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CASH TRANSFER PROGRAMS AND
POLARIZATION: THE CASE OF THE AUH IN
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Cash Transfer Programs and Polarization: The Case of the AUH in Argentina

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Abstract

Cash transfer programs have proven to be successful in many dimensions during the last decades. In particular, they have shown a positive impact in terms of reducing inequality among the population. This accomplishment, however, may be in some part overshadowed if the very nature of these programs results in augmented polarization levels. The case of the AUH in Argentina will be used to explore this issue.

Resumen

Los programas de transferencias condicionadas de ingreso han sido exitosos en muchas dimensiones durante las últimas décadas. En particular, han tenido un impacto positivo en términos de reducir la desigualdad entre los individuos de las distintas sociedades. Este logro, sin embargo, podría verse en parte eclipsado si la propia naturaleza de estos programas resultara en niveles de polarización mayores. El caso de la AUH en Argentina será utilizado para explorar esta cuestión.

Keywords: Personal Income, Wealth, and Their Distributions; Conflict; Conflict Resolution; Government Policy, Provision and Effects of Welfare Programs.

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Introduction

During the last decades, conditional cash transfer programs have expanded throughout the developing world, and particularly in Latin America. Pioneered by the *PROGRESA/OPORTUNIDADES* program launched in Mexico in 1997, these programs aim at improving social and economic conditions of the least advantaged groups through the distribution of transfers that are conditional on the fulfillment of certain requirements usually linked to health and educa

tion outcomes of children.

These programs have proven to be quite successful in terms of improving key social indicators, in particular those related to poverty and inequality while the evidence on improvements in final outcomes in health and education is more mixed (World Bank (2009)).

Several studies, however, have pointed to the existence of unwanted effects of these programs. The concern has been basically centered in the possible negative side effects in labor market outcomes. Since these programs are usually focused on informal workers and their families they could provide perverse incentives regarding the participation in the formal sector. Some empirical work has attempted to test this hypothesis and mixed evidence has been advanced. For instance, Skoufias and Di Maro's (2008) evaluation of *PROGRESA/OPORTUNIDADES* finds no significant effect on adult labor force participation and leisure time. In contrast, Camacho et al. (2009) have found that an increase in informal employment between 2 and 4 percentage points followed the expansion of social programs in Colombia during the nineties. For the particular case of the *Asignación Universal por Hijo* (AUH) in Argentina, the empirical evidence shows mixed results as well. While Gasparini and Garganta (2012) find that the AUH program reduces the probability that an informal worker become formal, Maurizio (2011) does not find evidence to support differences between beneficiaries and non-beneficiaries in terms of their labour market behaviours. Other studies have found a negative impact in terms of education (D'Elía and Navarro (2013)).

In the present study we focus on an alternative source of unwanted effects of these programs: their potential negative impact in terms of polarization of the society. Among the several polarization measures that have been advanced in the literature³ we will concentrate on those proposed in Esteban and Ray (1994) and extended in Duclos, Esteban and Ray (2004). The reason for doing so is twofold: on the one hand, they are derived axiomatically; on the other, empirical applications abound in the literature.

³ For a brief summary of economic polarization measures developed in the literature, see Gasparini et al. (2006).

Following these authors, polarization can be thought of as a measure that reflects simultaneously the distance among (alienation) and within (identification) groups at a particular time within a society. These two features work in opposite directions: larger distances among groups would raise polarization (through higher alienation) while increasing distances within groups would tend to reduce it (through lower identification).

The theory of polarization measurement is certainly connected to the inequality realm, since alienation is a measure of inequality. Indeed, it is the identification feature that distinguishes this measure from measures of inequality. For instance, alienation could increase in a society (implying higher levels of inequality) while polarization may remain unaffected (or even diminish), if the identification among individuals becomes more loose, neutralizing (or overcoming) the effect of higher inequality. In fact, when defining the polarization index, Esteban and Ray (1994) incorporate the “identification parameter”: the analyst is left to choose how much weight that feature will have in the final index. If the parameter is set to zero, then the polarization measure coincides with an inequality measure.

Now, the relevance of the polarization measure relies on its capacity to be informative of the social tensions existent within a society beyond those conveyed by inequality measures. In this sense, Esteban and Ray (2011) and Montalvo and Raynal-Querol (2005) have advanced both theoretical and empirical evidence that supports the polarization measure as relevant in terms of capturing this social distress.

