



Tackling Vulnerable Households through a Working Tax Credit Scheme: A Feasible Alternative to Cash Transfers

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Abstract

Conditional Cash Transfer Programs (CCTs) have been extremely popular strategies to fight poverty in developing countries for the last three decades. Although these programs can be effective to improve the welfare of the poor in the short run and even to guarantee basic health care and education services, they can also discourage employment and reduce formality rates. Furthermore, they can create welfare dependence and prevent the generation of autonomous income. Many developed countries have been using the income tax system not only to redistribute income but also to implement social policies. A good example is the Earned Income Tax Credit (EITC) in the United States, which offers a reimbursable credit conditioned on working to low-income individuals. This paper uses Chilean data to empirically analyze the effect that a system such as the EITC would have on poverty and inequality in a developing country. Our policy targets single 18-60 years old women, without a partner, with and without eligible children. The results show that a tax credit could increase employment while reducing poverty and inequality. Additionally, we show that an EITC design might be more cost-effective to increase the income of individuals below the poverty line and to reduce inequality. Given that a program like the EITC mostly benefits those who have a higher chance of seeking and obtaining employment in the formal sector, such policy should be implemented as a complementary tool to other social policy programs aimed at helping individuals out of the informal sector.

Keywords: EITC, Poverty, Inequality, Ethical family income, Chile.

JEL Classification: H24, H53, I38.

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1. Introduction

The main motivation of this paper is to analyze the possibility of implementing an Earned Income Tax Credit program in developing countries as a more effective and efficient alternative to Conditional Cash Transfers programs to reduce poverty and inequality, especially in the long run.

Conditional Cash Transfer Programs (CCTs) have been extremely popular in developing countries for the last three decades. Eighteen countries in Latin America had implemented CCT programs by 2010, providing benefits to 129 million people (Stampini and Tornarolli, 2012). Around the world, the number of countries with conditional cash transfer programs increased from twenty-seven in 2008 to fifty-two in 2013 (World Bank, 2014). The available empirical evidence shows that these programs have been effective in reducing poverty and inequality in the short term, while also increasing children's school enrollment and access to health facilities (Fiszbein and Schady, 2009; Bouillon and Tejerina, 2007; Lagarde *et al.*, 2007).

However, there are important concerns about CCTs' design and their long-term effects, as these programs do not encourage employment and there is some evidence that most of the effects of CCT programs on health and human capital outcomes are driven by the ongoing benefits, and not through changes in preferences or attitudes (Contreras and Cameron, 2016). Moreover, CCTs may discourage formal employment as they have very low-income requirements and families would not want to stop receiving benefits, promoting then welfare dependence. Recent work by Banarjee *et al.* (2016) presents important evidence on the effects of CCTs on employment analyzing cash transfer programs in six developing countries, including Mexico and Nicaragua. On average, they show no significant effects of CCTs on employment. Nonetheless, the analysis of the program Progresa in Mexico –which is a very generous cash transfer (20% of household consumption)– suggests a negative effect on formal employment.

Developed economies also have a long history of implementing social protection policies through cash transfer programs and policies aimed at establishing social safety nets for increasing access to information and services, protecting the elderly, and supporting people while they look for work. In high-income countries, conditional monetary transfers have been more frequently related to unemployment benefits, with conditions attached to active labor market behavior. Only recently some developed economies (the US and some European countries) have been implementing some CCT policies aimed at giving families incentives to invest in both health and education for their children (Medgyesi and Temesváry, 2013). But developed economies have pioneered using the tax system as the main infrastructure for implementing social policies as well as redistributing income for the last four decades. The United States began with this type of policy in 1975 when it established a refundable tax credit system targeted at families with low or moderate income, called the Earned Income Tax Credit (EITC).¹ Some other examples of countries where many social benefits are conferred in the form of a credit in the annual tax return are Canada, United States, Austria, Belgium, Finland, France, Germany, Ireland, Greece, Italy, Netherlands, UK, New Zealand and, Australia. 1).

From a theoretical point of view, an income tax credit might have some clear advantages as a redistribution mechanism. First, a consumption-choice model predicts that an income

tax credit encourages the employment of single people in the poorest segment of the income distribution². Second, in practice, for low-income families, an EITC is equivalent to a negative income tax. This is important since when there are preferences for redistribution, optimal income taxation includes a negative income tax (Mirrlees, 1971; 1976). In addition, both unconditional and conditional CT programs have higher administrative costs while a tax credit uses pre-existing infrastructure and institutional framework already built into the tax system. Therefore, the EITC is inexpensive to administer, and the cost imposed on taxpayers of filling a tax form is inexpensive (Liebman, 1998; OECD, 2000).³ Also, a tax credit can be designed to reduce the stigma associated with participation in traditional social programs.

There is extensive empirical literature that evaluates EITC in the U.S., the Working Families Tax Credit (WFTC) and the Work Tax Credit (WTC) in the UK, which consistently shows significant positive effects on reducing poverty and increasing employment rates of single mothers (Hoynes and Patel, forthcoming; Eissa and Hoynes, 2006; Francesconi *et al.* (2009); Gregg *et al.* (2009); Meyer and Rosenbaum, 1999; Keane and Moffit, 1998). There is also strong evidence that the EITC has improved parent and child health, increased consumption, children's academic achievement, and reduced the intergenerational transmission of poverty and the chances of entering welfare (Nichols and Rothstein, 2016). New evidence also shows that the positive impacts on children extend to employment and earnings in adulthood (Bastian and Micheltore, 2018). Additionally, there is evidence that increasing female labour participation can contribute positively to improving the perception of the social value of working women (Bastian, 2020).

