parents in eligible households are, on average, less educated than their formal counterparts (75% with less than a secondary degree). The proportion of female heads of household and single parents is also much higher (mostly single mothers). Eligible households are also more likely to have dependent parents inside the house, which could indicate a higher financial burden since most of them are inactive. The characteristics of the group of eligible households are very similar to those of the beneficiaries identified in the ENGHo database (Appendix Table A1).

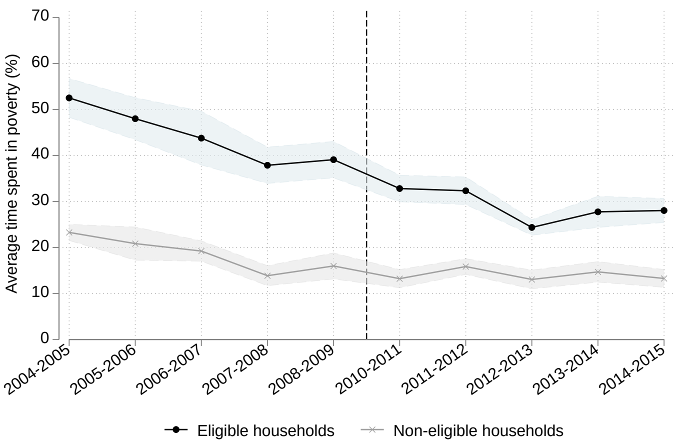
Thus, a quasi-experimental DD strategy is applied to compare the outcomes of heterogeneous groups, controlling their stable characteristics over time. The strategy consists of comparing the dependent variables of the treatment and control groups before and after the AUH implementation[18]. One of the main identification assumptions of the DD strategy is that trends in the outcome variables should have evolved in the same way in the absence of the program. In other words, the evolution of household income stability and poverty should have followed a similar pattern without implementing the program. While this cannot be proven, looking at trends for the different outcome variables before the AUH implementation could help us gain confidence in its validity. Figure (2) shows trends for each income stability outcome with a visual inspection of the unconditional mean for the eligible and non-eligible groups. As can be seen, the eligible and non-eligible groups followed very similar trends for each outcome before the AUH appeared at the end of 2009. Levels of poverty and income fluctuations among eligible households are consistently higher than those of non-eligible ones, which is to be expected since informal workers have higher income risks, less regular income sources, and generally lower incomes than those in the formal sector. Also, it has to be noted that the structure of household income for both groups was stable over the period before the AUH implementation (Figure A3

[18] Other articles assess the impact of the AUH on other outcomes using the DD strategy, such as labor formalization (Garganta and Gasparini, 2015), female labor participation (Garganta and Gasparini, 2017), or educational outcomes (Edo et al., 2017; Edo and Marchionni, 2019).

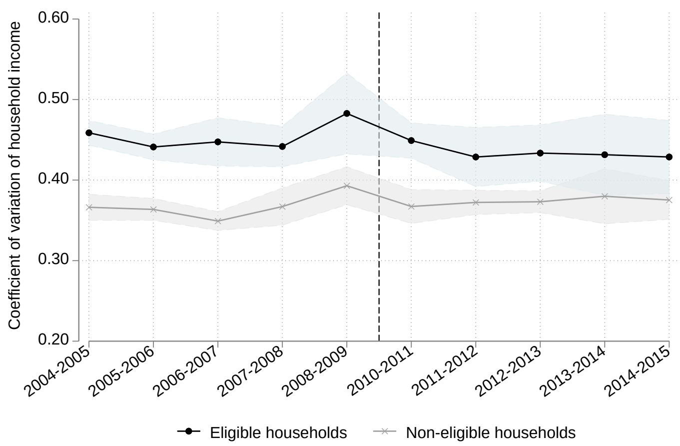
in Appendix). The gap between the two groups is narrowing after 2009, coinciding with the implementation of the AUH. Although the decline in poverty is visible for both groups up to 2008 (Figure 2.a), poverty keeps declining after 2009 for the eligible group, while the other remains constant at around 15%. Similarly, the gap in income fluctuations between the two groups narrowed after 2009 (Figure 2.b), mainly due to the CV-down indicator which restricts the sample to households experiencing a loss of income over the period (Figure 2.c). The gap also seems to be narrowing for the CV-up indicator (Figure 2.d), but to a lesser extent.

Figure 2: Income stability trends among eligible and non-eligible households

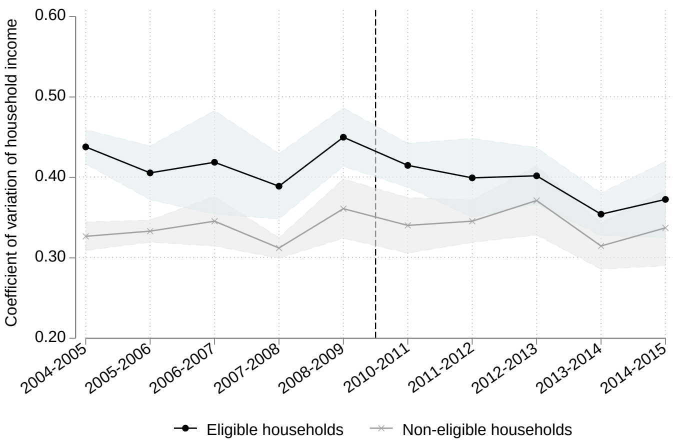
2.a) Poverty trends



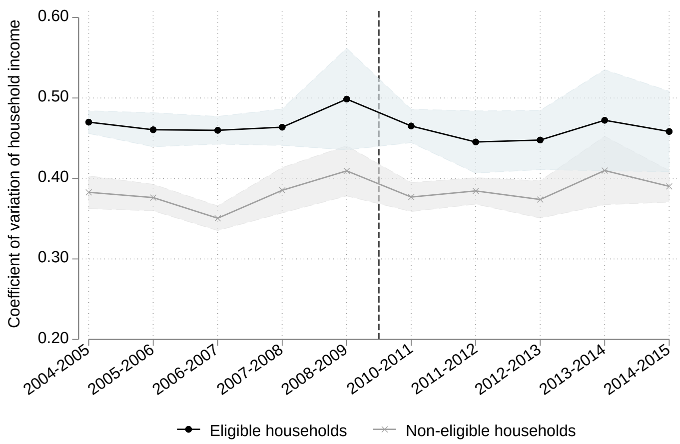
2.b) CV



2.c) CV-down



2.d) CV-up



Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: The coefficients shown correspond to the averages of the dependent variable over 2004 and 2015. Confidence intervals at 95% are shown. The poverty trends indicator measures the time spent in poverty by a household during its observation period. i.e. income per capita below $5.5/day (PPP 2011). The CV is the coefficient of variation of household income. CV-down and CV-up measure the CV of sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day. A household is eligible if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. Clustered standard errors by large urban areas.

A second and essential assumption of the DD strategy is that no contemporary event other than the AUH should explain any differences in outcome trends for the two groups. On this point, the literature is unanimous in stating that the AUH was the only central public policy that was implemented in Argentina in 2009 and the following years (Bertranou, 2010; Groisman et al., 2011; Garganta and Gasparini, 2015). Furthermore, possible anticipation of the program implementation is very unlikely since the AUH was not expected in the country (Maurizio and Vázquez, 2014). The AUH was notably rolled out immediately after its announcement, and covered over 3 million children in its first month. It was by far the largest program in the country regarding benefits and participants[19]. In the years following the AUH introduction, only the PROGESAR program was introduced in 2014, which aimed to provide additional monetary resources to households with children aged 18 to 24 enrolled in university and whose resources are below the national minimum wage. Since this financial contribution could bias estimates of the program's effect after 2014, further results exclude years after 2013, but results remain unchanged.