To the extent that massive cash transfer programs are focused on those at the lower end of the income distribution, they have a dual effect on polarization measures. On the one hand, they are designed to reduce alienation, at least in terms of income: only the most vulnerable receive the transfer, shortening their distance to the relatively wealthier. This would imply lower levels of inequality as well as would work in the direction of lowering polarization levels. On the other hand, it is this very same process that may increase income identification: lower income groups are now nearer in terms of income to less deprived groups which have not received the transfer. This would operate in the opposite way: it would increase polarization.

It is the latter that may result in an unwanted effect of the cash transfer programs: polarization may increase even in the presence of reduced inequality. If the decreased alienation achievement is overshadowed by the identification effect, then polarization will have increased, reflecting an undesired outcome of the cash transfer program.

Whether this concern is relevant remains mostly an empirical question. To answer it, the present study will focus on one particular massive cash transfer program: the *Asignación Universal por Hijo* (AUH) launched in 2009 in Argentina. This initiative aimed at extending social benefits received by formal workers to families of workers outside the formal system or unemployed. A monetary transfer is given for each son and/or daughter under the age of 18 (if he/she is handicapped, there is no age limit). The program currently covers 15% of households in the country.

The evidence shows that even though the AUH program has indeed reduced inequality levels in Argentina, it has also had the unwanted negative effect of increasing polarization, as defined by Duclos, Esteban and Ray (2004). Differences in results are statistically significant and robust to different eligible households' identification strategies, as well as to different specifications of the "identification parameter". Decomposition of the polarization index for both distributions shows that the differences are indeed due to a strengthening of identification within groups that overshadows the decrease in alienation produced by the AUH program.

To the best of our knowledge, there is no paper analyzing the relationship between social programs and polarization. Regarding the use of Argentinean data, some empirical work following the methodology of Duclos, Esteban and Ray (2004) has been advanced, although it is certainly scarce. Hornstein and Olivieri (2004) compute the measure between 1998 and 2002, finding that polarization increased hand in hand with an increase in the Gini coefficient. Viollaz (2008) in turn analyzes the polarization in the labour market between 1992 and 2006 and finds that while an increase characterized the first stage, it then initiated a period of reduction. Gasparini et al. (2006, 2008) explore the levels of polarization in Latin America and their relationship to inequality, institutions and social conflict.

The rest of this paper is organized as follows. The next section concentrates on the polarization index we use in this study, the one proposed by Duclos, Esteban and Ray (2004), and reviews papers providing evidence on the relevance of this index for capturing the idea of social polarization as a source of social unrest. The third section describes the main features of AUH program while the fourth presents the methodology and data used in this study. The results are presented in the fifth section and the following section concludes and points to future research.

1. Polarization Measure

2.1. The DER index

Starting in the beginning of the 90's, polarization issues gained a relevant space in the economic literature. With the pioneering contributions of Esteban and Ray (1994)⁴ polarization was gradually established as a distinct and relevant characterization of the income distribution. Their motivation for the conceptualization and measurement of this phenomenon was linked to the idea that this particular feature of the income distribution was informative of the intensity of social conflict in a society.

Albeit recognizing that the study of intergroup conflict dynamics has a long tradition in the social sciences⁵, the aim of this strand of the literature was to develop a theory of polarization that departed from inequality measurement, yet complemented it. The central point in this discussion is that measures of inequality are unable to capture a feature of the income distribution that is central in understanding social conflict: the identification among individuals. Indeed, even though the distance among individuals (that is, the degree of inequality or alienation in words of Esteban and Ray (1994)) is certainly relevant in explaining social unrest, it also depends upon the level of identification certain groups feel among themselves. It is this identification that may give voice to the alienation that this group feels regarding other groups. In short, inequality (alienation) is not enough to explain social conflict: for it to be translated into social tensions it has to be mediated by the existence of a certain degree of identification that makes alienated groups express themselves.

This departure from inequality theory implies that polarization and inequality measures will not always move in the same fashion. For instance, any transfer respecting the Dalton-Pigou⁶ principle will reduce any reasonable measure of inequality, by shortening the distance among individuals. This will not necessarily imply a decrease in polarization: although a reduction in the alienation of individuals will certainly go in that direction its impact on identification is uncertain. If the transfer helps to delimitate more clearly certain groups, then this may have a positive effect on polarization, counterbalancing the former effect. Which effect will prevail, and so whether polarization and inequality measures will move in the same direction, is a question that requires empirical verification.

