Informal Income: A Literature Review of Bolsa Familia and the Job Market

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Abstract. Conditional Cash Transfers have become in the last decades a widespread form of social protection policy in which the poorer segments of the population get access to portions of extra income and mandatory conditions to ensure they break out of poverty via the accumulation of skills required by the formal job market. Using the example of Bolsa Familia and the debate sparked within the literature of Economics, this article performs a review of papers with relevant results to the theme in order to check if, according to the empirical results found by the literature of CCTs, both of quantitative studies and those of social aspects as well, the program is in fact reaching gains in the job market structure as it has achieved in the alleviation of poverty.

Keywords. CCT, Bolsa Familia, Labour supply, Human Capital Theory

1. Introduction

The Bolsa Familia Program (BFP) is the largest Conditional Cash Transfer (CCT) program in Brazil. Created originally as an consolidated form of various minor programs (such as *Auxílio Gás* – Gas Aid and *Bolsa Escola* – School Aid) as a group in 2004, it puts as conditions for participation the situation of extreme poverty (defined in 2011 as a per capita income between R$70,00 – R$140,00 (1), or between roughly U$44 – U$88, or minimally a dollar under the OECD average for 2011: U$45(2)) and the presence of lactating mothers and people under 18 years old. Other criteria include and the minimal school attendance of children under the age of 18 of 75% and correct compliance with vaccination schedules (3).

The topic of CCTs and Bolsa Familia has extensive research regarding its impacts on economic and social variables, such as poverty reduction and inequality (4) and education (5,6). Having in mind the wide variety of possible impacts the program could make on society, we chose to look at the available studies motivated by the implementation of CCTs, the acquisition of human capital, and its relations with the job market.

According to (7), CCTs have two main objectives: (i) the short-term alleviation of consumption and (ii) the acquisition of human capital (set of SKlls, knowledge, and experiences that one can apply in work in order to generate economic value) in the long term, which in the case of BFP occurs theoretically through its conditionality of minimal school attendance (following the process represented in Figure 1 – CCT model by (Jones, 2016).. (8) and (9) defemd that the investment in human capital in which children attend formal education and eventually reach the job market with better wages is a way of breaking the intergenerational cycle of poverty. We can also imply from these objectives that another goal of CCTs' implementation is the reduction of informality, which according to (10) is harmful to both workers and companies, as it distorts the declaration of income and companies' competiveness.

Moreover, informal workers ear less and do not have access to any form of work contribution to their retirement -in Brazil, the Guarantee Fund for Worked Time (FGTS, Fundo de Garantia por Tempo de Serviço). Our goal is to verify if recent studies regarding brazillian job market conditions, earnings and wages converge to the BFP's intended objective of poverty reduction and better market conditions. At the end of the day, a form of verifying whether the reported reduction on poverty is on par with the improvement of the framework of labour in the country.

2. Theoretical foundations

The impact of CCTs, including other cases than the BFP program, is looked upon by (11) and (7). Although the former concluded that CCTs may have a positive impact after evaluating papers about various programs around the world, they also enforced the challenges of comparing different papers about programs that do not have a standardized implementation. (7), in its turn, elaborates a critique of the CCT model adopted by the

policy makers of BFP, arguing the quality of Brazil's education and the non-linearity of young people's trajectory through school and carrer does not occur in the linear way envisioned by the program's policy makers.

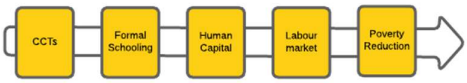

Figure 1 – CCT model by (Jones, 2016).

2.1. Studies Caracterization

Bearing those claims in mind, this article's research process selected relevant works that describe direct impacts of the BFP on the job market, wether on informal or formal jobs or on qualitative aspects such as job duration and years of schooling. For methodological reasons, all enrolment criteria and observations will take base on the original decree of 2004 (3), which is nowadays outdated.

One theoretical aspect of microeconomics also motivates this discussion: the income effect in the labour supply. A 'income effect', as described in (12), is when the prices of determined goods or services fall and it follows that the demand for them also falls, as the consumer's income of consumers has not been modified, yet they can buy the same amount, but they do not need to offer additional work for their income to increase.