Equation (2) below presents a standard linear specification of the DD model corresponding to the main specification.

$$Y_i = \beta_1 D_t + \beta_2 T_i + \beta_3 (T_i * D_t) + \eta_i + \eta_t + \theta X'_i + u_i \tag{2}$$

The variable Y_i corresponds to the dependent variable, corresponding to one of the indicators of income stability for a household *i*. The dummy variable D_t takes the value one for the post-intervention period 2010-2015 or zero otherwise (2004-2009). T_i is the treatment variable that takes the value one if a household *i* is eligible to the AUH during its first year of interview. Region η_i and time η_t fixed effect are included. The set of control variables is the X'_i vector measured during the first interview of household *i*. They include the age of the head of

[19] See Figure A2 in Appendix to see the evolution of beneficiary households for the main social programs in Argentina from 2003 to 2013.

household and its square, its gender, the number of under-18 and over-18 children and its square, the household size, the age of the youngest child, the parents' highest level of education, dummy indicating if grandparents live in the household, if a woman heads the households, if the head is a single parent, and if the parents have multiple jobs. A final covariate identifies whether the household benefited from the PJJHD social program, as well as its interaction with the treatment variable since it targeted unemployed heads of household. Lastly, the error term u_i is clustered at the large urban areas level. The DD strategy computes the changes in outcome between the control and treatment groups over time, as in Equation (3).

$$\beta_3 = \left(\overline{Y_1^T} - \overline{Y_0^T}\right) - \left(\overline{Y_1^C} - \overline{Y_0^C}\right) \tag{3}$$

With T and C being respectively the treatment and control groups, before (0) and after (1) the AUH introduction. The treatment effect is estimated by the coefficient β_3 associated with the interaction term $(T_i * D_t)$. Then, the DD provides a consistent estimator of the impact of the AUH program on income stability. An event study regression, including leads and lags into the model as in Equation (4), is also proposed to examine at the dynamic treatment effect over time.

$$Y_i = \eta_i + \eta_t \sum_{\tau=-q}^{-1} \Upsilon_\tau T_{i\tau} + \sum_{\tau=0}^{m} \delta_\tau T_{i\tau} + \theta X'_i + u_i \tag{4}$$

Where the AUH implementation occurs in year 0, with q leads (anticipatory effects), and m lags (post-treatment effects). Year -1 is removed to avoid perfect multicollinearity and is therefore taken as the reference point,

4. Results

4.1 Main results

Table 4 presents the results of the AUH program’s effect on each income stability outcome based on Equation (2). For each dependent variable, the first column (i) reports the coefficients of the baseline specification without controls, while the second column (ii) includes all controls, time and regional dummies. The sample includes eligible and non-eligible households classified as poor and vulnerable in the first year of appearance in the survey. The interaction term corresponds to the estimated impact of the AUH on the dependent variable.

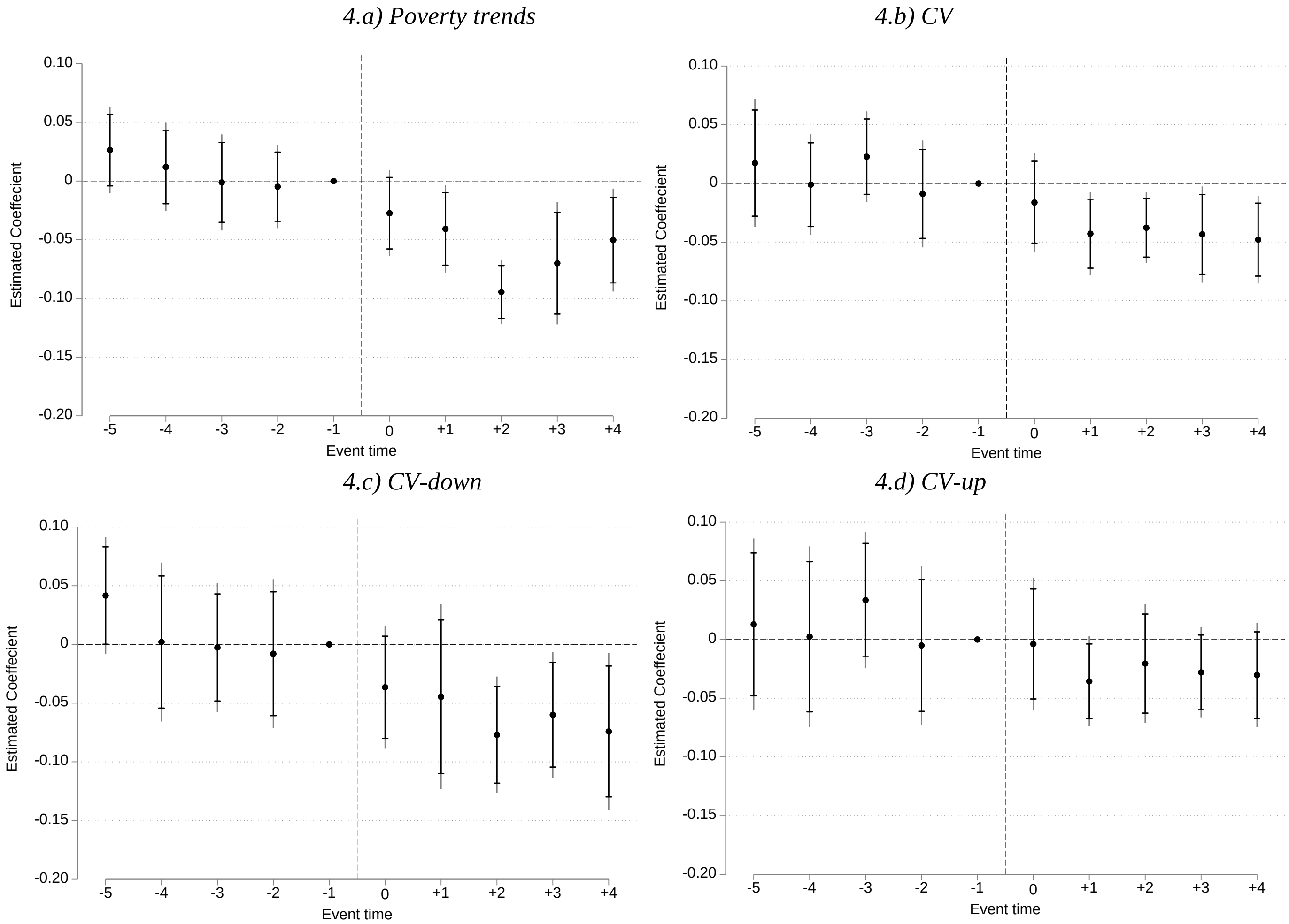
Table 4: Difference-in-difference model - Effect of the AUH on income stability

	(1)		(2)		(3)		(4)	
Dependent variables	Poverty trends		CV		CV-down		CV-up	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
After*Eligible	**-0.1097*** **	**-0.0630*** **	**-0.0235***	**-0.0420*** **	**-0.0367*** **	**-0.0655*** **	-0.0170	**-0.0307***
	(0.0117)	(0.0166)	(0.0120)	(0.0109)	(0.0091)	(0.0075)	(0.0154)	(0.0163)
Eligible	**0.2636*** **	**0.2086*** **	**0.0866*** **	**0.1021*** **	**0.0860*** **	**0.1070*** **	**0.0896*** **	**0.1024*** **
	(0.0096)	(0.0134)	(0.0057)	(0.0073)	(0.0122)	(0.0204)	(0.0043)	(0.0040)
After	**-0.0545*** **	0.0133	0.0079	-0.0071	0.0119	0.0093	0.0064	-0.0137
	(0.0095)	(0.0112)	(0.0082)	(0.0217)	(0.0124)	(0.0139)	(0.0083)	(0.0290)
Controls, time and regional dummies	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.1354	0.2905	0.0226	0.0524	0.0197	0.0561	0.0262	0.0599
Observations	24,868	24,868	24,868	24,868	7,929	7,929	16,939	16,939
Average	0.195		0.365		0.333		0.377	

Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: Difference-in-difference estimates. Column (1) measures the program's effect on the time spent in poverty by a household during its observation period. i.e. income per capita below \$5.5/day (PPP 2011). Column (2) measures the effect on the coefficient of variation of household income. Columns (3) and (4) on the sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below \$11.5/day (PPP 2011). Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value one for the periods after the AUH implementation (2010-2015), otherwise zero (2004-2009). Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the AUH implementation.

Instead of looking at the AUH's overall effect on the pre- and post-period, Figure 4 below shows the dynamics of the program's effect (interaction term between the treatment variable and a time dummy) on each outcome variable. The plotted coefficients represent the pre-treatment (leads) and post-treatment (lags) effects based on Equation (4) with full controls. The -1 period corresponds to the year just before the program's arrival. Again, trends similarly until the implementation of the AUH. The gap between the two groups widened from 2010 onwards and lasted over time, even in period +4. The program consistently reduces the time spent in poverty, ranging from -3 to -10 percentage points (Fig 4.a). Interestingly, the estimated impact of the program is more substantial one or two periods after its introduction. One reason for this may lie in extending the program to pregnant women from their 12th week of pregnancy until birth in 2011. However, this hypothesis cannot be accurately verified in the data since the EPH survey does not identify whether a woman is pregnant at the time of the survey. As shown in the table above, the program also reduces the CV of household income, and this effect appears stable over time (Fig 4.b). The effect is stronger among households with a negative trend in income over the period compared to those with a positive trend. However, confidence intervals of the estimated effect are also larger due to the smaller number of households in this situation.