⁴ Foster and Wolfson (1994) also contributed to the pioneering work in this area. Their motivations differ from Esteban and Ray (1991, 1994), since they focused on polarization as a reflection of the disappearing middle class in the US and Canada in the 1980s.

⁵ Going back even to the Marxian theory and shared by other disciplines such as sociology and political science. See Simmel (1955), Coser (1956), Gurr (1970, 1980) and Tilly (1978).

⁶ That is, the principle that states that any transfer made from a richer to a poorer person that does not alter their standing in the distribution should make any inequality measure rise.

In the *identification-alienation* framework developed by Esteban and Ray (1994), what matters ultimately is what they call *effective antagonism*, that is, the level of identification and alienation an individual feels towards another one. This framework was first built for the case of discrete probability functions and generalized for the case of discrete and continuous functions by Duclos, Esteban and Ray (2004). On the one side, they presumed that the identification experienced by an individual i with income y_i depends on the density at that point $f(y_i)$, which plays the role of the group size in Esteban and Ray (1994), but in a continuous context. On the other side, the alienation between two individuals i and j is captured by the distance between their incomes $d(y_i, y_j)$ ⁷. The effective antagonism perceived by individual i toward individual j is measured by the function $T(f(y_i), d(y_i, y_j))$ which is continuous and strictly increasing in its second argument. The level of polarization is then captured by the sum of all effective antagonisms:

$$P_\alpha(f) \equiv \iint T(f(x), d(x, y))f(x)f(y)dydx \quad (1)$$

This expression is very general. Pinning down the class of allowable measures that can fit (1) through the imposition of certain axioms, a particular polarization measure is advanced⁸:

$$P_\alpha(f) \equiv \iint f(x)^{1+\alpha}f(y)d(x, y)dydx \quad (2)$$

where $\alpha \in [.25, 1]$.

The polarization measure is then an increasing function of the size of the groups of similar individuals, captured by the density function⁹, and of the distance between individuals' income. The parameter α relates to the importance given to the identification function: higher values of α imply a greater weight given to the identification component of the *identification-alienation* framework. It is worth noting that this polarization measure looks very much like the Gini coefficient. In fact, it would be the Gini if α were zero. Thus, the divergence from inequality measurement resides precisely in the α coefficient: giving weight to the identification function is what constitutes the backbone of this polarization measure. Intuitively, α may be interpreted as a kind of “polarization sensitivity” degree. In a later paper, Esteban

⁷ Duclos, Esteban and Ray (2004) considered the absolute distance $|y_i - y_j|$ as the measure of alienation, however, the form of the polarization measure proposed in their paper does not depend on this assumption. It is possible to choose different distances, more suitable for different cases. That is the reason why we express it in a general way here.

⁸ For details, see Duclos, Esteban and Ray (2004).

⁹ In section 2.4, Duclos, Esteban and Ray (2004) discuss the rationale of using the density function to capture the idea of “size of the groups of similar individuals”.

and Ray (2011) add a fifth axiom to the four considered in Duclos, Esteban and Ray (2004) and pin down this parameter to one.

The measure in (2) will be referred to as the DER index in what follows and will be used to test our hypothesis that polarization rose with the implementation of the AUH.

2.2. The DER index and social conflict

The extent to which the DER index is a useful measure depends upon its capacity to relate to social tensions. This was in fact the main aim of its authors when advancing it. Thus, it is worth exploring whether the evidence supports the existence of a tight connection between this measure and the level of social conflict within a society. Furthermore, given the prevalence of other kinds of measures in the social conflict literature, it is interesting to show how the DER index performs empirically among them.

Esteban and Ray (2011) address the first issue. The authors attempt to build a theoretical model to explain the rationale for considering a relationship between the DER index and the level of social unrest. They propose a model in which different groups compete for the control of a budget. These groups choose the extent of resources that will be allocated to the competition. The total amount of the resources allocated is a measure of the conflict level. The authors show that the level of conflict in equilibrium can be approximated as a linear function of the Gini coefficient, the DER index with polarization sensitivity parameter equal to 1 and the Herfindahl-Hirschman fractionalization index. When the groups are large the Gini coefficient becomes unimportant and the relevance of the other two indexes depends on the proportion of the budget that can be allocated to public goods. The larger this fraction, the more important the polarization index becomes. This model's predictions are confirmed by Esteban, Mayoral and Ray (2012) using a sample of 138 countries between 1960 and 2008.

