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Social Policy and Female Labor Force  
Participation: the case of AUH in Argentina.

**Garganta, Santiago**  
**Gasparini, Leonardo**  
**Marchionni, Mariana**

# Social policy and female labor force participation: the case of AUH in Argentina \*

Santiago Garganta   Leonardo Gasparini   Mariana Marchionni \*

## Abstract

In 2009 Argentina implemented a conditional cash transfer program targeted to poor informal households with children. In most cases the mother is the recipient of the subsidy. In this paper we estimate the impact of this program on female labor force participation by comparing mothers in eligible households with those in non-eligible households over time. The results suggest a negative and statistically significant effect of the program on female labor force participation. In contrast, there is no evidence for a negative effect on male labor supply. The welfare implications of these results are not clear and deserve further inspection.

## Resumen

En 2009 se implementó en Argentina un programa de transferencias monetarias condicionadas que beneficia a trabajadores informales o desocupados con hijos. La titularidad del beneficio se encuentra típicamente a cargo de la madre. En este trabajo se estima el impacto de esta política sobre la participación laboral femenina comparando en el tiempo los resultados laborales entre mujeres elegibles y no elegibles. Los resultados sugieren un efecto negativo y significativo del programa sobre la participación laboral de las mujeres. Por el contrario, no se encuentra evidencia de un efecto sobre la oferta laboral de los hombres. Las implicancias de bienestar de estos resultados no son claras y merecen una investigación más profunda.

*JEL Code:* H55, I38, J16, J22

*Key words:* labor participation, cash transfers, social protection, AUH, Argentina.

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\* Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS) - Facultad de Ciencias Económicas - Universidad Nacional de La Plata, and CONICET.

# 1. Introduction

Since the late 1990s all countries in Latin America have launched initiatives to extend social protection, in particular through the implementation of conditional cash transfers programs (CCT) targeted to poor households with children. The literature that analyzes these social protection schemes has strongly grown over the last years.<sup>1</sup> The evidence suggests that these programs have played a very important role in the short-term reduction of poverty and income inequality in the region, and in the promotion of human capital accumulation in poor families (Fiszbein and Schady, 2009). However, there is concern about some potential unintended effects of these programs; in particular they may imply a labor supply disincentive and a bias toward unregistered labor arrangements (Levy, 2008, Levy and Schady, 2013).

Cash transfer programs may decelerate the entry of women into the labor market. The monetary subsidy raises household income, and therefore may reduce the need for an extra paid job, typically provided by the female spouse. Female labor supply may be discouraged through an additional channel, given that women are typically the recipients of the transfers. If the subsidy is viewed as income earned by mothers for taking care of the children and checking the fulfillment of the conditionalities associated to the program, then this fact may reinforce the traditional gender roles within the household and act as a disincentive for women to participate in the labor market.

The existence and quantitative relevance of these unintended effects are at the core of the current social protection debate in Latin America. The economic literature on the impact of massive income programs over the labor markets is still incipient, but growing.<sup>2</sup> This study contributes to this literature, by assessing the potential impact on female labor force participation of a large cash transfer program implemented in Argentina, targeted to poor unregistered households with children. Specifically, the Universal Child Allowance for Social Protection (AUH for its acronym in Spanish) provides a monthly benefit per child to households whose members are unemployed or working in the informal sector (*i.e.* unregistered). The AUH is a massive conditional cash transfer program launched in 2009, which covers 29% of all children and 15% of total households in Argentina. The benefit per child

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<sup>1</sup> See Bertranou *et al.* (2002); Levy (2008); Fiszbein and Schady (2009); UNDP (2010), Cruces and Gasparini (2012) and OIT (2012).

<sup>2</sup> See Alzúa, Cruces and Ripani (2013); Amarante, Manacorda, Vigorito and Zerpa (2011); Azuara and Marinescu (2013); Bosch and Manacorda (2012); Camacho, Conover and Hoyos, (2009); Bérigolo and Cruces (2013); Gasparini, Haimovich and Olivieri (2009); and Garganta and Gasparini (2015).

represents approximately 13% of the legislated minimum wage and 8.8% of the mean household income for unemployed and informal households with children (*i.e.* the potential beneficiaries of the program). For a typical poor participant household with three children the benefit implies an increase of 45.9% in total household income. These values place the AUH benefit among the largest in Latin America (Stampini and Tornarolli, 2013).

The cash transfer to poor informal households with children may reduce the parents' participation in the labor market compared to the counterfactual situation of absence of the program. We expect this effect to be larger for mothers due to at least two arguments. The first one is that the income elasticity of labor supply tends to be larger for females than for males, in particular for married<sup>3</sup> women with children (Michalopoulos *et al.*, 1992; Kimmel, 1998; Eissa and Hoynes, 1999; Eissa and Hoynes, 2004; Naz, 2004; Tamm, 2009). This difference is mainly driven by the fact that many women decide their employment status sequentially in response to the decision of their husbands or partners (Michalopoulos *et al.*, 1992). Female labor decisions are more flexible when they are not the only income earners of the household (Kimmel, 1998).

The second argument relies on the fact that women are typically the recipients of the subsidy. Administrative data from this program (ANSES, 2014) reveals that in 96% of the participant households the mother is identified as the principal holder/recipient of the benefit. If the AUH transfer is viewed as income earned by mothers, it may discourage the search for a job, and in general it may imply a disincentive for women to participate in the labor market.

Although there are reasons to believe that the AUH may reduce the incentives to participate in the labor market, in practice these disincentives could be quantitatively irrelevant or be compensated by forces operating in other directions that were not considered in this analysis. The practical relevance of the potential disincentives of the program can only be determined with empirical evidence. Unfortunately, it is not simple to identify the causal effect of the program since it was not randomly assigned in the population. In addition, no questions aimed at identifying AUH beneficiaries were introduced in the national household survey of Argentina. Due to these constraints, our identification strategy consists in comparing eligible mothers (poor, informal with children) with similar but non-eligible women over time. This strategy of

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<sup>3</sup> Throughout the paper we do not make distinctions between formally married women and women in consensual unions; for simplicity we refer to both groups as *married women*.

*difference in differences* is effective in alleviating several endogeneity problems that arise when comparing heterogeneous observations.