This also applies to the discussion of CCTs as well, since theoretically cash transfers may reduce the labor of supply.(13) offers a good summary of this situation: "it occurs when the [cash transfer] recipients interpret that cash transfers compensate for the reductions in the monetary face value, as their offer supply reduces [...]." Having those points as a baseline, this work tries to convey an answer to the question; "Does the BFP, including its model and its conditionalities, manage to ensure better job wages and conditions to its beneficiaries and thus break the intergenerational cycle of poverty?"

2.1 General Aspects

A brief summary of the most relevant studies found can be found in the **Tab. 1**. Despite our goal also being trying to bring up newer cntributions to the CCT discussion, the limitation of studies covering thie topic of BFP (which endured a certain number of institutional changes during the different government administrations) from 2020 onwards required a wider and more more distant frame of time in the analysis., mostly between the late 2000's and early 2010's. All works reviwed here showed robustness checks with tests conducted specifically to ensure variables that could be somehow correlated with the explained variable. (an example would be the people of which have low or no acesso to garbage collection services correlated highly with BFP beneficiaries; as they are quite similar demographics, this information must be taken into account into the model).

Tab. 1 – Summary of most relevant papers

Author(s)	Year(s)	Data Source(s)
(14)	2008-2009	POF
(13)	2010	Census, Cadúnico
(15)	2004-2013	CadÚnico, RAIS
(16)	2004-2011	CadÚnico, RAIS
(17)	2003-2019	Cadúnico, RAIS, PNAD
(1)	2008-2011	CadÚnico, RAIS, BFP monthly payment sheets
(8)	2003-2010	Census, PNAD

The cited sources of data are the Annual Report of Social Data (*Relação Anual de Informações Sociais*, or RAIS), which served the purpose of aacounting data of labour activity on Brazil (18). Single Registry - (*Cadastro Único,* or simply CadÚnico) holds data for all families which members live with half of the minimum wage or less (19). The Federal Government maintains this database, as well as the monthly payment sheets of the BFP. Other information sources include the 2010 Census, by the Brazillian Institute of Geography and Estatistics (*Instituto Brasileiro de Geografia e Estatística*, or IBGE) and finally household surveys conducted by the same institution, namely the Annual Survey of Household Samples (*Pesquisa Anual por Amostra de Domicílios*, or PNAD) - and the Family Budget Survey -(*Pesquisa Orçamentária Familiar*, or POF). The last two hold great value in measuring individual socioeconomic aspects, such as quality of life, education, and the situation on job market, including informal work.

As for their theoretical foundations, (14), (13), (15) (16) and (1) base the start of their works on the income effect mentioned. Their hypothesis mostly try to verify if the BFP has observable and signifiant effects by comparing beneficiaries to non-beneficiaries or to measure the effects within the beneficiaries, in atempts to verify the hypothesis of reduction of labour supply. (17) also uses this, but has a work based overall in the sensibility of poorer areas to the transfers, as they tend to have more elligible people to the program. Their objective was to measure this sensibility in terms of work and GDP. (8) has its foundations in the social benefits of CCTs, such as educational and health imporvements. This work intended to verify if the program was managing to break the internegerational cycle of poverty trough schooling and fertility effects.

The methodologies used by the authors varied accordingly to each work's scope. Some commom

economic impact evaluation methods are described by (20), and they are the Differeces in Differences (DID, used by (16)), the Propensity Score Matching (PSM, also used by (16)) and the Instrumental Variable (IV, used by (13) and (17), the latter with a Bartik-style identification of variables) methods. Other methods derive from the necessity of more specifc econometric aproaches, which include the use of Arellano-Bond estimators in a regression(as used by (15)), Cox's proportional risks model (used by (1) to quantify the job loss risk), Quantilic Treatment Effects (used by(13)) and finally Probit models (used by (14), specifically with a SUR estimation). Respectively, these three methods are presented more deeply in (21), (22) and (23). More details on the Bartik Instuments are available on (24).