In terms of social conflict literature, the most commonly used measures are related to fragmentation. In this field, the interest usually relies in establishing a relationship between a fragmentation index and a measure of social conflict. Fragmentation measures are different from polarization measures because the former refer only to the number of groups that exist in society. Fragmentation increases as the number of groups increases, while polarization starts to decrease from a certain point because groups become too small. Montalvo and Raynal-Querol (2005) analyze the relative performance of fragmentation and polarization indices in ethnic divide for predicting civil wars once several determinants of conflict have been controlled for. They compare a widely used fragmentation index and the polarization measure

proposed by Raynal-Querol (2002), which can be thought of as a particular case of the DER index suitable for the case of ethnic groups¹⁰. They find that while fractionalization indices are not significant in explaining conflicts, the polarization index has a good explicative power.

2.3. Polarization measures' decomposition

Since the polarization measure represents a particular combination of the identification and alienation components, distinguishing the different impact of each of them in the *effective antagonism* aggregation function is certainly a very interesting exercise. It would allow the researcher to capture the underpinnings of changes in polarization. Recall that both functions have an independent effect on polarization: given a certain level of identification, higher levels of alienation imply greater polarization. Conversely, holding alienation constant, higher identification levels will increase polarization. However, they cannot be moved around independently and the result of such an interaction is not always clear. If both components rise, the polarization measure is certain to go up. Nevertheless, as we have seen, alienation could rise while identification goes down (and vice-versa). What would the effect on polarization be? It depends on the strength of each change: they could offset each other, or one of them could prevail rising (or lowering) the polarization measure. Therefore, when facing a certain change in the polarization measure, for instance, an increase, it would be interesting to know if this is due to an increase in both the levels of identification and alienation or if both components went in opposite directions but the effect of one of them prevailed over the other.

Unfortunately, such a decomposition of the polarization measures is not possible. This is due to the fact that the change in the polarization levels will depend on the separate effect of each of the components as well as on their joint co-movement. It is, however, possible to identify in some way these three factors. Duclos, Esteban and Ray (2004) show that their polarization measure can be redefined in the following way:

$$P_{\alpha}(f) = \bar{a}\bar{i}_{\alpha}[1 + \rho] \quad (3)$$

where

$$\bar{i}_{\alpha} \equiv \int f(y)^{\alpha} dF(y) = \int f(y)^{1+\alpha} dy$$

$$\bar{a} = \int a(y) dF(y) = \iint |y - x| f(x) f(y) dx dy$$

¹⁰ The particularity of this case relies on the use of a distance that equals one if the individuals are part of different groups and zero if they are part of the same group. For further details see Montalvo and Raynal-Querol (2005).

$$\rho \equiv \frac{\text{COV}_{i\alpha,a}}{\bar{i}_\alpha \bar{a}}$$

Intuitively, \bar{i}_α can be thought of as the average α – identification, \bar{a} is the average alienation and ρ represents the normalized covariance between identification and alienation.

This way of defining the polarization will be indeed useful for our task at hand. Recall that we will attempt to see whether polarization rose as a result of the implementation of the AUH. Specifically, we claim that this transfer program had a positive impact in alienation through the decrease in inequality among individuals but increased identification. This breakdown of the contribution of each component to the polarization level will be used to empirically test if this is the case.

2. The *Asignación Universal por Hijo*

3.1 Main features of the program

Social protection in Argentina had traditionally been linked to the formal sector, while transfer to informal and unemployed workers gathered strength only during social and economic crisis situations. The two largest social programs of the last decades are proof of this: the *Trabajar* plan, created to deal with the increasing unemployment during the 90's and the *Jefes y Jefas de Hogar* program, designed to face the 2001 crisis. Although informal and unemployed workers did receive other contributions through different channels and government levels, this set of transfer functioned in an inorganic fashion.

In 2009, during a relatively stable economic and social period, the government supported by a large portion of the opposition parties, launched an ambitious cash transfer program designed to extend the social protection networks to the more vulnerable sectors of the population. On October 30th, the *Decreto del Poder Ejecutivo Nacional 1602/09* was signed, activating the *Asignación Universal por Hijo para la Protección Social* (AUH), a conditional cash transfer program that focuses on children living in vulnerable households. This program is not compatible with transfers coming from any other social plan; in fact, the AUH was designed so as to replace many of them which will be gradually eliminated.