Figure 4: Estimated effect of the AUH on income stability over time



Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: The coefficients shown correspond to the interaction terms between the treatment variable and a time dummy based on equation (4). Confidence intervals at 90% and 95% are shown. The poverty trends indicator measures the time spent in poverty by a household during its observation period. i.e. income per capita below $5.5/day (PPP 2011). The CV is the coefficient of variation of household income. CV-down and CV-up measure the CV of sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day (PPP 2011). A household is eligible if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors by large urban areas.

These findings confirm that the AUH significantly reduces poverty among economically vulnerable households working in the informal sector. They also confirm that the AUH stabilizes household income flows with a persistent effect over time. These results echo those of Micha and Trombetta (2020) for the same AUH case and are in line with Hardy (2017), who shows the buffering effect of social safety net programs in the US context. The effect is stronger when focusing on the sub-sample of households with negative income trends over the period. It indicates that households potentially benefiting from the AUH have a better capacity to smooth their income losses than without the program. However, the estimated effect is smaller for those with positive income trends.

4.2 Robustness checks

4.2.1 False interventions

Several exercises are presented to test the robustness of the results found above. A first exercise verifies the parallel trends assumption by implementing false interventions before the AUH implementation. Table 5 below presents the estimated coefficients for each dependent variable for years in which a false program introduction is tested based on Equation (2). While most coefficients are close to zero and not significant, some exhibit a negative and significant effect, particularly for the poverty trends indicator. Most of these coefficients are small (around 1 or 2 percentage points) and disappear as we approach 2009.

In the early 2000s, several social programs (in particular, the PJJHD and Plan Familias programs) were implemented to reduce the high unemployment and poverty rates in the wake of the country's 2001 crisis. The effects found above certainly stem from these programs, which appeared in 2002 (PJJHD) and continued in 2005 (Plan Familias), affecting households similar to those eligible for the AUH (unemployed or non-employable people). The number of PJJHD beneficiaries gradually declined (Figure A2 in Appendix), and its effectiveness since its value was not adjusted for inflation. While the EPH provides information on whether households have benefited from the PJJHD program, this is not the case for the Plan Familias program, which may explain the slight divergence in trends between the two groups in the early period.

Table 5: Robustness - Effect of false interventions on income stability

		(1)			(2)	
Dependent variables		Poverty trends			CV	
Year of the false intervention	2006	2007	2008	2006	2007	2008
	(i)	(ii)	(iii)	(i)	(ii)	(iii)
After*Eligible	**-0.0221*** **	**-0.0187***	-0.0084	-0.0020	**-0.0184***	-0.0072
	(0.0080)	(0.0096)	(0.0176)	(0.0107)	(0.0100)	(0.0215)
Eligible	**0.2222*** **	**0.2173*** **	**0.2125*** **	**0.1053*** **	**0.1098*** **	**0.1050*** **
	(0.0142)	(0.0142)	(0.0138)	(0.0060)	(0.0074)	(0.0064)
After	**-0.1212*** **	**-0.0340*** **	**-0.0408*** **	**0.0289*** **	**0.0486*** **	**0.0413*** **
	(0.0130)	(0.0110)	(0.0104)	(0.0093)	(0.0105)	(0.0111)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.3200	0.3199	0.3198	0.0534	0.0536	0.0534
Observations	15,471	15,471	15,471	15,471	15,471	15,471
Average	0.221	0.214	0.198	0.365	0.361	0.362
		(3)			(4)	
Dependent variables		CV-down			CV-up	
Year of the false intervention	2006	2007	2008	2006	2007	2008
	(i)	(ii)	(iii)	(i)	(ii)	(iii)
After*Eligible	**-0.0269** **	-0.0239	-0.0123	0.0046	-0.0174	-0.0080
	(0.0109)	(0.0148)	(0.0280)	(0.0147)	(0.0132)	(0.0349)
Eligible	**0.1225*** **	**0.1167*** **	**0.1112*** **	**0.1019*** **	**0.1094*** **	**0.1048*** **
	(0.0225)	(0.0242)	(0.0230)	(0.0074)	(0.0052)	(0.0046)
After	**0.0632*** **	**0.0451** **	0.0374	**0.0252** **	**0.0471** **	**0.0464*** **
	(0.0129)	(0.0171)	(0.0242)	(0.0122)	(0.0173)	(0.0134)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.0640	0.0638	0.0635	0.0584	0.0586	0.0584
Observations	4,941	4,941	4,941	10,530	10,530	10,530
Average	0.330	0.334	0.330	0.380	0.372	0.375

Source: Author's calculation based on the EPH microdata, 2004-2009.
Note: Difference-in-difference estimates. Column (1) measures the program's impact on the time spent in poverty by a household during its observation period. i.e. income per capita below $5.5/day (PPP 2011). Column (2) measures the effect on the coefficient of variation of household income. Columns (3) and (4) on the sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day (PPP 2011). Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value 1 after the false program implementation, otherwise 0. Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the false implementation.

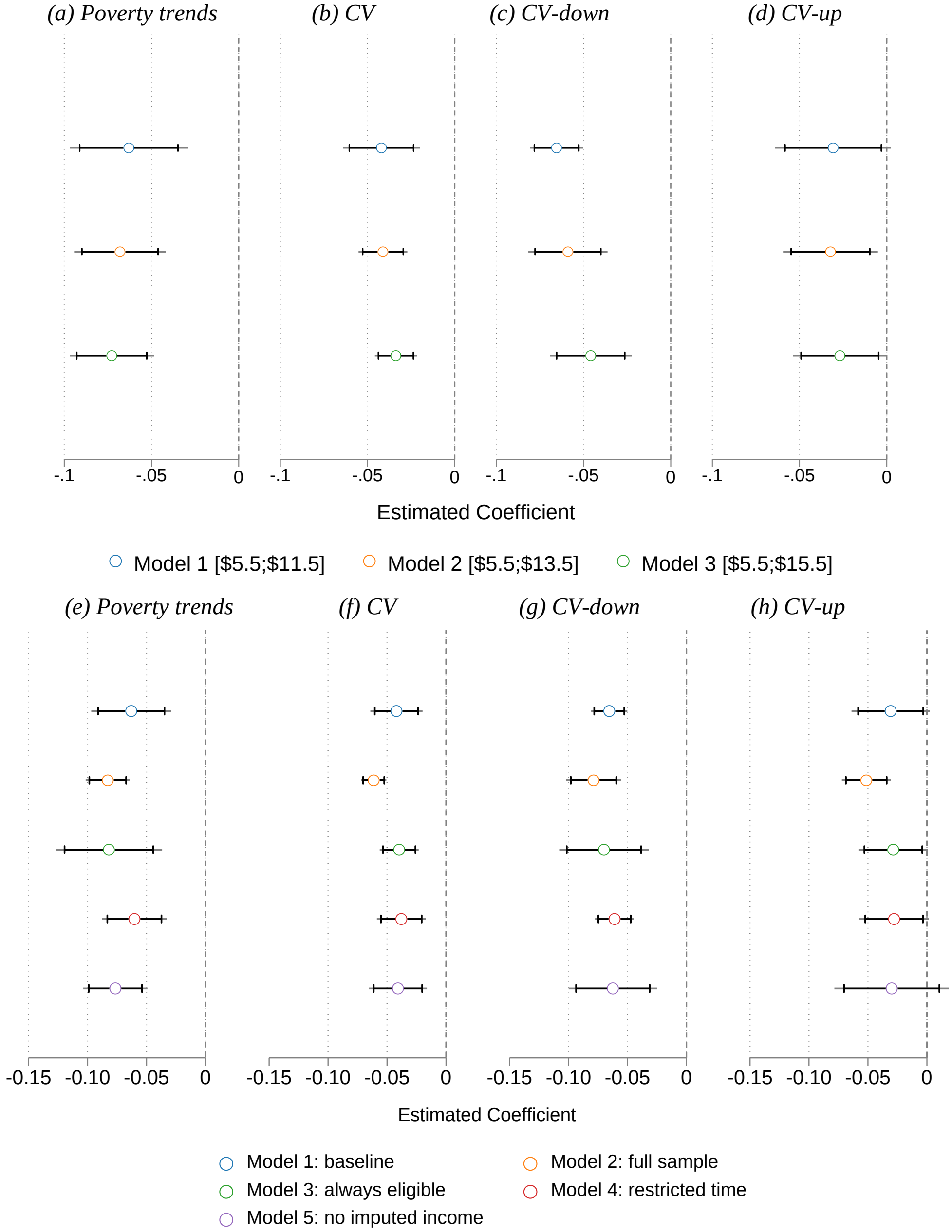
4.2.2 Sample size

The second exercise checks the sensitivity of the results at different sample sizes. Figure 5 summarizes the results for each dependent variable by plotting the program effect coefficients[20]. All estimations are based on Equation (2) with full controls and exhibit the 90% and 95% confidence intervals.