Two main concerns may arise in implementing a tax-based social policy in a developing country. First, a tax credit system requires a reliable tax administration authority, able to exert a high degree of tax compliance. Second, high levels of informality may limit the ability to target the most vulnerable individuals to encourage employment among the poor. Related to this, developing countries may have a larger share of rural population and empirical evidence suggests that the potential effect of a tax credit is more effective as a redistributive mechanism in urban than rural areas (Wu *et al.*, 2006).

However, in recent years many low-income countries have invested in improving their tax system, which creates the conditions to implement a tax credit within their mix of policies that aim at improving the living and working conditions of the poor. For instance, some of these countries are currently implementing tax credits for other types of income or expenditures e.g., Chile, Mexico, Cyprus, Slovenia, and South Africa.⁴ Furthermore, there is a large variation in the size of the informal sector and of the rural population in developed countries with a tax credit already in place.⁵

In this paper, we use Chilean data to empirically analyze the effect on poverty and inequality of implementing an Earned Income Tax Credit program in a developing country. We argue that a tax credit could be a viable option for significantly reducing the trade-off between efficiency and equity existing in the case of conditional cash transfers.⁶ Moreover, it could provide a nice and smooth way to graduate families from CCT programs. Our target population is 18-60 years old women, from the first six income deciles, who report that

they are not married or living with a partner, with and without eligible children (under 18 years old; between 19 and 23 years old if they are studying; disabled children living with the beneficiary). We choose to target the policy on this population because single mothers have traditionally been the main beneficiaries of EITC programs in the countries that have implemented it and because in Chile all social programs target the first six income deciles of the income distribution. We then, leverage an existent ex-ante evaluation of a CCT program implemented few years ago in the country to compare the costs and benefits between these two policies. Estimating potential equilibrium effects on the labor market is beyond the scope of this work. Nonetheless, we use the existent evidence to discuss potential spillovers and analyze the sensitivity of our findings to different assumptions about the elasticity of participation, informality, and unemployment- parameters that may vary across developing countries.

The simulations use data from Chile for four reasons. First, in addition to its long tradition of economic⁷ and political stability, Chilean informality rate is very close to the average OECD country, slightly higher than Germany, France, or Finland, and lower than Belgium, Italy, and Greece (Medina and Schneider, 2017). In particular, the average size of the shadow economy in the country was 18% of GDP during the period 1991-2015, which is less than half the 38.8% estimated for Latin America. Furthermore, Chile has the lowest fraction of independent workers in the region; 35% vs 55% for the period 2006-2010 (Medina and Schneider, 2017)⁸.

Second, Chile has one of the most efficient tax agencies in the region (Serra, 2003; Baer, 2006). Moreover, the country has recently moved from a survey-based targeting instrument (Ficha de Protección Social) to an administrative data-based targeting system (Registro Nacional de Hogares) to provide social benefits, a system that is partially fed with data from the National Tax Office. Also, since 2012, it has been successfully implementing an Educational Tax Credit for low and middle-income families.

Third, its female labor participation rate (45%) is 10 percentage points lower than the average in Latin America (Piras and Rucci, 2014). Therefore, as was done in other developing countries, in 2012 Chile included an employment component in its CCT program to encourage female labor participation. However, existent evaluations of this program show that, if anything, the program decreases labor participation and labor income among beneficiaries⁹. For all these reasons, we argue that Chile is a natural candidate to consider an EITC scheme in their potential “policy mix” of poverty fight strategies.

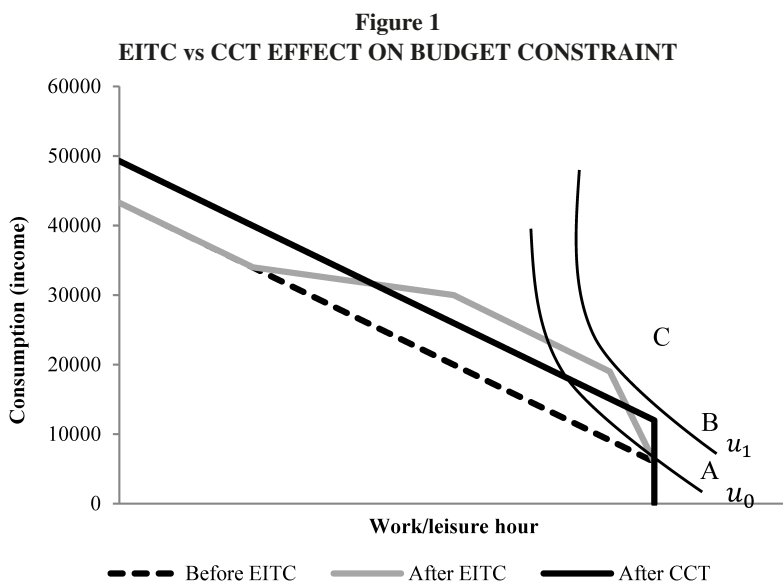
The results of this paper follow closely the evidence for the US: a tax credit would increase labor participation while reducing poverty and inequality. Ayala and Paniagua (2019) show similar results when simulating the implementation of an in-work benefits program in Spain. Additionally, our results show that the tax credit is much more cost-effective than a CCT program in reducing poverty and increasing the income of families at the bottom of the distribution. The latter result is consistent with the evidence of Blundell *et al.* (2016), who show that increases in tax credits improve welfare more than equally costly increases in income support for the UK.