The AUH awards a monetary contribution per child to households in which adult members are either unemployed or workers not registered in the formal sector (but earning less than the minimum wage)¹¹. It consists of a monthly payment for each child under 18 and for handicapped children with no age limit.

¹¹ For a detailed description of the characteristics of the program: <http://www.anses.gob.ar/asignacion-universal/asignacion-universal-hijo-144>

Children should hold the Argentinean nationality and attend a public school. Each household can perceive the AUH for a maximum of five children, giving priority to those handicapped.

Since one of the objectives of the AUH is to ensure that children attend school and receive periodical health care as well as comply with the vaccination scheme, the payment is divided in two parts. 80% of the transfer is received on a monthly basis while the remaining 20% is paid annually, once the sanitary and education requisites have been accomplished.

The amount of the transfer has been modified since 2009, to cope with inflation rates. Table 1 shows this evolution.

Table 1. AUH Transfers and Minimum Wage Evolution 2009-2013 (current pesos)

	Transfer per Each Non Handicapped Child	Transfer per Each Handicapped Individual	Minimum Wage
November 2009	180	720	1440
September 2010	220	880	1740
October 2011	270	1080	2300
January 2013	340	1200	2670
June 2013	460	1500	2875

Source: Ministerio de Trabajo <http://www.trabajo.gov.ar/consejodelsalario/plenarias.asp> and ANSES <http://www.anses.gob.ar>

Currently, more than 3.500.000 children benefit from these transfers, representing almost 30 percent of the population under 18 and 15% of households in Argentina. Taking almost 0.8% of the GDP, this program represents one of the largest of its kind in Latin America.

3.2. Assessments of the AUH

It is hard to find assessments of the AUH's effects with updated data. This lack of studies is probably due to the fact that publicly available official household survey data in Argentina does not include a variable capturing AUH beneficiary status, turning difficult to perform a rigorous evaluation.

In terms of its impact on income distribution variables, different studies tend to confirm that the impact has been positive. Salvia et al. (2013), Gonzalez Rozada (2010), Gasparini and Cruces (2010) agree that

poverty rates have fallen, although differing in the size of the impact¹². Furthermore, the latter show that simulations allow to conclude that the program would have a positive impact in reducing inequality as well. As for the AUH impact on human capital variables, the evidence is less clear. While some official sources sustain that it has had a positive impact in terms of reinsertion into school, think tanks have been more cautious as to these results (CEPP (2011)). Some studies even suggest certain negative impacts of the AUH in the educational gap (D'Elia and Navarro (2013)).

Negative side effects of cash transfer programs on labor markets have been widely suspected by social protection researchers. These studies follow the hypothesis that whenever these programs are focused on individuals working in the informal sector they are providing negative incentives to enter the formal economy. Garganta and Gasparini (2012) analyze this effect for the case of the AUH since formal workers are, in general, not eligible. Their findings suggest that formal workers' incentives to remain formal are not modified by AUH, but the program reduces the probability that an informal worker become formal. Nevertheless, Maurizio (2011) does not find evidence to support differences between beneficiaries and non-beneficiaries in terms of their labour market dynamics.

3. Methodology and Data

In order to assess the impact of the AUH on polarization, it is necessary to compare two different income distributions: one in which individuals enjoy the cash transfers to another one in which they do not. In other words, we need to establish a counterfactual distribution as a basis for comparison.

Counterfactual scenarios are without doubt a thorny issue. They are certainly difficult –if not impossible– to establish and yet they are fundamental to capture the effect of certain policies. Ideally, we would like to compare the resulting income distribution after the cash transfers with the exact same distribution without those transfers. This is evidently not possible. We therefore suggest an alternative route. The present analysis will define a counterfactual distribution in the following way: each beneficiary household's income will be reduced in the same magnitude of the transfer. That is, for each household that receives the AUH, we will calculate what its income would have been in absence of the program. This will be done for a particular month¹³. The method followed to define the counterfactual income

¹² Other studies have found results in the same direction: Agis, Cañete y Panigo (2010); Bertranou y Maurizio (2012); Maurizio (2011); OIT (2010).