The first part (5.a to 5.d) presents the program's effects when the upper monetary limit of the vulnerable group is successively raised to \$13.5 and \$15.5/day to include households just above the initial limit[21]. The coefficients are stable across the specifications. The program's impact on the CV declines as more affluent households are included in the sample, which is to be expected, as AUH weighs relatively less in household budgets. In the second part (5.e to 5.h), several alternative models are tested and compared to the baseline model from the main results (Model 1). Model 2 extends the sample to all households followed over time instead of using those with at least three interviews (including those only followed over six months). Model 3 restricts the sample by keeping only eligible and non-eligible households over the entire period, instead of the first year of interview. Model 4 restricts the analysis period to the years before 2014 to avoid potential bias from the PROGRESAR program implementation. Finally, Model 5 only keeps households that have declared all their income, and drops those where at least one household member has imputed a source of income over the period. Here again, the estimated program's effect remains very close to that estimated in Model 1, and coefficients vary at the margin. Including of households with a shorter follow-up period does not change the results and tends to increase the program's effects, particularly for the CV-up indicator.

Figure 5: Robustness - Effect of the AUH on income stability at alternative sample sizes

[20] Tables with all coefficients are available in Appendix (Tables A2 to A4).
[21] Figure A4 in Appendix also shows further results using deciles of the household per capita income distribution instead, restricting the sample to households from deciles D2 to D5. Results remain the same.



Source: Author's calculation based on the EPH microdata, 2004-2015.

Note: The coefficients shown correspond to the interaction term of difference-in-difference estimates based on equation (2). Confidence intervals at 90% and 95% are shown. The poverty trends indicator (a) measures the time spent in poverty by a household during its observation period, i.e. income per capita below $5.5/day (PPP 2011). The CV (b) is the coefficient of variation of household income. The CV-down and CV-up indicators (c and d) are calculated for households with a drop and increase in income respectively between the first and second year of observation. For (a) to (d): the sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview. Model 1 corresponds to baseline definition of the vulnerable class including households with per capita income between $5.5 and $11.5 per day. Models 2 and 3 propose alternative definitions with household incomes between $5.5 and $13.5, and $5.5 and $15.5 per day, respectively. For (e) to (h): Model 1 is the baseline model comparison from the main results. A household is eligible if the child's parents are either informal workers, domestic employees, unemployed or inactive, or retired without health coverage over its first observation year. In Model 2, the sample includes all households with at least two interviews over time, instead of more than three. In Model 3, household eligibility is based on the entire observation period, not just the first year. In Model 3, the analysis period is restricted to 2004-2013 instead of 2004-2015. Model 5 drops households where at least one household member has not declared a source of income over the analysis period. Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors by large urban areas.

4.2.3 Matching

The third exercise combines the DD strategy with a kernel-based matching adapted for repeated cross-section data[22] (Heckman et al., 1998; Blundell and Dias, 2009). As the sample of households changes over the survey years due to the data's rotating structure, the DD framework with repeated cross-section data may suffer from compositional change for the control and treated groups over time. The combination of matching and DD methods can control for differences in the composition of the two groups before and after the treatment (Fernández and Villar, 2017). The matching procedure uses the same control variables as the DD framework. More details on the matching process and quality are provided in Appendix (Figures A5 to A7).

Table 6: Robustness Matched DD - Effect of the AUH on income stability

	(1)		(2)		(3)		(4)	
Dependent variables	Poverty trends		CV		CV-down		CV-up	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
After*Eligible	**-0.0806*** **	**-0.0739*** **	**-0.0337*** **	**-0.0484*** **	-0.0227	**-0.0428*** **	**-0.0380*** **	**-0.0510*** **
	(0.0126)	(0.0117)	(0.0085)	(0.0087)	(0.0137)	(0.0115)	(0.0103)	(0.0114)
Eligible	**0.2295*** **	**0.2269*** **	**0.0757*** **	**0.0877*** **	**0.0543*** **	**0.0683*** **	**0.0864*** **	**0.0986*** **
	(0.0108)	(0.0120)	(0.0073)	(0.0068)	(0.0107)	(0.0112)	(0.0079)	(0.0069)
After	**-0.1048*** **	0.0161	0.0125	0.0109	0.0010	-0.0107	**0.0165* **	0.0221
	(0.0134)	(0.0137)	(0.0078)	(0.0116)	(0.0138)	(0.0157)	(0.0089)	(0.0157)
Controls, time and regional dummies	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.1316	0.2954	0.0188	0.0444	0.0103	0.0413	0.0246	0.0536
Observations	24,840	24,840	24,840	24,840	7,917	7,917	16,923	16,923
Average	0.256		0.358		0.341		0.366	

Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: Matched difference-in-difference estimates. Column (1) measures the program's effect on the time spent in poverty by a household during its observation period. i.e. income per capita below $5.5/day (PPP 2011). Column (2) measures the effect on the coefficient of variation of household income. Columns (3) and (4) on the sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day (PPP 2011). Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value one for the periods after the AUH implementation (2010-2015), otherwise zero (2004-2009). Variables used for the matching include household head age, gender, whether single parent, number of children under and over 18, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program. Control variables are the same as those used for the matching plus an interaction term between the treatment variable and the PJJHD variable, as well as time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the AUH implementation.

[22] The -diff- Stata package is used to implement the kernel-based matching estimator (Villa, 2016), as well as the -psmatch2 – package to create the matching quality graphs (Leuven and Sianesi, 2003).

Table 6 shows the results of the benchmark exercise. Again, similar results are found for each dependent variables, with and without controls. The magnitude of the impact on the different dependent variable is very similar to the DD model without matching, except for the CV-up indicator. The estimated effect is stronger and roughly equal to that found for the CV-down. All these results point in the same direction and demonstrate the program's reductive impact on poverty and income stability.

4.4 Heterogeneous effects

This section explores the potential heterogeneous effects of the program. The AUH effect can have a different impact on household income stability, depending on household characteristics. Table 7 reports the triple and double interaction term coefficients for each income stability indicator. It can be noted that the overall effect of the program (double interaction term) remains significant and stable according to the different specifications, except for the CV-up indicator. Most heterogeneous program effects concern the poverty trends indicator (1), while those concerning the CV indicators are mostly zero. Two main results stand out. First, the AUH's effect on poverty reduction is more effective among households with 3 or more children (1.c), and those with a young child under 6 (1.d). In both cases, the program reduces the time spent in poverty by around 20% compared to the counterfactual, instead of 10% for the others. Similarly, the impact on the CV-down indicator is two times more efficient in households with a young child (3.d) compared to those with older children (-20% vs -10.5). Given that these households are poorer on average in the sample, the AUH represents a proportionally higher share of their total income. Similarly, as households with young children have high expenses (nursery, specific food, and products for infants, this additional source of income helps mitigate the impact of adverse income shocks on household income. Secondly, there is a significant gap in the program's effectiveness between men and women heads of household (1.a). This may be explained by the fact that the family structure of female heads of household differs significantly from that of men since most of them are single (88%). A similar result is found when looking at the differentiated effectiveness of the program on single heads of household (1.b). It appears that AUH does not prevent these households from falling into poverty or significantly affect their income fluctuations. Finally, the program's impact is also weaker in households with grandparents (1.e). As most of these individuals are outside the labor market, adapting to an income shock may be more challenging, and any additional healthcare expenses for dependent parents could be a limiting factor in poverty reduction for these households.