The paper continues as follows. Section 2 explains the incentives generated by an income tax credit and the empirical evidence in the literature regarding the extent of its effect. Section

3 introduces the tax credit proposal, while section 4 describes the data and simulation method. Section 5 presents the effects of the tax credit on poverty and inequality while section 6 evaluates the sensitivity of the estimations to changes in the main assumptions. Section 7 presents a cost-effectiveness analysis and compares the tax credit proposal and the Conditional Cash Transfer implemented in 2012. Section 8 concludes.

2. Policy Effects: Theory and Empirical Evidence

The EITC works through expanding people's budget constraints, changing the relative prices between leisure and consumption, and varying the marginal tax rate faced by taxpayers. The incentives of implementing an EITC can be analyzed by looking at the change that occurs in the budget constraint of an individual or family. Figure 1 compares the effect of an EITC to a Conditional Cash Transfer (CCT) program on the budget constraint of a consumer. The X-axis measures the hours of work/leisure¹⁰ and the Y-axis measures consumption (or income).¹¹ The initial budget constraint reflects the situation of a person who is exempt from paying taxes.



Note: Point A represents the initial equilibrium before any program for a non-working individual, with a corresponding level of welfare u_0 . If a CCT is implemented, non-work-related income is increased allowing her to reach a higher utility curve, e.g. u_1 . The lifting of the budgetary constraint will have an income effect increasing leisure hours (reducing work) and consumption. If an EITC is implemented the effect depends on whether the individual is initially working or not and whether she decides to enter the labor force after the credit is applied. An individual who does not work before and after the EITC will remain at the initial equilibrium A. However, if the individual decides to join the labor market, she will access a higher welfare e.g. u_1 . Therefore, for the same level of welfare, u_1 , a CCT guarantees at least to reach point B, while the EITC encourages work and makes it possible to get to point C.

Source: Prepared by the authors.

A CCT program expands only non-labor related income, and the displacement is parallel to the initial budget constraint, which allows an individual who does not work to obtain a higher income with the same zero hours of work. If the individual was already working, the budget constraint expansion will have a pure income effect, increasing his leisure hours and consumption, i.e., the same consumption is available with less hours of work. Although the effect of a CCT program on employment is yet to be known, it is hard to argue that this type of program could encourage work (Banarjee *et al.*, 2016).

On the contrary, the EITC has a non-linear benefit/incentive structure. First, in the phase-in region the EITC is proportional to wages. Then, in the flat region the EITC is a fixed amount, and, finally, in the third segment –the phase out region– the credit is inversely proportional to income. As a result, the expansion of the budget increases sharply in the first segment, where wages are subsidized, then it is parallel to the initial constraint, since a fixed subsidy is applied, and in the third segment the credit decreases approaching the initial constraint. The important point is that, as seen in the figure, under an EITC scheme, income is always greater than or equal to what it would be without the program, helping to reduce poverty and inequality. In sum, both programs would increase income, thus they contribute to reduce poverty. However, for the same welfare gains, an EITC scheme encourages work while the opposite is true for a CCT program.

In practice, the non-linearity implies that the effect of the EITC on labor supply will depend on whether individuals are initially working and the income segment they start on. Those who were not working before the EITC are encouraged to enter the labor market. The effect on labor supply of those who were already working depends on the magnitude of the income and substitution effects. In the phase-in region, the income effect is negative, and the substitution effect is positive. In the flat phase there is only an income effect (negative) and in the third segment both effects are negative. Additionally, those who are above but still close to the limit of the third segment may want to reduce working hours to be eligible (Eissa and Liebman 1996).

The magnitude of the effect on labor market participation depends on the elasticity of participation and the labor demand. In turn, the effect on hours worked relies on the possibility of adjusting the number of hours and the elasticity of labor supply. Therefore, the magnitude of these effects is an empirical question. Unfortunately, there is no evidence for developing countries. Furthermore, despite the large number of countries with similar income tax credit schemes, the EITC in the US is by far the most studied. Thus, we present here a summary of the existing evidence for the EITC program in the United States and discuss the potential effects if it were applied in a developing economy such as Chile.