The evidence we present in this paper suggests lower transitions from inactivity to labor force participation for eligible mothers after the inception of the AUH program, especially among married women. The effect is not negligible: on average it represents a fall of 25% in the probability of participating in the labor market, compared to what would have happened in the absence of the program. We argue that the large size of the cash benefit may account for such a sizeable effect. The program also seems to affect female hours of work, although this result is not entirely robust to alternative definitions of the control group. Both labor participation and total hours worked by men are not significantly changed by the introduction of the AUH.

Given these results, considering the theoretical reasons to link the program with labor force participation, and taking into account the absence of alternative sensible explanations of the divergent behavior between program participants and the rest after the implementation of the program, we conclude by suggesting the existence of a significant disincentive of the Universal Child Allowance program to female labor force participation.

Interestingly, we find an asymmetric adjustment to the new policy: while the program seems to slow down the transitions of inactive women to labor force participation, it does not significantly affect the transitions from labor activity to inactivity. Therefore, the observed reduction in the labor force participation rate among eligible women after the AUH in comparison with a more stable trend for non-participants is mainly due to a slower entry of participant women into the labor force, and not due to a significant increase in the exit rate.

The welfare implications of these results are not clear and deserve further research. The discouragement of female labor force participation can be assessed as a step backwards in terms of women's empowerment, gender equality and poverty relief, but can also be seen as a positive outcome of the program, if the subsidy allows poor women to leave low-wage non-decent jobs to devote time to care for their children or seeking better employment opportunities.<sup>4</sup>

The rest of the paper is organized as follows. Section 2 reviews the literature on social policy and labor force participation. In Section 3 we explain the main characteristics of the Universal Child Allowance program, while in Section 4 the potential labor force participation incentives caused by this policy are

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<sup>4</sup> See this discussion in Gasparini and Marchionni (2015) in the context of a general fall of labor force participation in Latin America in the 2000s.

discussed. Section 5 describes the data used in this study and lays out the methodology, while Section 6 presents the main findings. We conclude in Section 7 with some final remarks.

## 2. Literature and Background

There is a large variety of cash transfers programs implemented around the world with potential consequences on the labor outcomes of the beneficiaries, particularly on women's participation. Leibbrandt *et al.* (2013) analyze the various mechanisms involved in the employment decisions of individuals facing the introduction of these policies, stressing their significant incidence on female labor variables. These benefits may entail a strong labor impact on women who are traditionally characterized by low participation rates and an active involvement in household chores and childcare.

One of the income policies with high incidence on female labor participation are the child support grants (CSG). This type of program, implemented by several countries, consists of a cash transfer targeted to households with children focused on easing the childcare process. The objective of CSGs is twofold: improve the quality of childcare and reduce its cost. The evidence indicates that the impact of these programs on labor supply depends strongly on which of these two purposes dominates and how mothers internalize this benefit. Kimmel (1998) shows that the change in childcare price generated by CSG programs tends to restrict the labor supply particularly of married women considering they are not the only income earner of the family. In the US women react to this type of income transfer substituting childcare services but without altering their employment rate (Ribar, 1995). Other authors find instead an increase in female participation and labor intensity due to the introduction of CSGs both in developed and developing countries (Williams, 2007; Lefebvre and Merrigan, 2008; Eyal and Woolard, 2011). Berger and Black (1992) reveal that women invest this transfer directly on her children, increasing schooling attendance, which enables mothers to devote a higher proportion of their time in the labor market. If this benefit is not exclusively assigned to the child, it can generate a reduction in labor costs for mothers (e.g. financing job-seeking) and therefore may raise their labor force participation (Lefebvre and Merrigan, 2008).

Another important group of programs with impact on labor results are those universal cash transfers or other minimum income benefits based on certain eligibility criteria (means-test grants). These policies may induce either a

positive effect on labor supply (lower labor fixed costs) or a negative change on participation, particularly when the amount of the benefit is close to the potential labor income (Franz *et al.*, 2011). However, the literature shows a relative consensus for this group of programs. The evidence suggests an adverse effect on labor supply, particularly motivated by the lack of conditionalities and the magnitude of the benefits. Lemieux and Milligan (2004) identify a significant reduction both of the employment rate and the total hours worked by participants of a social assistance transfer in Quebec. Terracol (2009) and Bargain and Doorley (2010) evaluate the impact on the labor market of a means tested program in France. They find an important fall in labor participation and larger unemployment duration, since the transfer reception does not require any condition on seeking job. Similarly, Cavalcanti and Correa (2010) find a negative labor effect of a cash transfer program in Rio de Janeiro which benefits individuals with income below a certain threshold regardless of their employment status. There is also evidence of a differential impact between genders of these programs. For instance, a minimum income policy in Albania discourages labor market participation, particularly of women living in urban areas (Dabalén *et al.*, 2008).

The conditional cash transfers, mainly implemented in Latin America, can also generate diverse labor effects. The evidence on this CCT programs is still scarce and far from conclusive (Bosch and Manacorda, 2012; Alzúa *et al.*, 2013). Although several studies have found no significant consequences in the short term (Parker and Skoufias, 2000; Galasso, 2006; Skoufias and Di Maro, 2008; Skoufias *et al.*, 2008; Edmonds and Schady, 2012), recent investigations provide evidence that CCTs may discourage labor supply in certain groups. Ferro y Nicollela (2007) find that some CCT programs have implied a higher decline in hours worked by women with greater restrictions to meet the requirements of these policies and with less assistance from other household members in domestic tasks. In the same vein, Scarlato *et al.* (2014) state the relevance of an intrahousehold equal distribution of commitments and opportunities for men and women regarding the responsibilities and requirements established by these programs.

Previous studies of the AUH, the main CCT program in Argentina, fail to find significant changes in adults' labor supply. Maurizio and Vázquez (2012) find a slightly significant but not robust increase in the unemployment rate of beneficiary women. These authors, however, use a different identification strategy and analyze the evidence over a shorter period of time (2009-2010), than our study. Castillo *et al.* (2013) highlight the greater labor precariousness of the AUH receptors compared to those workers under the traditional social

security system (TSS). They also reveal the lower chance of access to a stable job of the AUH beneficiaries and the relatively worse paid employment they take on. These authors also report a smaller participation rate among recipients and a higher probability of underemployment than TSS workers. They state that this policy reinforces the determination of women as the principal child care provider of the household. Although this can be positive in some respects it can also perpetuate the traditional domestic roles assigned to them and strengthen their isolation from the labor market.