Table 7 : Heterogeneity Triple DD model - Effect of the AUH on income stability

	(1)	(2)	(3)	(4)
Dependent variables	Poverty trends	CV	CV-down	CV-up
(a) Woman head of household				
After*Treated*Woman	**0.1036*** **	**0.0504*** **	**0.0710*** **	**0.0408***
	(0.0193)	(0.0153)	(0.0167)	(0.0207)
After*Treated	**-0.0987*** **	**-0.0574*** **	**-0.0839*** **	**-0.0445*** **
	(0.0171)	(0.0090)	(0.0085)	(0.0123)
(b) Single parent household				
After*Treated*Single	**0.0727*** **	0.0195	0.0174	0.0245
	(0.0161)	(0.0124)	(0.0208)	(0.0149)
After*Treated	**-0.0879*** **	**-0.0507*** **	**-0.0739*** **	**-0.0405*** **
	(0.0154)	(0.0106)	(0.0067)	(0.0148)
(c) Three or more children				
After*Treated*Children	**-0.0579*** **	-0.0177	0.0279	-0.0407
	(0.0138)	(0.0207)	(0.0316)	(0.0242)
After*Treated	**-0.0471****	**-0.0352***	**-0.0795*** **	-0.0148
	(0.0200)	(0.0203)	(0.0181)	(0.0267)
(d) Young child in the household (≤ 5 y.o)				
After*Treated*Young	**-0.0488*** **	**-0.0542***	**-0.0444****	-0.0567
	(0.0135)	(0.0307)	(0.0166)	(0.0383)
After*Treated	**-0.0398****	-0.0135	**-0.0407*** **	-0.0018
	(0.0177)	(0.0262)	(0.0103)	(0.0348)
(e) Grand-parents in the household				
After*Treated*Grandparents	**0.0453****	0.0096	0.0080	0.0141
	(0.0217)	(0.0165)	(0.0246)	(0.0164)
After*Treated	**-0.0679*** **	**-0.0436*** **	**-0.0676*** **	**-0.0326***
	(0.0185)	(0.0127)	(0.0084)	(0.0185)
Controls, time and regional dummies	Yes	Yes	Yes	Yes
Observations	24,868	24,868	7,929	16,939

Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: Estimation of a triple difference-in-difference model. Column (1) measures the program's effect on the probability of a household falling below the poverty line during its observation period. i.e. income per capita below $5.5/day (PPP 2011). Column (2) measures the effect on the coefficient of variation of household income. Columns (3) and (4) on the sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of interview, i.e. average income per capita below $11.5/day (PPP 2011). Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value one for the periods after the AUH implementation (2010-2015), otherwise zero (2004-2009). Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1.

5 Summary and concluding remarks

This paper evaluates the impact of the AUH – the largest Argentina's non-contributory program – on income stability within economically vulnerable households over the 2004-2015 period. The AUH aims to extend social coverage to children in poor and vulnerable households. A quasi-experimental DD method is employed to assess the intention-to-treat by comparing eligible and non-eligible but similar households. Income stability is evaluated by looking at poverty transitions, i.e. the time spent in poverty by a household during its observation period, and the CV in income. Three main results stand out.

First, the AUH significantly reduces the time spent in poverty for eligible households by 16% compared to the situation without the program implementation. This protective effect, stemming from a direct income boost, enables eligible and low-income households to avoid slipping back into poverty and reduce income swings that would lead to a return to poverty.

Second, the program effectively stabilizes income streams, particularly among households whose income declined over the period, with an average 15% reduction in the CV for eligible households, still compared to the situation without the AUH implementation. It confirms the program's role in mitigating income losses through a predictable and consistent income source throughout the year.

Third, the program affects eligible households heterogeneously depending on their family structure. The program's effect on poverty is higher for households with a young child and larger family sizes (more than two children), potentially stemming from their relatively poorer economic conditions in the sample. Conversely, the reducing effects on poverty and income-stabilizing effects are considerably reduced in woman-headed households, the latter being overwhelmingly single women with children parents. The presence of grandparents in the household also tends to reduce the poverty-reducing effect of the program. It suggests that the program is insufficient to stabilize these households' economic situation, whose adaptation to a shock is more challenging (lack of flexibility in work, higher economic burden).

However, several limitations warrant consideration. First, while the results show that the AUH helps reduce household income fluctuations, comparing eligible and non-eligible households fails to elucidate the duration of a household's program benefit. Antipoverty policies can inadvertently increase income instability, particularly for households teetering on the edge of eligibility or household members intermittently engaged in the formal sector (Wolf et al., 2014). Although the AUH has been promoted as universal, many households are still excluded from the program because of administrative barriers, geographical remoteness, lack of documentation, or processing of files (Pautassi et al., 2013). Similarly, the low frequency of household interviews per year makes it difficult to assess the program's impact on intra-year household income fluctuation (two interviews at most). Second, the EPH survey does not allow the examination of the underlying mechanisms driving the decline or increase in income and the specific shocks experienced by the household. Exploring potential changes in consumption or saving habits among program beneficiaries could offer valuable insights.

In conclusion, the results found in this paper are relevant from a public policy perspective and show the benefits of extending access to social protection for households that are not only poor but also at high risk of poverty, whether due to family situations or precarious employment status. However, the proliferation of non-contributory CT programs alongside formal contributory systems in the LA region exacerbates the divide between the two systems, diverging from the universal ambit of family policies. It is needed to design more cohesive, unified, and sustainable social protection systems that cover risks common to all citizens, irrespective of their labor status, aligning with a universal social protection system.

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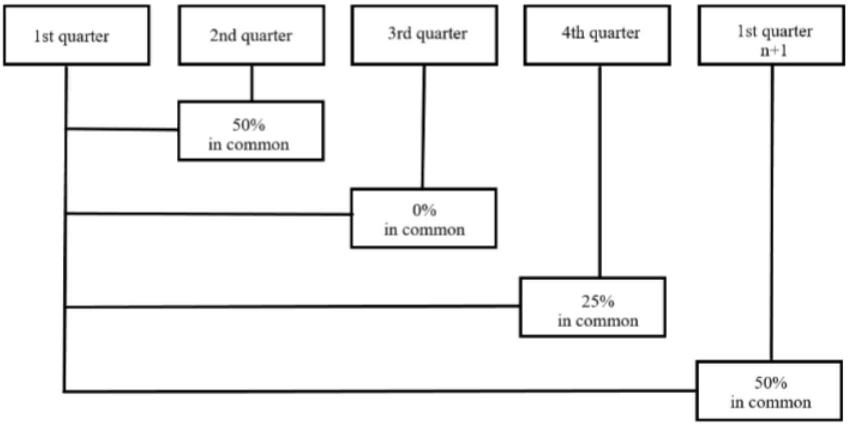
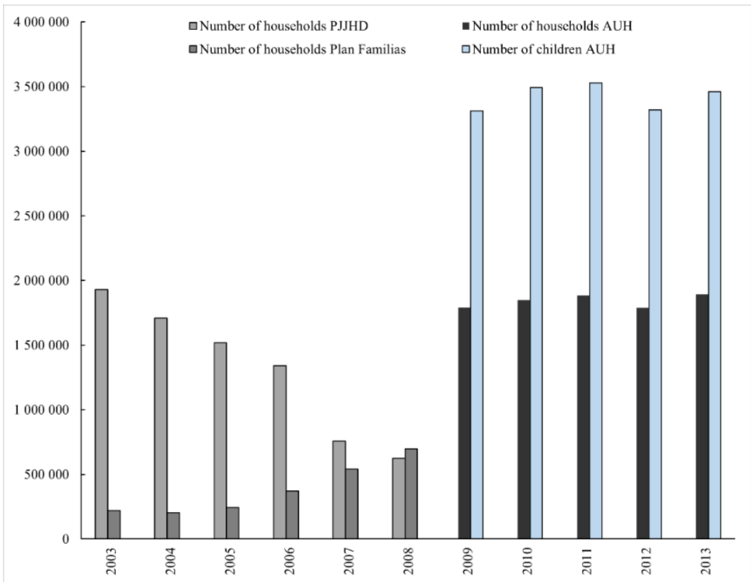
Appendix

Figure A1: Structure of the EPH panel data



Source: Author's adaptation of the EPH methodology (INDEC, 2003).

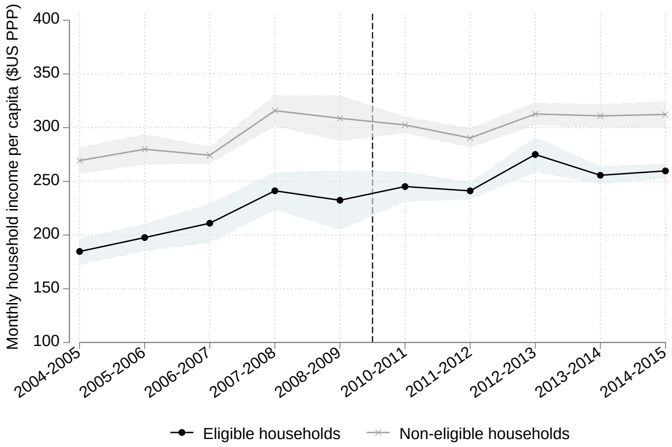
Figure A2: Evolution of the main social programs in Argentina (2003-2013)



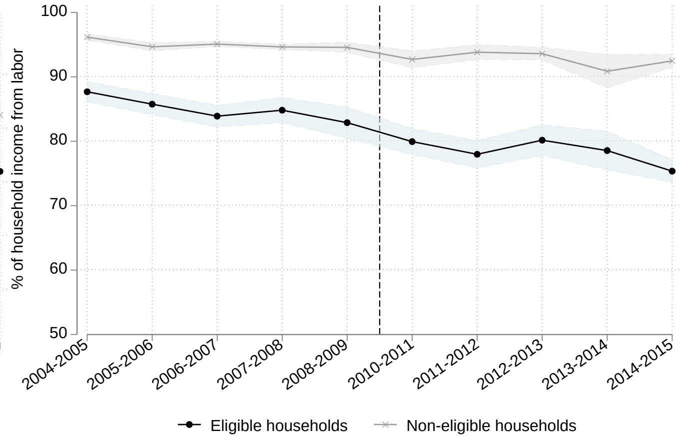
Source: Data come from the Abiertos Asignaciones Universales (ANSES) for the AUH and from Fenwick (2013) for the PF (Plan Familias)/PJJHD programs
Note: PJJHD = Plan Jefes y Jefas de Hogares Desocupados ; AUH = Asignacion Universal por Hijo. The AUH was implemented in November 2009.