There is a large literature studying the effects of the EITC on labor supply, both on the extensive and intensive margins. Hoynes and Patel (forthcoming) estimate that a policy induced US\$1000 increase in the EITC would lead to a 7.3 percent points increase in employment and, consequently a 9.4 percent points reduction in the share of families in poverty. Eissa and Hoynes (2006) estimate that because of the EITC, the employment rate of single mothers went up by nearly 12% between 1984 and 2003. In the same line, Meyer and Rosen-

baum (1999) find that the EITC explains one third of the increase in the employment rate observed between 1992 and 1996, and Keane and Moffit (1998) conclude that the program increased the labor force participation of single mothers by 10.7% between 1984 and 1996. The literature is inconclusive, however, on the impact of the tax credit on hours worked, but there is evidence that workers may adjust hours along the phase-in region to maximize credit (Chetty *et al.*, 2013, Saez, 2010, Chetty and Saez, 2013).¹²

For married women, the evidence shows that the EITC reduces both labor force participation and hours worked. Eissa and Hoynes (2004) find that the 1993 EITC expansion reduces the labor participation rate of married women by 1%. In term of hours worked, Eissa and Hoynes (2006) show that the expansions in the 1986-1996 period decrease them in this group by 1 to 4 percent points.¹³

The systematic evidence of significant effects on labor force participation and little or no effect on hours worked is consistent with the existing estimates of hour/wage elasticity, which are greater for women –especially married- than for men, and considerably smaller than the participation elasticity.¹⁴ This empirical evidence has important implications for welfare analysis. Sáez (2002) shows that if the participation elasticity is high, the optimal transfer program resembles the EITC, with negative marginal rates at the bottom of the income distribution. However, if people’s decisions are based mainly on the number of hours offered, implying a large hour/wage elasticity, an optimal tax system would be closer to a Negative Income Tax (NIT), which unlike the EITC is an unconditional negative tax. In that sense the evidence on elasticities supports the EITC as a better instrument than CCT programs in terms of welfare impacts.

In addition, the EITC is also a more effective tool for reducing inequality. Wu *et al.* (2006) study the effect of different programs on income distribution in urban and rural areas and conclude that the EITC plays an important role in urban areas as a redistributive mechanism among the existing programs in the United States. Conditional Cash Transfer programs and the minimum wage, on the contrary, do not have much impact on inequality and may even have a negative effect, since they do not create the right incentives and have targeting problems. This is relevant when using Chilean data, as in this country only around 10% of the population lives in rural areas.

It is also important to mention that the implementation of the EITC might impact the equilibrium wage in the economy. There are two reasons for this potential effect. First, new workers expand the labor supply, causing a downward pressure. Second, a subsidy on labor income could cause employers to lower wages, being able to pay less for the same work. Rothstein (2010) shows that a dollar of EITC results in a transfer of US\$0.70 to the beneficiaries and US\$0.73 to the employers of low-skilled human capital. The difference is explained by non-beneficiaries with whom the beneficiaries compete upon entry into the labor market. Leigh (2010) estimates that a 10% increase in the EITC is associated with a 2% drop in wages for those who have completed secondary education, 5% for people with incomplete secondary education, and no effect for those who have higher education. Still, even when there is a macro effect on wages in the labor market, the evidence is that, in general, there is

an increase in the total income of the poorest individuals and the drop in wages is compensated by a higher family income achieved from the EITC.

In fact, the incidence on employers depends on the minimum wage policy, which limits the downward pressure and limits the benefits that the employers can obtain from a scheme like the EITC (Eissa and Nichols, 2005; Nichols and Rothstein, 2016). For this reason, an optimal policy might combine a generous EITC and a high minimum wage. Contrary to the US, where the minimum wage has not been increased since 2009 and a tiny fraction of workers (around 3%) are paid this amount¹⁸, in Chile the minimum wage is updated every year by law and affects 15% of dependent workers. Therefore, under this scenario we may not expect that employers can capture an important share of the benefit as it might have happened in the U. S.

Finally, an important difference between developed and developing countries that needs to be considered is the high rate of informality, especially at the bottom of the income distribution. Although a working tax credit scheme should encourage informality in the medium or long run, it will initially affect the targeting of the program, restricting its ability to reduce poverty and inequality in the short run. Therefore, it is important to complement the program with other social policies, at least in the short run.

3. A Working Tax Credit Proposal for Chile

We simulate and evaluate a Working Tax Credit scheme for 18 to 60 years old women, from the first six income deciles, who report that they are not married or living with a partner, and have 0, 1, or 2 or more eligible children. Eligible children can be under 18 years old, between 19 and 23 years old if they are studying, or disabled children living with the beneficiary. We choose this target population as single mothers have traditionally been the main beneficiaries of EITC programs and because in Chile all social programs target the first six income deciles of the income distribution.

Note that there are two types of beneficiaries among women who meet the requirements: single women head of household where there is at least one eligible child, and single women in households where there are no eligible children. This latter category includes women over 18 who do not have a partner, are not studying, are not disabled, and are not eligible through another family member. In these cases, there could be more than one program beneficiary per household¹⁶.

The increasing and then decreasing structure of the proposed tax scheme and the covered proportion of the initial income distribution is considered to define the tax credit segments. If the portion of the income distribution covered is too small, people may avoid increasing their incomes and getting out of poverty to keep the benefit. Therefore, in this proposal the subsidy is given to families in the first six income deciles.

The selection of the income limits, rates, and amounts of the tax scheme is directly related to the impact the policy could have, and program targeting will change based on these values.

The proposed parameters for Chile are defined based on those used in the United States in 1996, adjusted by the ratio between the GDP per capita of the U.S. in 1996 and the GDP per capita of Chile in 2009, which was close to 3. More importantly, the tax credit was designed as to take a family headed by a single mother earning the minimum wage with two non-working age children out of poverty. Table 1 shows the parameters used in the simulation.