Each method has a unique purpose within the assumptions the authors' rely upon. (8) uses a 2SLS regression to find the effect of program coverage on average scholing and wages. (15) specified three models of working personnel and wages as a function of total cash transfer, number of families enroled, and cities GDP. (16) specifies the effect of treatment in terms of formal jobs along with many social components. (13) specifies a model that separates different earnings' classes in quantils in order to avoid an analysis with the use of average values. (1) puts in perspective the job duration of both BFP recipeints and non-recipients using a function that quantifies the risk of job loss, while (17) measures the impact of cash transfers in GDP, formal and informal employment terms relative to each state size.

3. Results

The visible multitude of work scopes within this review motivated the choice of this division: first, there will be a summary of the reported impacts of the BFP followed by a description of work limitations and some other factors that may take play in the formation of human capital described in the CCT model mentioned earlier.

Tab. 2 – Summary of findings

Author(s)	Variables	Results
(14)	Prob. of formal job	Negative
(13)	Labor Earnings	Negative
(15)	Labor supply and wages	Positive
(16)	Labor supply	Positive
(17)	Labor supply and GDP	Positive
(1)	Job duration	Positive
(8)	Employment, schooling	Positive

A brief summary of the review's outcome is shown on Tab. 2. At first glance, the results obtained are in general indicative of positive results towads the BFP model. Of the seven studies, only two present, negative results. (13) observes that the impact of the cash transfer program is negative for all income components in question. In other words, because of the reduction of labor supply, non-beneficiary families have approximately R$27,5 less per capita than their enrolled counterparts, or approximately 3% of the household per capita income for 2011 according to data from the PNAD-Contínua(25). Furthermore, (14) argues that because of marginal negative effects, the higher the probability that a said family will be enroled, the higher is the chance of unemployment. The chance of this to happen when we look at family head's partners, for instance, is 31,54% higer for beneficiaries. These results present important evidence in the defence of the income-effect thesis. (13) cites various possible reasons. They include the desincentive for formal work and subeclaration of income data, in which workers may not declare their informal earnings or go to the formal market so their official income does not change and therefore they do not loose their benefit. This is also in line with (14).

Despite this, all other works also show consistent evidence of positive effects generated by the BFP. (15) shows that within the data, an increase in one beneficiary in the program causes the average municipal wages to rise to R$11,790 (in 2011, U$7,429), and each increase of R$1.00 in the spendings to the program elevates the per capita income in R$14.00(approximately 1% of the average per capita household income according to IBGE). These findings confirmed the initial hypothesis that the cash transfers were positively correlated with both wages and occupied personnel.

(16) demonstrated that the proportion of enrolled individuals that were featured in the RAIS data in the time frames of 207-2011 and 2009-2011 were sigmificantly higher than those that were not in the BFP. This suggests that enroled families had higher acess to the formal job market. The authors also found that the effect is higher in younger people, as beneficiaries of ages of ages between 25-35 tended to appear approximately 6,4% (on the data records at least once) and 4,8% (continuously on the the data records) more on the RAIS registries than the ones without the aid of cash trasnfers. This figure decreases significantly in the case of elder people. These findings also shed some light on the specific effect of formality and arguably better human capital, as younger beneficiaries (which are the main target of the educational conditionalities in social policy) are getting better work opportunities.

The results of (17)' intrincate model are especially interesting, as this is not only the only of all reviewed works that presents its database in a larger frame of time (2004-2019), but also takes care to include informal jobs and the sensibility of each state to the cash transfers. The authors specify positive multipliers for formal and informal jobs, in which the addition of R$100,00 (approximately U$28 for 2023) to the CCT transfer directed for the state could lead

to the creation of three formal jobs and nine informal ones in relation of the other states. Another multipler weighed by the abundance of wages of informal and formal sectors shows that an increase of R$100,00 of the BFP transfers could create five more wage-equivalent jobs in relation to other states. Evidently, the data being on a state level does not make it immediately comparable to household-level data. However, the authors show that the BFP can generate positive effects on states that are poorer and more sensible to the transfers, and therefore where the BFP is, in its limits, reaching its goal of breaking intergenerational poverty cycles and giving a response to the income effect thesis. This is indirectly enforced in some other results, like the growth of GDP in pooper states, which follows a similar pattern. (26) shows that programs act on areas with high poverty and informal employment tend to receive greater effects, which is the case of this study.