This paper considers that the AUH may generate a reallocation of roles between genders with a potential reduction in female labor participation. The hypothesis is supported by several arguments detailed in Section 4, some of them are based on general empirical issues and others are tied to the particular design of this policy.

### 3. The Program

In November 2009, the Argentinean government implemented a massive program of conditional cash transfers to poor households with ample political support and under a stable economic situation.<sup>5</sup> Specifically, the decree 1602/09 created the Universal Child Allowance for Social Protection (AUH) which consists in a monetary subsidy per child for households whose members are either unemployed or working in the informal sector (unregistered workers).<sup>6</sup> Although the decree restricts participation to those unregistered workers earning less than the legal minimum wage, this condition is difficult to monitor, and hence in practice the limitation is inconsequential. At the time of its inception the AUH program transferred monthly ARG\$ 180 (around US\$ 50) for each child under 18 years old up to a maximum of 5 dependent children. The corresponding benefit for disabled children (no age restrictions) was initially set at ARG\$ 720. The monthly amount per child has been adjusted annually to shield the purchasing power of the subsidy against inflation.<sup>7</sup>

As in any typical conditional cash transfer program, the reception of the AUH demands compliance with education and health requirements. In particular, 20% of the monthly benefit can only be made effective upon fulfillment of the

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<sup>5</sup> Unlike the AUH, others cash transfer programs in Argentina were typically triggered by a socioeconomic emergency. The programs *Trabajar* in the mid-1990s and *Jefes de Hogar* in 2002 are the two main examples in this sense.

<sup>6</sup> Registered workers already had a similar benefit (law 24.714 of 1996).

<sup>7</sup> After several yearly increasing adjustments of the monthly amount of the transfer, the benefit per child is currently (June 2015) ARG\$837 and ARG\$2730 for disabled children.



conditionalities: vaccination and health checks for children under 4 years old and school attendance for those aged 5 or older. The recipients of AUH are not allowed to receive benefits from other social programs.

This cash transfer program covers a large proportion of the Argentinean population, the majority belonging to low-income strata. The AUH covers 3.6 million children, which represent 29% of all children in the country (15% of total households). The annual budget of the program - around 0.8% of GDP – is one of the highest in Latin America. The monetary benefit is also high according to international standards (Fiszbein and Schady, 2009; Stampini and Tornarolli, 2013). The amount per child represents 8.8% of the mean household income for unemployed and informal households with children. For a typical beneficiary family with three children the benefit implies an increase of almost 50% in the total household income and around 40% of the legislated minimum wage.

Being such a large program, the AUH potentially has a significant impact on economy-wide social and labor variables. So far, the literature has focused on the impact of the program on poverty, inequality and education. According to the existing estimates, which typically ignore potential changes in individuals' behavior after the program, the AUH had a significant impact on the reduction of poverty and income inequality, and some positive results on school attendance levels (Gasparini and Cruces, 2010; Agis *et al*, 2010; Paz and Golovanevsky, 2011; D'Elia and Navarro, 2011; Rofman and Oliveri, 2011). In contrast, there are almost no studies assessing the impact of the program on labor participation.<sup>8</sup>

Given the close relationship between the reception of this transfer and the individuals' labor conditions, the policy is expected to indirectly alter the working decisions of both program holders and the rest of the members of the beneficiary household. This involves not only changes in the incentives related to the formal registration of workers (Garganta and Gasparini, 2015) but also on labor participation of the beneficiaries. There are several reasons to relate the AUH intervention particularly with a potential employment disincentive for women who are mostly the recipients of this benefit (see Appendix B).

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<sup>8</sup> Using a different strategy to our paper (transitions around the date of the intervention) Maurizio and Vazquez (2012) find that in the short run the program did not discourage adults from working or lead to a reduction in the number of hours worked.

## 4. Potential impact on labor force participation

The AUH may discourage labor participation. The program introduces an additional important factor that can alter pre-policy working decisions and labor results. This potential effect is latent in all members of a beneficiary household but it is expected to be higher in mothers for at least two main reasons. First, the female income elasticity of labor supply tends to be larger than the corresponding sensitivity for men. Particularly, women's reaction is expected to be higher when they are not the main or only earner of the household (Michalopoulos *et al.*, 1992; Kimmel, 1998; Eissa and Hoynes, 1999; Eissa and Hoynes, 2004; Naz, 2004; Tamm, 2009). Female participation typically depends on prior labor decisions of their husbands, implying that the potential change in women's participation or employment intensity are more flexible to this benefit.

The second argument is based on the fact that women are the main recipients of the benefit. This particular feature may encourage them to take a more active role in the program and, therefore, be more susceptible to the potential employment incentives of the program. According to official information, in 96% of the families receiving the AUH, a woman is the recipient (see Appendix B). The program could stimulate an increase in the mother's time out of work, through the fulfillment of the conditionalities. It is also likely that the higher level of responsibility given to woman by this program generates a possible assimilation of the transfer as an income received in exchange for a general care of their children, which release them from the pressure to seek employment. The previous division of roles and functions between men and women within the household might be affected by the program. In particular, this gender bias of the AUH may imply a disincentive for female labor force participation.

As argued in this section, there are some reasons to believe that the AUH may reduce the incentives to labor force participation. However, in practice, these disincentives could be quantitatively irrelevant or be compensated by forces operating in other directions that were not considered in this analysis. The practical relevance of the potential disincentives of the program can only be determined with empirical evidence.

## 5. Data and methodology

To carry out this study we use microdata from Argentina’s national household survey (*Encuesta Permanente de Hogares*, EPH) conducted by the National Statistical Office (INDEC). The EPH covers 31 large urban areas, which represent 62% of the total country population.