Table 1
INCOME SEGMENTS, RATES AND CREDIT AMOUNTS

Annual Household Income (x)	Segment	Credit (2 Children)
US \$0 - US\$ 2,612	Phase-in	40% * x
US\$ 2,612 - US\$ 3,411	Flat region	US\$ 1,045
US\$ 3,411 - US \$8,371	Phase-out	US\$ 1,045 - 21,06% * (x - US\$ 3,411)
Annual Household Income (x)	Segment	Credit (1 Child)
US\$0 - US\$ 1,859	Phase-in	34% * x
US\$ 1,859 - US\$ 3,411	Flat region	US\$ 632
US\$ 3,411 - US\$ 7,351	Phase-out	US\$ 632 - 15,98% * (x - US\$ 3,411)
Annual Household Income (x)	Segment	Credit (Without Children)
US\$0 - US\$ 1240	Phase-in	7,65% * x
US\$ 1240 - US\$ 1551	Flat region	US\$ 95
US\$ 1551 - US\$ 2,791	Phase-out	US\$ 95 - 7,65% * (x - US\$ 1,551)

Note: US dollars of 2009.

Source: Prepared by the authors.

The maximum after-tax income, that is, the upper limit of the phase-out region for those who do not have children, is on average US\$233 per month, and US\$614 and US\$698 for families with one or two or more children, respectively.¹⁷ Thus, a single mother with two children and a monthly salary between US\$220 and US\$280 (the minimum wage in 2009 was US\$260¹⁸) would receive a tax refund cash transfer for the maximum subsidy amount, which is US\$1045 per year, equivalent to US\$87 monthly. This implies that this family would have a per capita income between US\$102 and US\$124, placing it above the poverty line in 2009 (US100).

Finally, to fully assess the implementation of the income tax credit, one must also consider the program's funding policy (Mirrlees *et al.*, 2010). Although an EITC tax system is progressive, for the effects on income distribution to fully materialize, the program's source of funding cannot be regressive as this could reduce the positive effects of the program on equity and worsen the relative position of the most vulnerable individuals. Financing an EITC with an increase in tax revenues from VAT, for example, would lower the disposable income of the poorest individuals, so the net effect of the EITC on poverty becomes ambiguous.¹⁹ This would not happen if the program were funded by an income tax, because the poorest segment is exempt. Therefore, among the available financing alternatives, those that should be favored are progressive taxation, which would even further improve inequality, or, even

better, replacement of social programs with bad impact evaluation or only achieving short-term changes without affecting families' permanent capacity to generate higher independent income.

4. Data and Simulation Method

We use the 2009 National Survey of Sociodemographic Characteristics (CASEN) to simulate the implementation of an income tax credit in Chile. CASEN is a nationally and regionally representative survey with information at the household and individual level. It is implemented every two or three years since 1990 and it includes detailed self-reported information on income, health and education, housing, durable goods, access to sanitation and family structure. We distinguish between households and families because a household with more than one family can have more than one EITC recipient. We use 2009 since it is the last CASEN before the CCT program "Asignación Social" was introduced.

The 2009 CASEN contains data for 71,460 households, 84,954 families and 246,924 individuals. We exclude from the data 136 families in domestic service since they do not live with their children. Also, we dropped 4,123 families in which individuals who work do not declare earnings and/or have no reported labor hours; only 877 of which are eligible to the simulated EITC. It is important to note that the survey includes formal and informal labor income. Thus, those who do not declare income or hours could be informal or formal workers. The final sample consists of 232,772 observations (80,695 households).

Table A1 in the Appendix presents descriptive statistics for the full 2009 CASEN and the final sample for the simulation. There are no major differences between the two; in both 20% lives in Santiago MSA, 64% resides in urban areas, 60% is between 25 and 60 years old, half of the respondents are single, on average people have nine years of education, average family income per capita before taxes is nearly US\$224 (86% of the minimum wage) and the average hourly earnings is US\$4.

To simulate the implementation of an income tax credit in Chile we follow the four-step methodology used by Eissa and Hoynes (2008) and Eissa *et al.* (2008). In the first step, we compute the taxable income and the income tax to be paid by each individual. To predict the labor income of those not working when the tax credit is applied, an equation of the logarithm of the hourly wage for the entire population is estimated using a Heckman (1979) regression model.²⁰ The results of these regressions are shown in Tables A2 and A3 in the Appendix.

In the second step, the annual tax credit is calculated for all eligible persons, that is, all those who meet the age, children, and income requirements, regardless of whether they initially work or not. Since the database, which is described below, has monthly income information, it is assumed that people will maintain the same income for the next twelve months²¹. Although income could be particularly unstable among poor people, we see in the data that almost 70% of the EITC eligible population that are working has been in the same job for a year or more. For those who do not work before the implementation of the tax credit,

two alternative scenarios are simulated: people enter the labor market to either work 20 or 45 hours a week (half or full-time, respectively).