¹³ We are certainly aware of the relevance of the counterfactual issue and of the fact that the methodology proposed here may not be entirely satisfactory. For one thing, it could be argued that in absence of the AUH households would have developed a strategy to increase incomes. Therefore, the actual incomes of the family in a non-AUH scenario would not be those imputed in our

distribution is simple to implement and used in other studies about this program like Agis et al. (2010) and Salvia et al. (2013).

The data used to assess whether the AUH has had an impact on polarization levels comes from the *Encuesta Permanente de Hogares* (EPH), a nationally representative survey focused on labor and social issues carried out by the National Statistics Office (INDEC). In particular, the data to be used correspond to the third trimester of 2011, over a year after the implementation of the cash transfer program. The database contains over 17,700 households and almost 58,000 individuals. The income variable refers to the previous month and is defined in per capita terms.

A practical problem regarding the methodology to be used is related to the fact that the EPH does not identify the households that receive cash transfers from this program. Given that the construction of the counterfactual distribution requires imputing an income only to those households that do receive the transfer this becomes an issue of practical relevance. A partial solution to this problem is to assume that all those households meeting the eligibility criteria of the program were effectively receiving the AUH¹⁴. In particular, those households within which both the head and his/her spouse met the following criteria are assumed to receive the benefit: they are either unemployed, work in the informal sector or are employed as domestic service but earn less than the minimum wage. These households received a transfer for each child under the age of 18, unmarried and attending a public school. In the case of handicapped individuals, there is no age limit requirement. The maximum number of transfers received by households is 5, giving priority to handicapped individuals. With this identification at hand, we proceed to construct the counterfactual distribution that will be used to test whether the AUH increased polarization levels¹⁵.

There remains, however, a further relevant issue to take into account. The household head and/or his/her spouse are not always the parents of all children found in the household. Thus, it may be the case that even though the household head and his/her spouse meet the eligibility criteria, the children in the house belong to another adult who does not apply for the program. In that case, we would be identifying that

counterfactual distribution but somehow higher. An extended version of this work will include a robustness check, carrying out the analysis for different counterfactual distributions.

¹⁴ Six months after the launch of the AUH, the government announced that more than 80% of the eligible children were already receiving the benefit.

¹⁵ Unfortunately, some of the requisites for receiving the AUH cannot be obtained from EPH data. For instance, temporary workers are also allowed to receive the transfer, but we are unable to identify them in the data. However, since this works against our hypothesis –at best we are sub-estimating the number of beneficiaries- it does not constitute a problem for our purposes. Children’s nationality is also missing in the EPH, but we consider this to be a very minor problem since many children are born in Argentina and thus registered as Argentineans, even if their parents are immigrants.

household as receiving the transfer when it does not, which would result in an over-estimation of the number of beneficiaries. The problem is the EPH does not allow us to link each child with his/her parents. Therefore, a second criterion for beneficiary households will be used to test our hypothesis: not only the head and his/her spouse should meet the eligibility criteria specified before but all adult members of the household. This criterion is more restrictive than the previous one and thus works against our hypothesis, contributing in some way to making the analysis more robust. Furthermore, it allows for comparability with previous work on the unwanted effects of the AUH¹⁶. Therefore, a second counterfactual distribution will be constructed on this basis.

Table 1 – Alternative Counterfactual Distributions

Counterfactual Distribution	Beneficiary Households	Percentage of Beneficiary Households
CD – Criterion 1	<ul style="list-style-type: none"> • Head and Spouse meet eligibility criteria: unemployed or informal or work in domestic sector earning less than minimum wage. • At least one child under 18, unmarried and attending public school within household or at least one handicapped individual. 	10.6%
CD- Criterion 2	<ul style="list-style-type: none"> • All adult members of the household meet the eligibility criteria: unemployed or informal or work in domestic sector earning less than minimum wage. • At least one child under 18, unmarried and attending public school within household or at least one handicapped individual. 	8.4%

Table 1 summarizes the two different criteria that will then be used to identify beneficiary households and thus to construct the two counterfactual distributions. In the first case, only the head and his/her spouse are required to meet the eligibility criteria. We will refer to the counterfactual distribution derived from this criterion as “CD-Criterion 1”. The second case imposes that all adult members of the household meet the criteria. The corresponding counterfactual distribution will be denoted “CD-Criterion 2”. As the last column shows, the number of eligible households following the looser criterion is higher¹⁷.