Given that the EPH does not include questions to identify AUH beneficiaries, we divide the population into two groups according to their potential eligibility to participate in the program based on the official criteria and conditions of the policy (*intention to treat*). Specifically, the treatment group is composed by women (household head or spouse) aged 20 to 60 in poor<sup>9</sup> informal households with children. The control group includes similar women in the same age bracket but who do not meet all the conditions to be eligible.<sup>10</sup>

The question in the EPH used to identify informality asks salaried workers whether they have deductions for pensions in their jobs. This question is used in the literature as the main proxy for informality (Tornarolli *et al.*, 2014), and is close to the eligibility criterion for the AUH: any salaried worker that has pension deductions should be registered in the national social security system, and hence does not qualify for the AUH. Self-employed workers are typically unregistered. Some self-employed workers could in principle be paying social security taxes and receiving a basic social security coverage if their earnings are above some threshold, but almost no worker in our sample meets that requirement.

In this paper we exploit the rotation scheme of the EPH survey that allows us to measure changes in the labor participation of each individual during a period of one year and a half. We mainly analyze if initially inactive women experience a transition towards an active labor status, either by working or seeking employment. We also investigate other female labor transitions potentially affected by the AUH (active-inactive or employed-not employed). We construct 35 follow-up periods covering a time span of 10 years from 2004 to 2013, which allows monitoring these different labor transitions between eligible and not eligible women both before and after the introduction of the program.

Table 1 shows some descriptive statistics of the treatment and control groups. Although there are some similarities between them we identify some

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<sup>9</sup> We consider that poor families are those belonging to the first four deciles of the household per capita income distribution, and check the results for robustness.

<sup>10</sup> We use alternative control groups to check the robustness of the results.

significant differences. This is not surprising considering the typical conditions that the potential participants of the AUH must meet (informal with children).

To estimate the program impact on the labor participation results of females, we apply the *difference in differences* methodology (DD), which consists in comparing the differences in the outcome of interest between the treatment and control group, before and after the introduction of the policy (Card, 1990; Card and Krueger, 1994). This methodology is convenient not only for its simplicity, but also for its effectiveness to prevent several endogeneity problems that arise when comparing outcomes for heterogeneous individuals (Bertrand, Duflo and Mullainathan, 2004).

The identification assumption in this paper is that in the absence of the AUH program the labor force participation trends for both treatment and control groups would have been similar. Also, it is assumed the inexistence of other events, contemporaneous with the AUH, that could have involved a differential impact between groups on labor force participation. This assumption does not seem strong: during the period under analysis there were no new social programs. In fact, the AUH was the consequence of a political debate on the need to revitalize the social policy in Argentina.

The following equation provides a typical standard linear specification of the DD model:

$$(1) \quad FP_{it} = \alpha + \beta_1 \text{Treat}_{it} + \beta_2 \text{After} + \gamma(\text{Treat}_{it}\text{After}) + \theta X_{it} + u_{it}$$

where  $FP_{it}$  is the relevant outcome, in our case a binary variable indicating whether a person initially inactive participates in the labor market during the last quarter in which s(he) is included in the survey. The model includes an independent variable  $Treat$  that captures whether the individual potentially belongs to the treatment or control group, a variable  $After$  that distinguishes post-program periods from those before the policy implementation, an interaction term between them, and a set of individual and household-level controls ( $X$ ). The control variables include age, age-squared, marital status, educational level, number of children, geographical region and time dummies.

Considering only two time periods ( $t=0,1$ ), the mean difference between groups (treatment  $T$  and control  $C$ ) of their differences over time is

$$(2) \quad DD = (FP_1^T - FP_0^T) - (FP_1^C - FP_0^C)$$

According to this DD linear specification, it is easy to show that

$$(3) \quad DD = \gamma + (u_1^T - u_0^T) - (u_1^C - u_0^C)$$

If the expected value of the last two terms is zero, then DD provides a consistent estimator of the treatment effect. Given that the program assignment is not random, that condition becomes the fundamental assumption of this methodology, which allows causal interpretation of the  $\gamma$  parameter.

The same analysis can be carried out under a nonlinear specification. In that case the conditional expectation of the dependent (binary) variable is a nonlinear function. Analytically,

$$(4) \quad \Pr(\text{FP}_{it}) = \Phi(\alpha + \beta_1 \text{Treat}_{it} + \beta_2 \text{After} + \gamma(\text{Treat}_{it} \text{After}) + \theta X_{it})$$

where  $Pr$  denotes probability. The impact of the program is estimated as

$$(5) \quad DD = \Phi(\alpha + \beta_1 + \beta_2 + \gamma + \theta X_{it}) - \Phi(\alpha + \beta_1 + \beta_2 + \theta X_{it})$$

It is worth to mention that in the non-linear model the expected value of the potential outcome is not zero as in the DD linear specification. The treatment effect in this *difference in difference* non-linear model is the difference between two cross differences: the difference of the conditional expectation of the observed outcome (factual) minus the cross difference of the conditional expectation of the potential or counterfactual outcome. As it is shown in equation 5, the treatment effect will be then the incremental probability impact caused by the coefficient of the interaction term (Ai and Norton, 2003; Puhani, 2012). Being  $\Phi(\cdot)$  a strictly monotonic nonlinear function, the sign of  $\gamma$  will always coincide with the sign of the treatment effect. These results apply to all nonlinear models with this parametric structure. In particular, in this paper we use a *Probit* model to estimate the causal effect of the treatment (the AUH program) on the probability of labor force participation.<sup>11</sup>

An additional outcome of interest in this paper is the female labor intensity. We evaluate the potential change in the total hours worked between groups, before and after the AUH. In this case, the analysis is restricted to those women who remain employed throughout the four quarters of each follow-up period. We estimate the treatment effect using the two step Heckman selection model which allows us to correct the selection bias arising from female labor participation. This will be represented by the probability of women being employed during the whole monitoring period. To measure labor intensity we calculate the change in the total hours worked per week normalized by the intertemporal average labor intensity of each woman. To carry out this

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<sup>11</sup> Angrist and Pischke (2009) find that the estimates from a linear probability model are not far from those obtained with a nonlinear *Probit* model.

methodology we assume that there are certain women's characteristics that affect both labor participation and intensity (age, education, region) while others are specific explanatory factors of the total hours worked or the probability of being employed.