(1) used the risk rates estimated for each group and found that the job duration on individuals that were beneficiaries and enroled in the program tend to have a higher formal job duration, specifically on the order of 8.95% (from 2008 to 2011), while the probability of job loss is seven to 10% less likely to occur with beneficiaries. Although not on the line of labour supply discussion, this study presents favourable arguments for BFP, findings related to the level of formality of beneficiaries' jobs.

Finally, (8) estimates that ten more recipient families per thousand population reduces unemplyment in approximately 1.8%. The same increase of the benefit increases 8th grade graduation in approximately 2%. This results are also interesting because of the inclsuion of schooling and employment in the analysis, which enforce contrary arguments to the income effect line of thought.

In summary, the panorama seems to suggest good effects coming from the BFP, as there were observed positive effects on schooling and younger people on formal work (formal education), formality and wages (human capital and better opportunities), even if the negative effects of labor supply are taken into account.

In spite of the statistical prevalence of authors that found results compatible with the CCT model described by (7), there are more factors that either the models cannot capture or that must be taken into account on the interpretation of results, which will be addressed in the next section.

4. Discussion

The first factor that is observed to be at play and is present directly only in the models of (17) is informality. As defined by (27), informality consists of the lack of official registration records ether for workers or firms. Namely, we can determine informal works by those who do not work with a Work Permit (Carteira de Trabalho). These kinds of workers are hardly shown in the RAIS registries and therefore are not considered in most impact estimates made. This leads to the conclusion that despite the overall positive effects, as suggested by (17) many studies miss great proportions of effects of the BFP.

As (28) argues , the majority of informal workers are of low-skill workers which face great entry costs in the transition to the formal sector (10). This along with the arguments of (7) about the performance of brazillian students in the PISA test scores indicates that, at least partly, the validity of the CCT model adopted by Bolsa Familia and its relation to education in Brazil puts some doubts on the results of (8). In other specific cases, however, CCTs have been associated good results in (the lowering of) fertility rates, schooling and human capital, as presented in (5).

Other problems include political factors. BFP is, from the point of view of (29), a program that is much more directed towards the erradication of poverty in the context of the social policy making made by the president Lula administration during the creation of the program as we know of today. This is in line with the vision of a program adjusted well to aid the poor and reduce income inequality (4), but makes room for the manipulation of political elections by the distribution of the benefit on voters (30).

Those points do not completely invalidate the results found, but instead pose challenges in the effects os the CCT program shown as a confirmation of each step taken in the process of the formation of human capital: although in general there are arguably so far good benefits in terms of acess for jobs and better income for poor people, the role of education and the magnitude of the population affected by the BFP still are disputable.

5. Conclusion

Using the economic theoretical framework and the design of general CCT as intended by policy makers as described by (7), this arcitle then conducted a review of relevant works about the BFP to proceed further into the dicussion of the reduction of labor supply supposedly caused by the program in opposition to empirical evidence that denies this relation, in an attempt to draw a conclusion on the validity of the BFP as a solution to work inequality along with well-known results of reduction of poverty during the time periodo of 2004 to roughly 2013 (4).

Most works have presented robust methodologies commom for the economic impact evaluation of social policies and robustness checks. The results suggest that the observed positive effects sustain the thesis of positive effects on the beneficiaries' per capita income, schooling and formal jobs duration, (1,8,15). This is significant to the program's ultimate goal, that is, the alleviation of poverty. Other works also show positive effects on the labour supply (15–17), yet (13,14) present evidence in the opposite direction. Taking into consideration the theoretical

foundations as well as informality and political factors, which cannot be capted by the models, the results on the labor supply segments are inconclusive when it comes to the validity of the aforementioned CCT model, not necessarily denying though.

Considering the future research that can be made, the gap of formal and informal jobs as well as the income effect mentioned are strong points that one must consider before bringing the attention to more recent years.

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