In the third step we identify the program beneficiaries. To do this, we calculate the income variation between the initial income and the estimated final income, i. e., the sum of the after-tax income, the estimated tax credit, and social transfers.²²

For eligible women who were not working initially, we estimate the change in the probability of labor participation using their income after the credit and labor participation elasticity. There are no estimates of labor participation elasticity for Chile. For this reason, as in Eissa and Hoynes (2008), we use four different values: 0, 0.1, 0.2, and 0.3.²³ De Hoyos (2006) estimates labor participation elasticities for México of the order of 0.33-0.39 (de Hoyos, 2006). Elasticities of 0-0.3 might be conservative values for Chile.

If the new probability of participation is greater than 0.5, we assume the person chooses to work and becomes a tax credit recipient. We start by assuming that all initially working eligible women and those who enter the labor market will be beneficiaries. This is equivalent to assuming a 100% formality rate, which is unlikely in an emerging country like Chile, at least in the short run. However, as the program is expected to encourage participation and formality, those results may be interpreted as medium or long-term outcomes. In addition, we analyze the sensitivity of our results to the informality and unemployment assumption in Section 6.

Although we do not account for general equilibrium effects on the wage distribution, a significant fraction of the tax credit recipients would probably earn the minimum wage, limiting the downward pressure after the simulated increase in the labor supply. Moreover, as suggested by Nichols and Rothstein (2016), the minimum wage and the benefits for childless beneficiaries could be increased to avoid any major effect on wages.

Initially, the EITC could alter the hours worked of those who are currently working. If the labor supply elasticity is ε_k , the number of hours worked for each individual after implementing the EITC is determined by:

$$Hours_{EITC} = (1 + \varepsilon_k \cdot \% \text{ income variation after the credit}) \quad (1)$$

While this is an effect that potentially could be considered in the simulation, Triest (1990) and Meyer (2002) suggest omitting this effect as conditional on participation, labor supply in the US is quite inelastic, what is consistent with the EITC only affecting labor participation. For example, Meyer (2002) finds no evidence that this program affects the hours worked by single mothers and claims that assuming the existence of a positive and uniform elasticity may overestimate the results of the simulation.²⁴ For this reason, and due to the fact that correctly identifying the effect on hours worked requires different assumptions of labor supply elasticity along the regions of the tax credit, the simulation assumes an uncompensated labor supply elasticity equal to zero ($\varepsilon_k = 0$), but we also discuss the robustness of our results if we were to assume a positive but small elasticity ($\varepsilon_k = 0.1$).

The final step is to estimate the new distribution of income after taxes and calculates the effect of the proposed tax credit on labor force participation, poverty, and inequality.

5. Results

As we have different scenarios depending on the number of hours worked by those who enter the labor market (either 20 or 45 hours) and the values of participation elasticity ($\gamma_k = 0, 0.1, 0.2$ or 0.3), seven different simulations are implemented. The baseline scenario (Scenario A) is the most conservative as it assumes no changes in behavior, so only those who are initially working receive the benefit.

Results are quite insensitive to changes in the elasticity of participation within the range considered; the number of direct beneficiaries increases between just 0.05% and 0.7% when the elasticity increases from 0.2 to 0.3 (Table 2). For this reason, and to simplify the presentation, the analysis focuses on three main scenarios: A, B and C.²⁵ In the baseline scenario (A), labor participation remains constant, keeping the potential effect at its minimum; Scenarios B and C, assume a participation elasticity of 0.3 and that new participants enter the labor market working 20 and 45 hours, respectively.

Table 2
BENEFICIARIES

Scenario	Total Families	Direct Head of Household	Beneficiaries Others	Total	Indirect <18 years	Beneficiaries >18 years	Total	Total
	[1]	[2]	[3]	[4]=[2]+[3]	[5]	[6]	[7]=[5]+[6]	[8]=[4]+[7]
A	370,249	350,114	21,025	371,139	519,502	157,346	676,848	1,047,987
B	510,569	469,892	43,229	513,121	716,664	254,069	970,733	1,483,854
C	456,320	427,786	29,547	457,333	656,255	208,901	865,156	1,322,489
D	508,647	468,332	42,867	511,199	714,488	252,697	967,185	1,478,384
E	454,776	426,381	29,408	455,789	653,787	208,267	862,054	1,317,843
F	506,957	467,029	42,401	509,430	712,794	251,917	964,711	1,474,141
G	454,270	426,063	29,220	455,283	653,289	207,912	861,201	1,316,484

Source: Own calculations, CASEN 2009.

These three scenarios assume that all women who are seeking employment find a formal job, representing the maximum effect of the program. We estimate an additional case in which women have a labor elasticity of 0.3 and enter the labor market working 45 hours though not all of them find a formal job. We assume that the distribution of informal workers across the income distribution remains the same, so we consider that lower income workers are less likely to have a formal job. Results under this assumption are shown as a sensitivity analysis in Section 6.

One potential concern with the simulations is that some of the EITC beneficiaries might become contributors (Bastian and Jones, 2019). However, in the case of Chile, the threshold for the exempted bracket in the personal income tax is quite high. As a result, 75% of the taxpayers are exempted. Therefore, an EITC policy that increases income for female household heads belonging to the six lowest income deciles, as it is proposed and simulated, does not trigger any tax liability on the beneficiaries.

Targeting

Table 2 shows the number of beneficiaries. The direct beneficiaries are women between 18 and 60 years old, who work and receive the EITC. The indirect beneficiaries are family members –of any age and gender– of direct beneficiaries. The number of direct beneficiaries may exceed that of beneficiary families because one family may have more than one EITC recipient.