## 6. Results

Following the methodology detailed in the previous section we estimate the impact of the AUH on female labor force participation. In particular, we first investigate the effect of the program on the transitions of labor inactive women into the labor market. Table 2 presents the main results of the paper by showing the coefficients of the interactions between a treatment variable based on program eligibility and a dummy variable for periods after the program inception. The results suggest a negative and significant effect of the AUH on the probability of inactive women entering into the labor force. This disincentive to participate is present among married women (legal or consensual unions), while the effect is not significant for unmarried women with children, a group for which a less sensitive labor reaction to income transfers is expected. The estimated impact among married mothers accounts for a 2.5 percentage-points drop in the probability of labor force participation, which represents a reduction of around 25% in the expected outcome of eligible women in the absence of the AUH. On the other hand, the potential effect of the program is not statistically relevant for men, a result that is consistent with the hypothesis presented in Section 4.

The crucial assumption necessary to attribute the labor disincentive effects to the AUH program is that eligible women would have behaved similar to the control group without the introduction of the cash transfer. Since it is not possible to test this identification assumption, we assess the likelihood of its validity by performing false experiments. In particular, we estimate the treatment effect as if the program was implemented before its actual inception date in 2009. Table 3 shows no significant effect under different *placebo* exercises. This suggests that the observed changes in female labor participation between groups took place after the introduction of the policy, but not earlier.

The results found in Table 2 may be explained by other events with differential incidence in the outcome of interest between groups. Although it is not possible to completely rule out the alternative of contemporary factors to the implementation of the program in late 2009, it is important to note that the

AUH was the main social policy initiative in Argentina during the period under study, and that it was not accompanied by any other social or employment initiative.

The control group in Table 2 includes the complement of the treatment group in the population of adult women, *i.e.* all women who are not eligible for the program since they do not comply with at least one of the main three requirements (children, no registered workers in the household, and low income).<sup>12</sup> To check for robustness, we evaluate the potential impact of the AUH using four alternative control groups: (i) non-eligible women with children (*i.e.* we drop those women without children in the control group), (ii) non-eligible women with no formal partner, (iii) non-eligible women in poor households and (iv) non-eligible women with two of the three main requirements. The estimated effects in Table 4 are all negative and significant, which reinforces the validity of the results found in Table 2. The fall in the probability for labor force participation of beneficiary women ranges between 15% and 39% of the expected outcome without the program.

### *Heterogeneities*

It is important to further explore this unintended effect of the policy to identify heterogeneities of the impact. This may be both informative and explanatory of the aggregate result. Isolating the treatment effect on different groups of women could enable a better understanding of the transmission mechanisms on female labor force participation that are probably triggered by this policy. In Table 5 we divide married women according to the employment status of her spouse. The disincentive to participate seems to operate particularly on mothers with employed partners. In fact, labor participation decisions are expected to be more inelastic respect to the monetary transfers for women whose spouses are not employed.<sup>13</sup>

The reduction in labor participation is found to be important only for women with low levels of education (Table 6). This may reflect that women with fewer labor opportunities are less willing to participate in the labor market after the introduction of the AUH. In contrast, inactive women with more potential employment chances according to their educational achievements do not seem

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<sup>12</sup> Recall that low income is not a legal requirement, but instead is a likely condition for households not to self-select out of the program.

<sup>13</sup> The non-significance of the coefficient in the last column may be also due to the small number of observations in this group.

to be significantly affected by the program. Notice however that the sign of the coefficient for the treatment effect is still negative for this group.

The impact of the program may not be homogeneous in terms of the number and age of the women's children. Presumably, the larger the benefit received by the program the greater the disincentives to participate in the labor market. If we assume the existence of scale economies in household consumption, a constant transfer per child implies an increasing per capita benefit for families with more children and hence a stronger potential effect on female labor force participation, given the hypothesis of a negative income effect on labor participation. However, Table 7 reports a significant reduction in participation only for women with one or two children, but no important changes in female labor transitions for mothers with more children. This possibly indicates that the income effect is not the only (neither the most relevant) channel that could be actively operating.<sup>14</sup>

According to the results in Table 8 the potential labor impact of the AUH seems to be present particularly for women with children between 7 and 14 years old. The effect disappears in mothers with younger children. This heterogeneity may be consistent with the differential time required for care of children from different age groups. In addition, the increase in school attendance due to the AUH might require mothers extra time out of work to perform household chores which were previously performed by children in school age before the policy.

In order to further explore this argument is useful to divide households depending on who usually carry out the domestic chores. The EPH survey allows to identify the two main household members in charge of these activities (could be just one). Table 9 shows the differential impact for different groups of women. The labor disincentive effect is particularly significant for women doing the housework and for mothers that do not receive any kind of domestic help from their spouse nor from other relatives. Instead, the disincentive to participate in the labor market disappears for women who are not in charge of household chores or who receive assistance in such activities from other individuals. These results may reflect that the potential reaction to a cash transfer depends on the distribution of chores within the household, and hence on the available time to participate in the labor market. Although we are aware

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<sup>14</sup> For instance, the higher level of responsibility taken by the beneficiary mothers in this program may be a non-trivial factor to understand the main result of this paper. The evidence shows that other similar CCT programs tends to increase the time women spend in housework at the expense of labor participation (Teixeira, 2010).



of the endogeneity problems behind these results<sup>15</sup> we believe they suggest that the program may be reinforcing the traditional gender roles within the household, and hence they deserve serious consideration.

### *Other labor transitions*

It is important to evaluate whether this program also generates incentives for active women to leave the labor market and become inactive. In Table 10 we present the results for the potential impact of the AUH on this labor outcome.

We find no relevant changes in female and male incentives to inactivity. This result suggests an asymmetry in the labor reaction of active and inactive women that may help to understand the evolution of the labor force participation rates for eligible and non-eligible groups (see Appendix A). After the AUH implementation, the fall in the activity rate of participant women against a relatively stable trend for the control group (Figure A of Appendix A) is mainly explained by a lower entrance rate of beneficiary mothers into the labor force (Table 2), and not by a significant change between groups in the corresponding exit rate (Table 10).

The second panel of Table 10 also shows that both women and men do not experience a significant change after the policy in the transitions from employment to unemployment or inactivity.