Figure A3: Evolution in the structure of household income among eligible and non-eligible households

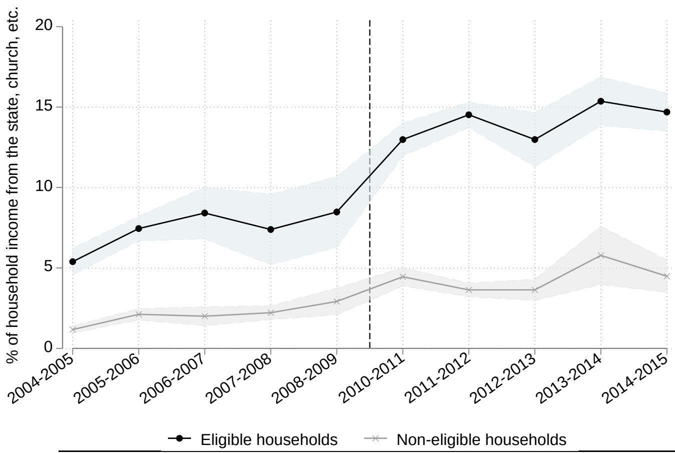
3.a) Average monthly per capita income over time



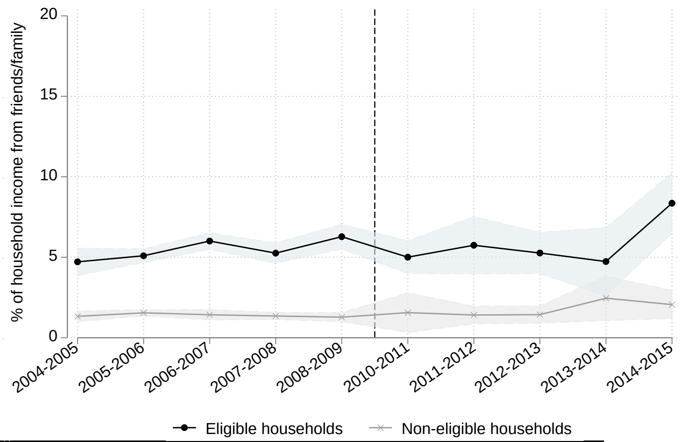
3.b) Share of household income from labor



3.c) Share of household income from the state, church, etc.



3.d) Share of household income from friends/family



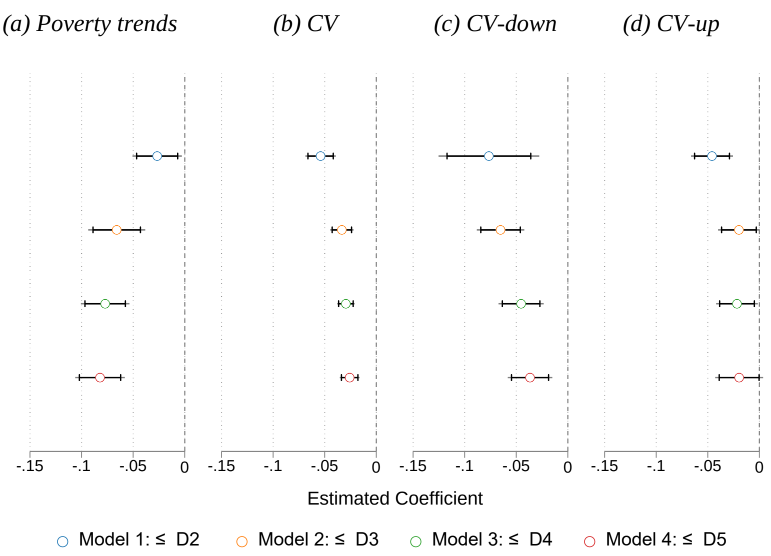
Source: Author's calculation based on the EPH microdata, 2004-2015.
Note: The sample is composed of households with at least one minor child and classified as poor or vulnerable in the first year of appearance in the survey, i.e. income per capita below $11.5/day (PPP 2011). A household is eligible for the program if a child has parents who are either working in the informal sector, domestic employees, unemployed or inactive, or retired without health coverage for the first observation year. Income from labor includes retirement pensions. Confidence intervals at 95% are shown.

Table A1: Characteristics of the AUH beneficiaries (ENGHo, 2012)

Household level			
Household size		4.94	
Income per capita ($US PPP 2011)		$10.97/day	
Parents level		Head of household (%)	Spouse (%)
Sex			
	Men	65.7	15.5
	Women	34.3	84.5
Age (years)		41.2	36.6
Age composition	<19	0.0	1.0
	19-25	7.2	13.6
	26-34	27.3	34.2
	35-64	60.3	49.1
	>64	5.2	2.1
Education	Primary Incomplete	18.1	15.3
	Primary complete	29.9	32.1
	Secondary incomplete	25.2	24.9
	Secondary complete	19.8	21.0
	University incomplete	3.6	4.7
	University complete	2.2	1.9
	Others	1.2	0.2
Labor status	Employee	54.6	30.7
	Self-employed	21.9	12.7
	Employer	1.7	0.3
	Family worker	0.0	0.2
	Inactive/unemployed	21.7	56.1
Observations		2806	1970

Source: Authors' elaboration based on ENGHo (2012)
Note: Income values are deflated in 2018 pesos and converted in $US (PPP 2011) adapted for 2018. The factor conversion from the World Bank is 14.23.

Figure A4: Effect of the AUH on income stability using deciles of household per capita income distribution



Source: Author's calculation based on the EPH microdata, 2004-2009.
Note: Coefficients shown correspond to the interaction term of difference-in-difference estimates based on equation (2). Confidence intervals at 90% and 95% are shown. The poverty trends indicator measures the probability of a household falling below the poverty line during its observation period. i.e. income per capita below $5.5/day (PPP 2011). The CV is the coefficient of variation of household income. CV-down and CV-up measures the CV of sub-samples of households with the same change in income between the first and second year of interview (negative or positive). The sample is composed of households with minor child belonging to deciles D2 to D5 of the per capita household income distribution in their first year of interview. Households are eligible if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors by large urban areas.

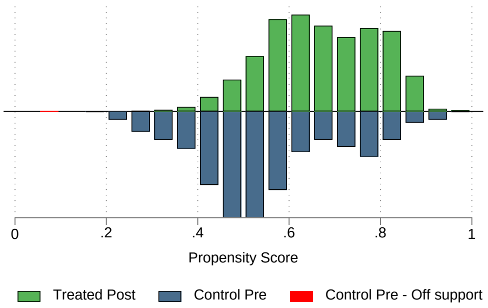
Matching procedure and quality

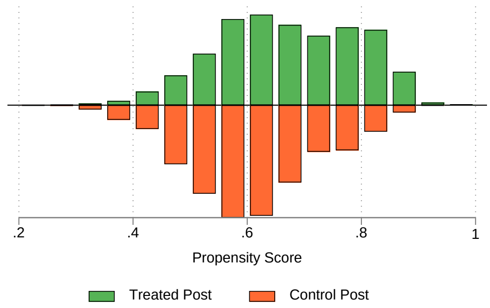
Since households in treated and control groups cannot be followed over the pre- and post-periods, three sets of weights are calculated independently according to the calculated propensity score (two sets of weights in the pre- and post-periods for the control group and one in the pre- period for the treated group). The variables used for the matching are the number of under-18 and over-18 children and its square, the household size, age of the youngest child, the parents' highest level of education, dummy indicating if grandparents live in the household, if a woman heads the households, if a single parent heads the household, if the parents have multiple jobs, and the age and age squared of the head.