While in the baseline scenario (A) 370,249 families are beneficiaries, if women start working part-time 510,569 families receive the EITC (Scenario B) and 456,320 if they work full time (Scenario C); behavioral responses account for up to 38% increase in the number of families in the program.

The program successfully targets single women with children as more than 90% of the direct beneficiaries are head of households and the indirect beneficiaries are predominantly children and youth under 18. Participation is higher when women work part-time because higher hourly-wages workers are no longer eligible for the program if they were working 45 hours.

Furthermore, as can be seen in Table 3, targeting improves when women work full time (Scenario C) since they come from lower-income families, have more eligible children, have less years of education, and have lower predicted hourly wages.

Table 3
TARGETING

Income Decile	Share of Beneficiaries (%)			Share of Resources (%)		
	A	B	C	A	B	C
	[1]	[2]	[3]	[4]	[5]	[6]
1	6.4	4.2	19.3	17.3	16.4	14.7
2	19.3	21.6	19.3	21.4	19.3	21.0
3	17.6	21.1	15.3	18.0	15.9	18.7
4	18.6	21.1	15.6	17.5	16.2	18.3
5	22.3	21.0	17.7	16.8	18.9	17.8
6	15.8	11.1	12.8	9.0	13.4	9.5

Source: Own calculations, CASEN 2009.

Table 4
BENEFITS AND COVERAGE BY EITC SEGMENTS AND FAMILY SIZE

	Phase In				Flat Region				Phase Out				Total				
	Benef.		Share of Resources		Benef.		Share of Resources		Benef.		Share of Resources		Benef.		Share of Resources		
	N	%	US\$	%	N	%	US\$	%	N	%	US\$	%	N	%	US\$	%	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	
													[1]+[5]+[9]	[2]+[6]+[10]		[4]+[8]+[12]	
<i>Scenario A</i>																	
No Children	11,858	3.2	61	0.3	6,880	1.9	95	0.3	32,080	8.6	51	0.8	50,818	13.7	59	1.4	
1 Children	26,642	7.2	431	5.5	60,429	16.3	632	18.1	83,307	22.4	501	19.8	170,378	45.9	536	43.4	
2+ Children	35,240	9.5	724	12.1	26,717	7.2	1,045	13.2	87,986	23.7	714	29.8	149,943	40.4	775	55.2	
Total A	73,740	19.9	512	17.9	94,026	25.3	710	31.7	203,373	54.8	522	50.4	371,139	100	568	100	
<i>Scenario B</i>																	
No Children	23,595	4.6	65	0.6	11,738	2.3	95	0.4	52,009	10.1	50	0.9	87,342	17	60	1.9	
1 Children	41,627	8.1	433	6.5	76,907	15	632	17.6	99,737	19.4	479	17.3	218,271	42.5	524	41.3	
2+ Children	60,706	11.8	696	15.3	33,700	6.6	1,045	12.7	113,102	22	703	28.8	207,508	40.4	757	56.8	
Total B	125,928	24.5	491	22.3	122,345	23.8	694	30.7	264,848	51.6	490	47	513,121	100	539	100	
<i>Scenario C</i>																	
No Children	13,599	3	63	0.3	7,611	1.7	95	0.3	42,012	9.2	49	0.8	63,222	13.8	57	1.4	
1 Children	28,663	6.3	435	4.9	70,062	15.3	632	17.5	104,515	22.9	470	19.4	203,240	44.4	521	41.8	
2+ Children	42,037	9.2	727	12.1	32,297	7.1	1,045	13.3	116,537	25.5	683	31.4	190,871	41.7	754	56.8	
Total C	84,299	18.4	520	17.3	109,970	24	716	31.1	263,064	57.5	497	51.6	457,333	100	554	100	

Source: Own calculations, CASEN 2009.