### *Labor intensity*

In this last section we explore the potential effect of the AUH on female labor intensity (hours of work). As it was shown above, the program does not seem to have generated a sufficient stimulus for active women to move out of the labor force. However, it is possible that participant mothers may be driven to work fewer hours compared to the counterfactual situation in the absence of the policy. Following the arguments in Section 4 and applying the methodology described for this purpose (two-step Heckman selection model), Table 11 shows a significant fall in the total working hours of beneficiary women after the AUH. Again, the effect is particularly significant for married women, whereas the impact disappears for single mothers. Male hours of work do not change between eligible and non-eligible groups with the introduction of the AUH.

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<sup>15</sup> Women's decision not to participate in the labor market may in turn affect other household members' involvement with domestic chores.

This female labor intensity effect represents an average reduction of 6.5% of mean working hours, which is equivalent to an average fall of almost 3 hours per week. However, contrary to the results for labor participation, Table 12 suggests that the results for hours of work are not robust to different specifications of the control group.

## 7. Concluding remarks

We assess the impact on female labor force participation of a conditional cash transfer program implemented in Argentina in 2009 that delivers cash benefits to poor and non-formal households with children. For this purpose, and given the program design and the non-random assignment of the beneficiaries, we use a non-experimental methodology of double differences and identify the potential participants according to the criteria and conditionalities of the program. The evidence suggests the existence of statistically significant disincentives to labor force participation of women driven by the program, but instead we find non-significant effects for men. The AUH also seems to affect female labor intensity, although this result is not entirely robust to different alternative specifications of the control group.

The welfare implications of this result are not clear. Lower labor participation could be detrimental to women empowerment, and may offset part of the poverty-reducing impact of the program. On the other hand, the monetary transfer of the program may allow poor women to avoid taking a low-pay job, and instead stay at home with their children, which could be beneficial to their education given the scarcity of other good-quality options. More research is needed to have a more comprehensive view of these changes in behavior.

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**Table 1. Descriptive Statistics**  
*Women aged 20-60 (household head or spouse)*

Variables	Treatment	Control	Difference	t	p-value
Age	37.25	44.53	7.28	31.50	0.00
Age (couple)	40.23	47.48	7.25	27.51	0.00
Years of education	8.20	9.75	1.55	20.80	0.00
Years of education (couple)	8.06	9.91	1.84	22.32	0.00
Employed (couple)	0.87	0.87	0.00	-0.25	0.80
Household head	0.20	0.16	-0.04	-5.20	0.00
Number of children	2.70	1.07	-1.64	-55.06	0.00
Number of members	5.47	4.16	-1.31	-33.19	0.00
Number of women (20-60)	1.22	1.37	0.15	11.48	0.00
Number of men (20-65)	1.10	1.25	0.15	9.61	0.00
Domestic chores	0.95	0.94	-0.02	-3.75	0.00
Domestic chores (couple)	0.05	0.06	0.01	1.15	0.25
Household per capita income	163.39	579.88	416.49	35.92	0.00
Observations	3006	9892			

Source: Author's calculation based on EPH data

**Table 2. Probability of labor participation (transitions)**  
*Women and Men (household head or spouse) initially inactive*

	All women	Married women	Single women	Men
<i>Treat * After</i>	-0.0216*** (0.00807)	-0.0251** (0.0107)	-0.00427 (0.0319)	-0.0159 (0.0121)
Individual and Household characteristics	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes
Observations	22,251	19,352	2,899	4,129
Pseudo R2	0.042	0.036	0.162	0.180

Source: Author's calculation based on EPH data.

Note: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

**Table 3. Probability of female labor participation**  
*False Experiments (placebo regressions)*

	False intervention in			
	2008	2007	2006	2005
<i>Treat * After</i>	<b>-0.0140</b> (0.0129)	<b>-0.00724</b> (0.0162)	<b>0.0114</b> (0.0103)	<b>0.00737</b> (0.0123)
Individual and Household characteristics	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes
Observations	10,700	10,700	10,700	10,700
Pseudo R2	0.043	0.043	0.043	0.043

Source: Author's calculation based on EPH data.

Note1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 4. Probability of female labor participation**  
*Alternative Control Groups*

	Control Groups				
	Married women	With Children (i)	Informal (ii)	Poor (iii)	P WCh, P I, I WCh (iv)
<i>Treat * After</i>	<b>-0.0251**</b> (0.0107)	<b>-0.0155*</b> (0.00887)	<b>-0.0398***</b> (0.0109)	<b>-0.0139**</b> (0.00676)	<b>-0.0248**</b> (0.0100)
Individual and Household characteristics	Yes	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes	Yes
Observations	19,352	12,916	9,928	9,870	10,836
Pseudo R2	0.036	0.032	0.054	0.043	0.038

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women. Alternative control groups: (i) non-eligible women with children (i.e. we drop those women without children in the control group), (ii) non-eligible women in households with no formal workers, (iii) non-eligible women in poor households and (iv) non-eligible women with two of the three main requirements.

**Table 5. Probability of female labor participation**  
*Heterogeneities: partner's labor condition*

	Total	Employed spouse	Non-employed spouse
<i>Treat * After</i>	<b>-0.0251**</b> (0.0107)	<b>-0.0256***</b> (0.00869)	<b>-0.0276</b> (0.0303)
Individual and Household characteristics	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes
Observations	19,352	16,833	2,453
Pseudo R2	0.036	0.033	0.186

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 6. Probability of female labor participation**  
*Heterogeneities: woman's education*

	Education		
	Low	Medium	High
<i>Treat * After</i>	<b>-0.0256*</b> (0.0140)	<b>-0.00633</b> (0.0192)	<b>-0.0320</b> (0.0249)
Individual and Household characteristics	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes
Observations	8,061	8,482	2,809
Pseudo R2	0.059	0.054	0.087

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 7. Probability of female labor participation**  
*Heterogeneities: number of children*

	Number of children		
	1-2	3-4	>=5
<i>Treat * After</i>	<b>-0.0313**</b> (0.0138)	<b>-0.000170</b> (0.0113)	<b>0.00789</b> (0.0237)
Individual and Household characteristics	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes
Observations	8,504	3,414	721
Pseudo R2	0.038	0.084	0.212

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 8. Probability of female labor participation**  
*Heterogeneities: age of youngest child*