Figures A5 to A7 illustrate the quality of matching. Figure A5 and A6 show the distribution of the propensity score before and after matching, as well as the propensity score distribution by group between the post-treated group and the three other control groups (pre-treated, pre-control and post-control) to visually check the overlap of the region of common support. In each case, there is a wide common support the two groups with similar propensity score distributions. Figure A7 demonstrates that the matching clearly reduces standardized bias across covariates compared to the unmatched situation. Eligible and non-eligible households are more similar in terms of observable characteristics than in the unmatched model (apart from the age of the head of household, which differs slightly).

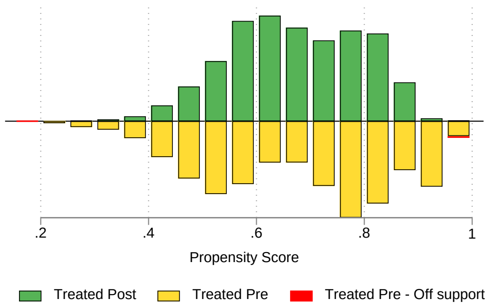
Figure A5: Propensity score by group and common support

(a) Treated in post-period vs Control in pre-period *(b) Treated in post-period vs Control in post-period*



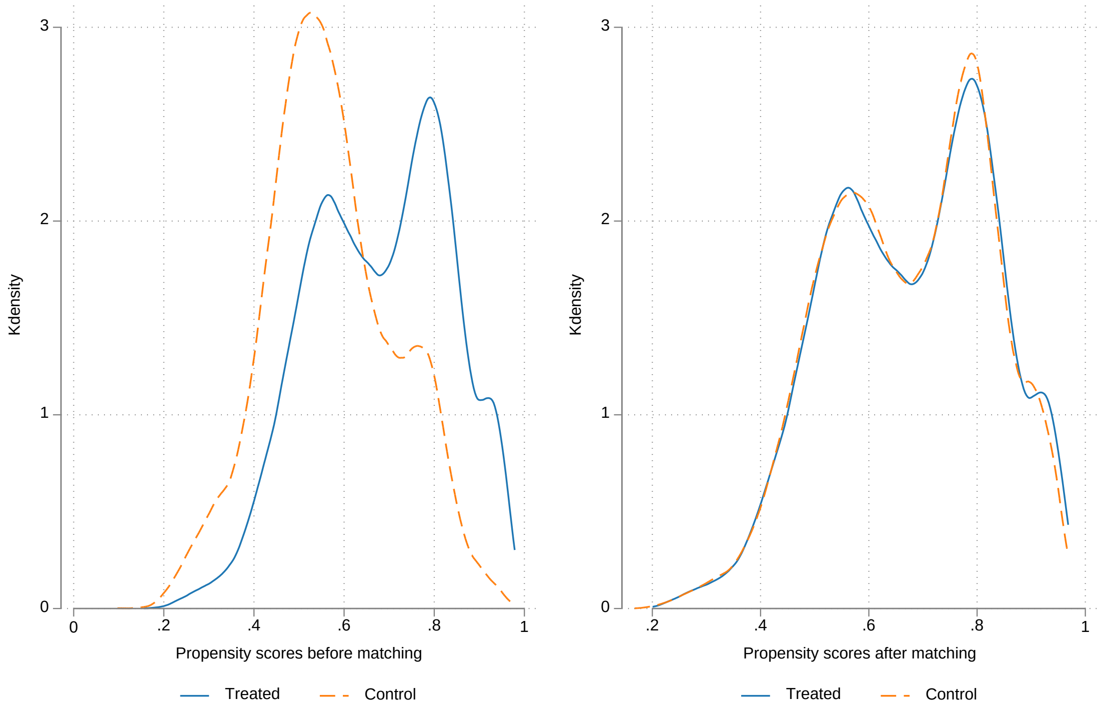


(c) Treated in post-period vs Control in pre-period



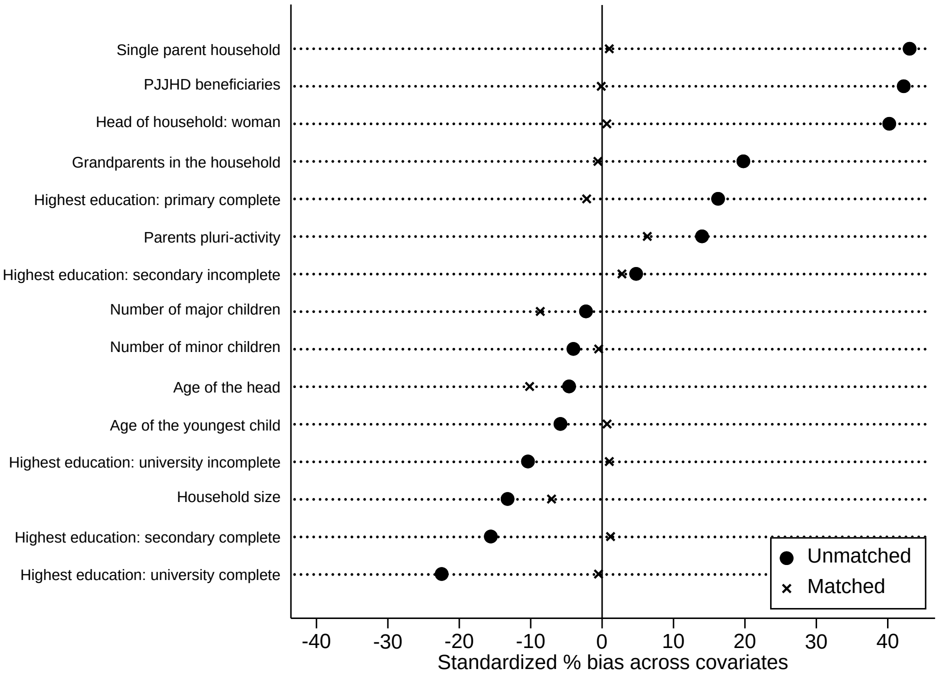
Source: Author's calculation based on the EPH microdata, 2004-2015.

Figure A6: Propensity score before and after matching



Source: Author's calculation based on the EPH microdata, 2004-2015.

Figure A7: Standardized bias before and after the matching



Source: Author's calculation based on the EPH microdata, 2004-2015.

Table A2: Effect of the AUH on income stability using alternative monetary ranges for the vulnerable group

Panel A : [$5.5 ;$13.5]	(1)		(2)		(3)		(4)	
Dependent variables	Poverty trends		CV		CV-down		CV-up	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
After*Eligible	**-0.1196*** **	**-0.0681*** **	**-0.0267*** **	**-0.0412*** **	**-0.0389*** **	**-0.0589*** **	**-0.0209***	**-0.0323** **
	(0.0087)	(0.0129)	(0.0071)	(0.0069)	(0.0073)	(0.0111)	(0.0121)	(0.0133)
Eligible	**0.2717*** **	**0.2063*** **	**0.0919*** **	**0.1044*** **	**0.0884*** **	**0.1038*** **	**0.0958*** **	**0.1063*** **
	(0.0101)	(0.0136)	(0.0056)	(0.0063)	(0.0138)	(0.0186)	(0.0035)	(0.0039)
After	**-0.0504*** **	**0.0149***	0.0060	-0.0088	0.0149*	0.0071	0.0029	-0.0165
	(0.0093)	(0.0085)	(0.0045)	(0.0192)	(0.0079)	(0.0120)	(0.0057)	(0.0286)
Controls, time and regional dummies	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.1519	0.3158	0.0274	0.0503	0.0221	0.0521	0.0320	0.0578
Observations	29,557	29,557	29,557	29,557	9,923	9,923	19,634	19,634
Average	0.158		0.353		0.326		0.365	
Panel B : [$5.5 ;$15.5]	(1)		(2)		(3)		(4)	
Dependent variables	Poverty trends		CV		CV-down		CV-up	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
After*Eligible	**-0.1262*** **	**-0.0728*** **	**-0.0234*** **	**-0.0338*** **	**-0.0321*** **	**-0.0459*** **	-0.0191	**-0.0269** **
	(0.0086)	(0.0118)	(0.0052)	(0.0059)	(0.0093)	(0.0115)	(0.0113)	(0.0131)
Eligible	**0.2751*** **	**0.2021*** **	**0.0915*** **	**0.1007*** **	**0.0835*** **	**0.0923*** **	**0.0973*** **	**0.1062*** **
	(0.0112)	(0.0133)	(0.0052)	(0.0053)	(0.0122)	(0.0158)	(0.0032)	(0.0034)
After	**-0.0463*** **	**0.0177*** **	0.0024	-0.0095	0.0131	0.0056	-0.0019	-0.0177
	(0.0086)	(0.0061)	(0.0035)	(0.0149)	(0.0093)	(0.0115)	(0.0052)	(0.0251)
Controls, time and regional dummies	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.1630	0.3327	0.0292	0.0482	0.0214	0.0449	0.0353	0.0575
Observations	33,792	33,792	33,792	33,792	11,855	11,855	21,937	21,937
Average	0.133		0.348		0.325		0.359	

Source: Author's calculation based on the EPH microdata, 2004-2015.