4. Results

¹⁶ Garganta and Gasparini (2012).

¹⁷ The percentage of eligible households according to our dataset is lower than the beneficiary households announced by the government: 15% as stated in Section 2. The difference probably reflects the imperfection of our eligibility criterions or sub-declaration of income. In any case, this would imply that we are sub-estimating the number of eligible households which works against our hypothesis, thus minimizing the relevance of this discrepancy.

The main hypothesis of the present study is that in spite of the AUH program positive contribution to the well-being of the least advantaged families in Argentina, it provoked an unwanted effect through increasing polarization levels. In particular, we claim that these cash transfers had the effect of increasing identification among individuals located at the left end of the distribution. Furthermore, the rise in identification offset the decrease in alienation this transfers program was designed to produce.

As already described, we will test this hypothesis using the polarization measures derived in Duclos, Esteban and Ray (2004): the DER Index. It will be computed for the two counterfactual distributions proposed in the previous section, and for three chosen levels of the identification parameter.

Table 2 shows the DER polarization levels under the actual income distribution as well as of the two counterfactual ones. The index was computed under three alternative values for the α parameter: 0.5, 0.6 and 1. Recall that an α equal to 1 implies a higher weight of the identification component and therefore it constitutes the measure that differentiates most from the Gini Index. For each of the counterfactual distributions a t test was performed, measuring the statistical significance of the difference in polarization level between them and the actual distribution.

Table 2 – Polarization Levels

Counterfactual Distribution	α parameter	DER Index Actual Distribution	DER Index Counterfactual Distribution	Difference	P- Value for T Test of Difference
CD-Criterion 1	0.5	0.2589025 (0.0012058)	0.2588076 (0.0011743)	-0.0000949 (0.000124)	0.4441
	0.6	0.2410738 (0.0011896)	0.2399668 (0.0011416)	-0.001107 (0.0001463)	0.0000
	1	0.1918962 (0.0013553)	0.1874788 (0.0012566)	-0.0044174 (0.0002613)	0.0000
CD-Criterion 2	0.5	0.2588718 (0.0012052)	0.2593002 (0.0011773)	0.0004284 (0.0001307)	0.0010
	0.6	0.2410329 (0.0011891)	0.2403664 (0.0011444)	-0.0006665 (0.000151)	0.0000
	1	0.1918307 (.0013556)	0.1875997 (0.0012583)	-0.004231 (0.000263)	0.0000

Source: our own calculations based on EPH. Standard errors are in parenthesis.

The results presented in the preceding table are consistent with our hypothesis: the AUH had the unwanted effect of rising polarization. When comparing the DER Index computed for the actual distribution with any of the counterfactual distributions we can clearly conclude that polarization is

higher in presence of AUH transfers. In fact, this is true for all the values of α chosen. The only exception is the CD-Criterion 2 with α set to 0.5, for which polarization in presence of AUH seems to be smaller. We will come back to this later on.

Furthermore, the difference between the polarization levels of the actual and counterfactual distributions is statistically significant to the 1% level for all cases, except for the CD-Criterion 1 when α is set to be 0.5.

Up to now we have confirmed the first part of our hypothesis: AUH is associated with an increase in polarization. The second part of our enquiry related to the way in which this occurred: we claim that the AUH transfers increased the identification of individuals located to the left of the distribution, offsetting the decrease in alienation produced by them. To test this, we proceed to compute the main polarization components for each of the indexes computed in Table 2. Results are shown in Table 3.

Table 3 – DER Polarization Components

Counter-factual Distribution	α	DER Measure for actual distribution				DER Measure for counterfactual distribution			
		DER INDEX	Mean alienation	Mean identification	Co-movement	DER Index	Mean alienation	Mean identification	Co-movement
CD-Criterion 1	0.5	0.258903 (0.001206)	0.445950	0.646115	-0.101453	0.258808 (0.001174)	0.452802	0.637119	-0.102886
	0.6	0.241074 (0.001190)	0.445950	0.605021	-0.106501	0.239967 (0.001142)	0.452802	0.594476	-0.108526
	1	0.191896 (0.001355)	0.445950	0.484268	-0.111424	0.187479 (0.001257)	0.452802	0.468424	-0.116097
CD-Criterion 2	0.5	0.258872 (0.001205)	0.446018	0.646016	-0.101558	0.259300 (0.001177)	0.454108	0.636218	-0.102493
	0.6	0.241033 (0.001189)	0.446018	0.604905	-0.106618	0.240366 (0.001144)	0.454108	0.593451	-0.108071
	1	0.191831 (0.001356)	0.446018	0.484110	-0.111573	0.187600 (0.001258)	0.454108	0.467015	-0.115410

Source: our own calculations based on EPH. Standard errors are in parenthesis.