	Age of youngest child				
	0-3	4-6	7-10	11-14	15-17
<i>Treat * After</i>	<b>0.00287</b> (0.00631)	<b>-0.00551</b> (0.0236)	<b>-0.0128*</b> (0.00722)	<b>-0.0324*</b> (0.0194)	<b>-0.0712</b> (0.0717)
Individual and Household characteristics	Yes	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes	Yes
Observations	4,889	2,328	2,346	1,934	1,261
Pseudo R2	0.063	0.094	0.093	0.121	0.225

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 9. Probability of female labor participation**  
*Heterogeneities: domestic chores*

	Women		Couple		Other members	
	Yes	No	Yes	No	Yes	No
<i>Treat * After</i>	<b>-0.0284***</b> (0.00783)	<b>-0.00731</b> (0.0190)	<b>0.00158</b> (0.0218)	<b>-0.0268***</b> (0.00804)	<b>-0.0437</b> (0.0431)	<b>-0.0272***</b> (0.00832)
Individual and Household characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18,387	778	1,100	18,161	2,266	17,019
Pseudo R2	0.037	0.202	0.205	0.036	0.138	0.035

Source: Author's calculation based on EPH data.

Note 1: The dependent binary variable equals 1 if the person initially inactive experiences a transition to an active labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: Married women.

**Table 10. Other labor transitions**  
*Active-Inactive, Employed-Not Employed*

	Active-Inactive		Employed-Not Employed	
	Women	Men	Women	Men
<i>Treat * After</i>	<b>0.00446</b> (0.00692)	<b>0.00212</b> (0.00403)	<b>0.00295</b> (0.00715)	<b>-0.000957</b> (0.00578)
Individual and Household characteristics	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes
Observations	34,491	47,092	32,666	44,633
Pseudo R2	0.083	0.112	0.072	0.059

Source: Author's calculation based on EPH data.

Note: The dependent binary variable equals 1 if the person experiences a transition towards inactivity (non-employed) from an active (employed) labor status. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

**Table 11. *Effect of the AUH on labor intensity***  
*Women and Men (total hours worked)*

	Women (without Heckman)	All women	Married women	Single women	Men
<i>Treat * After</i>	-0.0872** (0.0345)	-0.0652*** (0.0236)	-0.0759** (0.0317)	-0.0519 (0.0355)	-0.0155 (0.0540)
Individual and Household characteristics	Yes	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes	Yes
<b>mills</b>					
lambda	-	0.437 (1.230)	0.326 (1.107)	0.238 (0.703)	2.060 (5.026)
rho	-	0.694	0.519	0.378	1.000
sigma	-	0.630	0.629	0.630	2.060
lambda	-	0.437	0.326	0.238	2.060
Observations	28,102	65,722	50,349	15,373	58,243
Censored	-	37,620	31,286	6,334	12,882
Not censored	-	28,102	19,063	9,039	45,361
R2	0.006	-	-	-	-
Wald chi2 (57)	-	116.58	90.59	80.12	7.54

Source: Author's calculation based on EPH data.

Note 1: Sample is restricted to employed individuals during the whole period. Two step Heckman selection model is applied to correct the selection bias arising from labor participation equation (probability of being employed in all periods we observe each individual). Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

Note 2: The dependent variable measures the change in the total hours worked per week normalized by the intertemporal average labor intensity of each woman/man.

**Table 12. Effect of the AUH on labor intensity**  
*Alternative control groups*

	All women	With Children (i)	Informal (ii)	Poor (iii)	P WCh, P I, I WCh (iv)
<i>Treat * After</i>	<b>-0.0652***</b> (0.0236)	<b>-0.0657***</b> (0.0251)	<b>-0.0594</b> (6,346)	<b>-0.0623*</b> (0.0320)	<b>-0.0535*</b> (0.0290)
Individual and Household characteristics	Yes	Yes	Yes	Yes	Yes
Regional and time dummies	Yes	Yes	Yes	Yes	Yes
<b>mills</b>					
lambda	0.437 (1.230)	0.111 (0.929)	141,726 (3.623e+10)	0.555 (0.432)	-0.257 (0.593)
rho	0.694	0.175	1.000	0.850	-0.398
sigma	0.630	0.636	141,726	0.652	0.644
lambda	0.437	0.111	141,726	0.555	-0.257
Observations	65,722	41,240	31,574	26,628	30,442
Censored	37,620	24,030	22,317	19,490	21,765
Not censored	28,102	17,210	9,257	7,138	8,677
Wald chi2 (57)	116.58	106.95	0.00	64.05	70.72

Source: Author's calculation based on EPH data.

Note 1: Sample is restricted to employed individuals during the whole monitoring period. Two step Heckman selection model is applied to correct the selection bias arising from labor participation equation (probability of being employed in all periods we observe each individual). Clustered robust standard errors in parenthesis. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.10$ .

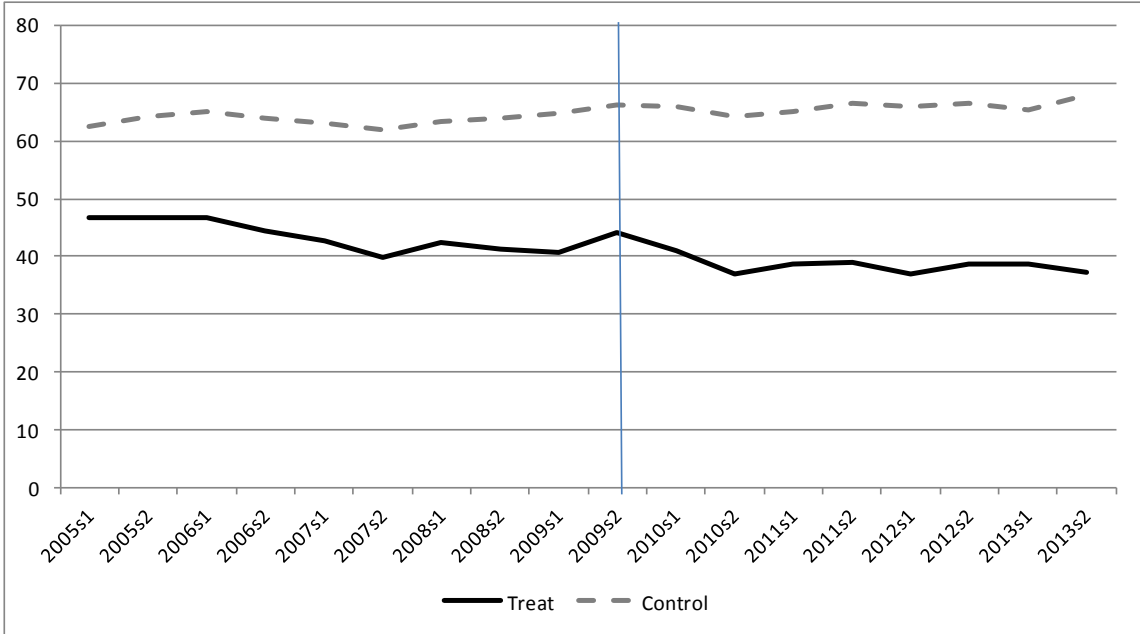
Note 2: The dependent variable measures the change in the total hours worked per week normalized by the intertemporal average labor intensity of each woman/man.