Note: Difference-in-difference estimates. The poverty trends indicator (1) measures the time spent in poverty by a household during its observation period, i.e. income per capita below $5.5/day (PPP 2011). The CV (2) is the coefficient of variation of household income. The CV-down and CV-up indicators (3 and 4) are calculated for households with a drop and increase in income respectively between the first and second year of observation. The sample comprises households with at least one minor child and classified as poor or vulnerable in the first year of appearance in the survey, i.e. income per capita below $13.5 (Panel A) and $15.5 (Panel B) per day. Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value one for the periods after the AUH implementation (2010-2015), otherwise zero (2004-2009). Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the AUH implementation.

Table A3: Effect of the AUH on income stability using deciles of household per capita income distribution

	(1)				(2)			
Dependent variables	Poverty trends				CV			
Sample restricted to ≤	D2	D3	D4	D5	D2	D3	D4	D5
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
After*Eligible	**-0.0267****	**-0.0659*****	**-0.0771*****	**-0.0821*****	**-0.0540*****	**-0.0334*****	**-0.0294*****	**-0.0258*****
	(0.0117)	(0.0136)	(0.0116)	(0.0118)	(0.0072)	(0.0055)	(0.0042)	(0.0047)
Eligible	**0.1847*****	**0.2045*****	**0.2025*****	**0.1990*****	**0.1234*****	**0.1123*****	**0.1079*****	**0.1076*****
	(0.0089)	(0.0136)	(0.0129)	(0.0139)	(0.0181)	(0.0097)	(0.0064)	(0.0047)
After	**-0.0511*****	0.0017	**0.0152****	**0.0211*****	-0.0109	-0.0195	-0.0164	-0.0140
	(0.0122)	(0.0093)	(0.0073)	(0.0055)	(0.0205)	(0.0154)	(0.0140)	(0.0130)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.4060	0.3804	0.3701	0.3722	0.0827	0.0651	0.0576	0.0564
Observations	17,392	25,808	32,891	38,757	17,392	25,808	32,891	38,757
Average	0.350	0.227	0.165	0.130	0.373	0.353	0.342	0.332

	(3)				(4)			
Dependent variables	CV-down				CV-up			
Sample restricted to : ≤	D2	D3	D4	D5	D2	D3	D4	D5
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
After*Eligible	**-0.0765*****	**-0.0652*****	**-0.0453*****	**-0.0366*****	**-0.0459*****	**-0.0198***	**-0.0217****	**-0.0196***
	(0.0239)	(0.0113)	(0.0107)	(0.0106)	(0.0100)	(0.0099)	(0.0099)	(0.0114)
Eligible	**0.1441*****	**0.1226*****	**0.1041*****	**0.1029*****	**0.1199*****	**0.1118*****	**0.1127*****	**0.1118*****
	(0.0404)	(0.0196)	(0.0162)	(0.0129)	(0.0118)	(0.0068)	(0.0046)	(0.0044)
After	-0.0056	0.0144	0.0023	-0.0104	-0.0114	-0.0341	-0.0257	-0.0150
	(0.0138)	(0.0130)	(0.0100)	(0.0068)	(0.0301)	(0.0243)	(0.0222)	(0.0185)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.0766	0.0631	0.0550	0.0550	0.0917	0.0724	0.0666	0.0638
Observations	5,144	8,532	11,685	14,456	12,248	17,276	21,206	24,301
Average	0.313	0.301	0.304	0.303	0.392	0.373	0.358	0.346

Source: Author's calculation based on the EPH microdata, 2004-2015.

Note: Difference-in-difference estimates. The poverty trends indicator (1) measures the time spent in poverty by a household during its observation period, i.e. income per capita below $5.5/day (PPP 2011). The CV (2) is the coefficient of variation of household income. The CV-down and CV-up indicators (3 and 4) are calculated for households with a drop and increase in income respectively between the first and second year of observation. The sample comprises households with at least one minor child and belonging to the corresponding poorest deciles (D2 to D5) of the household per capita income distribution in the first year of appearance in the survey. Eligible variable takes the value 1 if the parents work in the informal sector, are domestic employees, are inactive, unemployed, or retired without health coverage, during their first year of interview. After variable takes the value one for the periods after the AUH implementation (2010-2015), otherwise zero (2004-2009). Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the AUH implementation.

Table A4: Effect of the AUH on income stability using alternative restrictions on the sample size

	(1)				(2)			
Dependent variables	Poverty trends				CV			
Model:	Model 2	Model 3	Model 4	Model 5	Model 2	Model 3	Model 4	Model 5
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
After*Eligible	**-0.0829*** **	**-0.0820*** **	**-0.0603*** **	**-0.0765*** **	**-0.0613*** **	**-0.0397*** **	**-0.0379*** **	**-0.0408*** **
	(0.0092)	(0.0222)	(0.0135)	(0.0133)	(0.0053)	(0.0081)	(0.0102)	(0.0121)
Eligible	**0.2324*** **	**0.2722*** **	**0.2095*** **	**0.2236*** **	**0.1146*** **	**0.1094*** **	**0.1020*** **	**0.0965*** **
	(0.0096)	(0.0165)	(0.0127)	(0.0165)	(0.0104)	(0.0108)	(0.0073)	(0.0085)
After	**0.0305*** **	**0.0214** **	0.0116	0.0026	**0.0377*** **	-0.0072	-0.0098	0.0003
	(0.0078)	(0.0104)	(0.0109)	(0.0110)	(0.0085)	(0.0166)	(0.0212)	(0.0184)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.2710	0.3373	0.2962	0.3115	0.0517	0.0613	0.0524	0.0448
Observations	35,545	19,098	22,571	17,082	35,545	19,098	22,571	17,082
Average	0.191	0.161	0.195	0.204	0.347	0.344	0.365	0.336
	(3)				(4)			
Dependent variables	CV-down				CV-up			
Model:	Model 2	Model 3	Model 4	Model 5	Model 2	Model 3	Model 4	Model 5
	(i)	(ii)	(iii)	(iv)	(i)	(ii)	(iii)	(iv)
After*Eligible	**-0.0788*** **	**-0.0700*** **	**-0.0610*** **	**-0.0624*** **	**-0.0514*** **	**-0.0285* **	**-0.0279* **	-0.0299
	(0.0113)	(0.0186)	(0.0081)	(0.0184)	(0.0102)	(0.0145)	(0.0144)	(0.0238)
Eligible	**0.1192*** **	**0.1619*** **	**0.1073*** **	**0.1010*** **	**0.1158*** **	**0.0960*** **	**0.1021*** **	**0.0955*** **
	(0.0188)	(0.0261)	(0.0204)	(0.0240)	(0.0071)	(0.0066)	(0.0039)	(0.0060)
After	**0.0509** **	0.0291	0.0064	0.0063	**0.0321** **	-0.0210	-0.0159	-0.0012
	(0.0187)	(0.0190)	(0.0141)	(0.0209)	(0.0153)	(0.0276)	(0.0280)	(0.0338)
Controls, time and regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.0413	0.0847	0.0597	0.0628	0.0625	0.0622	0.0580	0.0474
Observations	11,924	6,347	7,180	5,695	23,621	12,751	15,391	11,387
Average	0.302	0.276	0.333	0.317	0.368	0.367	0.377	0.344

Source: Author's calculation based on the EPH microdata, 2004-2015.

Note: Difference-in-difference estimates. The poverty trends indicator (1) measures the time spent in poverty by a household during its observation period, i.e. income per capita below $5.5/day (PPP 2011). The CV (2) is the coefficient of variation of household income. The CV-down and CV-up indicators (3 and 4) are calculated for households with a drop and increase in income respectively between the first and second year of interview. In Model 2, the sample includes all households with at least two interviews over time, instead of more than three. In Model 3, household eligibility is based on the entire observation period, not just the first year. In Model 3, the analysis period is restricted to 2004-2013 instead of 2004-2015. Finally, Model 5 drops households where at least one household member has not declared a source of income over the analysis period. Control variables include household head age and squared, gender, whether single parent, number of children under and over 18 and squared, household size, parents' highest level of education, whether parents have multiple jobs, whether the household benefited from the PJJHD program during the period and its interaction with the treatment variable, and time and region fixed effects. Clustered standard errors are in brackets (by large urban areas). *** p<0.01, ** p<0.05, * p<0.1. The value in the last row corresponds to the average of the dependent variable for the control group before the AUH implementation.