The decomposition of the DER Index seems to be in line with our hypothesis. Indeed, for both counterfactual distributions it can be confirmed that the mean level of alienation is higher when compared to the actual distribution. This shows that, as expected, the AUH transfers reduce the level of inequality among individuals. This is true for all chosen levels of α .

Conversely, the mean level of identification in both counterfactual distributions is lower as compared to the actual distribution, and in this case also this is true for all of the levels of α chosen. This implies that the transfers provided by the AUH have indeed risen identification, possibly among those at the left end of the distribution since the program is designed to target them.

We can therefore conclude that the increase polarization associated with the implementation of the AUH, as measured by the DER Index, is the result of two opposed forces: a decrease in alienation and an increase in identification. The former would tend to lower the polarization index, while the latter would increase it. Since we have already shown that polarization in presence of AUH is higher, we can conclude that the rise in identification more than compensates the decrease in alienation produced by the cash transfers. In short, the AUH is associated with higher levels of polarization, and this is due to an increase in identification among individuals that offsets the decrease in the distance among them.

Even in the only case for which polarization seems to decrease in presence of the AUH (CD- Criterion 2 with α set to 0.5), we can see that the program raises identification and lowers alienation, just as for all the other criteria and levels of α chosen. Therefore, we may conclude that the effect went in the same direction for both components but its magnitude was reversed: the decrease in alienation prevailed over the increase in identification, provoking polarization to go down.

5. Conclusions and Further Research

The analysis of unwanted effects of cash transfer programs has so far focused in issues related to labor market, arguing that they provide incentives not to work or to remain in precarious jobs in the informal sector. This work has attempted to track a different unwanted effect of these programs: their possible impact in income polarization levels.

This is relevant insofar the blooming polarization literature has pointed to the fact that this particular feature of the income distribution is indicative of the probability of social conflict. Indeed, it emphasizes the idea that social tensions not only depend on inequality, as usually assumed. They claim that if this distance among different groups (alienation) is not capable of voicing their demands, then high inequality may not be translated into open conflict. Thus, polarization measures are not only a reflection of the alienation between groups but also of the level of identification within them, and of the interaction of both forces which may or may not act in the same direction.

Cash transfer programs may have an impact in both dimensions: alienation and identification. In fact, they are designed so as to reduce the former through the decrease of income inequality. To the extent to which cash transfer programs are targeted at individuals located in the far left of the income distribution, they could, however, have also the unplanned effect of rising identification. The effect on alienation would tend to reduce polarization while the converse would be true in terms of the impact on identification. The final outcome is uncertain and depends upon the strength of each effect.

To test this, we use the case of the AUH in Argentina, a massive transfer program aimed at children in vulnerable households. In particular, we explore whether polarization levels have gone up and if so, whether this has been due to a rise in identification that has offset the decrease in alienation. We test this with data from the EPH, constructing two alternative counterfactual distributions used as basis of comparison. The particular polarization measure used corresponds to Duclos, Esteban and Ray (2004).

Results of this exercise show that indeed polarization levels seem to be higher in the presence of a cash transfer program such as the AUH. These differences are statistically significant. And in fact, this seems to be driven by a decrease in inequality (alienation) that is more than compensated by an increase in identification.

Therefore, we may conclude that in spite of the apparent success of cash transfer programs in terms of reducing poverty and inequality levels, a caveat should be born in mind: they may affect a feature of the income distribution that could point in the direction of higher social conflict.

Future analysis should focus on robustness checks, testing our conclusions against alternative counterfactuals in order to account for changes in labor market behavior of families, which are not considered by our methodology. Extensions to polarization measures based on attributes other than income (such as race or political identification) would be most interesting as well. Indeed, it may be argued that both components of the polarization measures may not depend on the same characteristic. For instance, one group may feel alienated towards another one for racial factors and yet the extent to which it will give voice to its demands may depend upon the degree of income identification within the group. Exploring this scenario would certainly provide new and possibly deeper insights in terms of the link between polarization and social conflict.

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