Note 3: Alternative control groups: (i) non-eligible women with children (i.e. we drop those women without children in the control group), (ii) non-eligible women in households with no formal workers, (iii) non-eligible women in poor households and (iv) non-eligible women with two of the three main requirements.

# Appendix A

We consider two groups to analyze the potential impact of the AUH on the activity rate: the treatment group includes women (household head or spouse) aged 20-60 in poor and informal households with children, while the control group includes the rest of women in that age bracket. Figure A shows for each year and group the rate of female labor force participation (LFP). The proportion is always lower for the treatment group. The pattern over time before the intervention is somewhat similar for both groups: female LFP fell between 2005 and 2007 and increased between 2007 and 2009. This similarity is broken in 2010, coinciding with the AUH implementation: while female LFP for the treatment group fell at a rate of 1.7 percentage points a year, it stayed roughly unchanged for the rest of women (in fact, the rate increased at 0.4 pp a year).

**Figure A. Female labor participation rate.**  
*Treatment and Control group*



Source: Author's calculation based on EPH data.  
 Note: The analysis is restricted on women between 20-60 years old. The treatment group is compound by women (household head or spouse) informal, with children and poor (belonging to the first four deciles of the household per capita income distribution) while the control group includes the rest of women in that age bracket.

This result is confirmed through a conditional framework. Table A exhibits a significant retraction in the activity rate of beneficiary women after the program. The magnitude of this effect is considerable: the probability of female



labor participation falls 6.7 percentage points which represents a reduction of 9.2% of the expected outcome in the absence of the AUH. Instead, there is no significant change in labor force participation between eligible and not eligible men.

**Table A. Effect of the AUH on the activity rate**

	Women	Men
<i>Treat * After</i>	<b>-0.0679***</b> <b>(0.00512)</b>	<b>0.00170</b> <b>(0.00342)</b>
<b>Individual and Household characteristics</b>	Yes	Yes
<b>Regional and time dummies</b>	Yes	Yes
Observations	282,405	241,294
Pseudo R2	0.146	0.096

Source: Author's calculation based on EPH data.

Note: The dependent binary variable equals 1 if the women/men belong to the economically active population. Clustered robust standard errors in parenthesis. \*\*\* p<0.01; \*\* p<0.05; \* p<0.10.

## Appendix B

**Table B. AUH holders by gender**

Month/Year	Women	Men	Not informed	Total	% Women
aug-10	1,619,134	190,436	580	1,810,150	89.5
sep-10	1,642,872	177,371	532	1,820,775	90.3
oct-10	1,655,189	173,487	502	1,829,178	90.5
nov-10	1,679,456	169,390	478	1,849,324	90.8
dec-10	1,695,917	164,009	463	1,860,389	91.2
jan-11	1,701,411	160,130	443	1,861,984	91.4
feb-11	1,703,187	156,868	418	1,860,473	91.6
mar-11	1,717,134	154,655	384	1,872,173	91.7
apr-11	1,740,466	148,642	350	1,889,458	92.1
may-11	1,763,767	144,261	319	1,908,347	92.4
jun-11	1,772,208	136,847	299	1,909,354	92.8
jul-11	1,758,929	129,907	274	1,889,110	93.1
aug-11	1,764,556	125,202	255	1,890,013	93.4
sep-11	1,756,737	119,335	239	1,876,311	93.6
oct-11	1,745,793	112,606	222	1,858,621	93.9
nov-11	1,772,181	111,427	214	1,883,822	94.1
dec-11	1,771,325	105,933	188	1,877,446	94.4
jan-12	1,781,837	105,549	186	1,887,572	94.4
feb-12	1,783,522	100,035	150	1,883,707	94.7
mar-12	1,765,719	96,186	124	1,862,029	94.8
apr-12	1,749,927	93,408	107	1,843,442	94.9
may-12	1,735,809	89,978	111	1,825,898	95.1
jun-12	1,745,650	83,772	95	1,829,517	95.4
jul-12	1,726,925	75,869	72	1,802,866	95.8
aug-12	1,697,461	69,700	66	1,767,227	96.1
sep-12	1,707,206	67,136	53	1,774,395	96.2
oct-12	1,712,667	62,981	40	1,775,688	96.5
nov-12	1,725,510	61,856	38	1,787,404	96.5
dec-12	1,735,105	58,089	37	1,793,231	96.8
jan-13	1,733,370	56,070	28	1,789,468	96.9
feb-13	1,721,038	52,524	26	1,773,588	97.0
mar-13	1,731,753	52,329	24	1,784,106	97.1
apr-13	1,731,440	51,413	24	1,782,877	97.1
may-13	1,743,161	50,014	20	1,793,195	97.2
jun-13	1,745,675	48,996	14	1,794,685	97.3
jul-13	1,767,132	48,120	13	1,815,265	97.3
aug-13	1,783,191	46,466	11	1,829,668	97.5
sep-13	1,818,084	48,880	10	1,866,974	97.4
oct-13	1,828,046	48,336	6	1,876,388	97.4
nov-13	1,844,686	47,327	4	1,892,017	97.5
dec-13	1,854,539	50,778	4	1,905,321	97.3

Source: Social Security Office (ANSES).