Table 5
DESCRIPTIVE STATISTICS - WOMEN 18 TO 60 YEARS OLD

	All			Non Beneficiaries			Beneficiaries			C Sd. [10]
	Mean [1]	Sd. [2]	1-6 Deciles Mean [3]	Sd. [4]	Initiaily Scenario Mean [5]	Working A Sd. [6]	Scenario Mean [7]	Initially B Sd. [8]	Not Working Scenario Mean [9]	
Age	37.4	12.7	36.2	12.8	38.1	9.8	40.6	8.1	39.9	7.9
Age 18 to 24	0.236	0.424	0.283	0.451	0.093	0.290	0.007	0.082	0.011	0.105
Age 25 to 34	0.202	0.401	0.187	0.390	0.262	0.440	0.233	0.423	0.253	0.435
Age 35 to 44	0.228	0.420	0.231	0.421	0.363	0.481	0.392	0.488	0.408	0.492
Age 45 to 60	0.334	0.472	0.299	0.458	0.282	0.450	0.368	0.482	0.328	0.470
Years Education	11.3	3.9	10.0	3.7	10.3	3.2	10.3	3.1	9.9	3.2
No Education	0.020	0.140	0.030	0.170	0.018	0.135	0.011	0.103	0.011	0.103
Complete Secondary Education	0.343	0.475	0.354	0.478	0.443	0.497	0.405	0.491	0.353	0
Higher Education	0.291	0.454	0.156	0.363	0.106	0.308	0.112	0.316	0.097	0.296
Single	0.321	0.467	0.329	0.470	0.568	0.495	0.450	0.498	0.424	0.494
Married	0.614	0.487	0.623	0.485	0.043	0.202	0.041	0.199	0.049	0.217
Separated	0.049	0.216	0.031	0.174	0.348	0.476	0.444	0.497	0.462	0.499
Number Eligible Children	0.2	0.6	0.3	0.7	1.4	0.9	1.4	1.2	1.6	1.1
Any Children 0-2	0.180	0.384	0.227	0.419	0.214	0.410	0.219	0.414	0.255	0.436
Any Children 3-5	0.169	0.375	0.205	0.404	0.253	0.435	0.217	0.412	0.239	0.427
Any Children 6-12	0.353	0.478	0.421	0.494	0.526	0.499	0.453	0.498	0.482	0.500
Urban Area	0.881	0.324	0.832	0.374	0.900	0.300	0.897	0.304	0.890	0.314
Santiago	0.418	0.493	0.343	0.475	0.373	0.484	0.399	0.490	0.404	0.491
Own Disability	0.065	0.247	0.087	0.283	0.057	0.232	0.011	0.104	0.003	0.053
Other Disabled	0.154	0.361	0.198	0.398	0.187	0.390	0.206	0.404	0.222	0.415
Other Active Workers	0.854	0.353	0.830	0.376	0.508	0.500	0.460	0.499	0.473	0.499
Other Inactive Adults	0.329	0.470	0.389	0.488	0.393	0.488	0.398	0.490	0.386	0.487
Hourly Wage	4.2	20.8	2.8	5.5	2.0	2.4	2.3	1.4	1.6	0.8
Taxable Income per Capita	321.7	548.3	93.8	56.6	100.5	47.2	42.0	50.9	33.9	45.1
Weighted Observations	4,266,541		2,220,743		371,139		141,982		86,194	
Sample Size	60,560		38,429		5,551		2,064		1,280	

Note: Survey weights are used. Hourly Wage includes observed and predicted values. Taxable Income considers only observed incomes.

Source: Own calculations, CASEN 2009.

Table 4 shows the average benefit and how beneficiaries and benefits are distributed across tax credit regions and families with different number of children. The benefit in the baseline Scenario A is approximately US\$570 per year, equivalent to approximately US\$47 monthly (column 15) and equivalent to more than two times the minimum wage. Also, a single mother with two or more children receives a transfer 45% higher than a single mother with one child, who in turn receives a credit eight times higher than a woman without children.

The average amount and the distribution of beneficiaries and benefits are not significantly affected by labor participation. The average credit is increasing in the number of children, and it reaches its maximum in the flat region, while the share of resources spent peaks at the phase-out region. Although the phase-in and flat regions cover a similar proportion of beneficiaries, the latter requires greater resources because the maximum tax credit is granted. Consistent to its goal of helping single mothers, women with two or more children use more than half of the budget. Moreover, while about 15% of tax credit recipients do not have an eligible child; they represent 1% of resources and are located mostly in the phase-out region.

Table 5 compares socio-demographic characteristics such as age, education, number of children, and income between direct beneficiaries and non-beneficiaries, which are defined as women between 18 and 60 not receiving a tax credit. Beneficiaries are women with lower levels of education and with lower hourly wages and per capita family income. Also, they have less financial support from other household members, are older and have more children. On the other hand, two thirds of the non-beneficiaries are married and come from families with higher incomes -85% live in households where other adults work. Among women from the bottom 60% of the income distribution (column 2), non-beneficiaries have higher hourly wages, fewer eligible children, are married, more often live in rural areas or outside Santiago MSA, and have a disability.

Poverty and Inequality

The effect of the EITC on poverty is measured using the poverty rate or headcount ratio; the effect on inequality is analyzed using interquartile range (p75/p25), p10/p50, p90/10 and Gini Coefficient. Tables 6 and 7 show the results for the total population and for families where the head of household is a single mother, respectively. The first row shows the initial level of each index, and the following rows describe the change under each scenario, calculated as the pre-post difference after the credit. All calculations are based on per capita family after-tax income and include social transfers.

Before the tax credit, the estimated poverty rate is 22.5%, which decreases between 1 and 2 percentage points after the credit. Labor participation significantly improves the aggregate results. Regardless of whether women work 20 or 45 hours, the reduction in poverty is twice as much as under the baseline scenario (Scenario A).

The effects are larger in the case of families headed by single mothers. Before the tax credit 40% of household headed by single mothers are poor, while after the tax credit poverty decreases 5% in Scenario A and 11% and 10.7% under B and C (Table 7). Another subgroup

of interest is the beneficiaries of the credit. Before the credit, 40% of beneficiaries in Scenario A are poor and 50% and 48% in Scenarios B and C, respectively. After the tax credit these differences almost disappear as poverty rate falls 14 percentage points in A, and 23 and 24 percent points in B and C, respectively. All changes are statistically significant.²⁶

The income distribution also changes significantly after the credit. The Gini coefficient in Table 6 is initially 0.512 and falls to 0.504 after the credit if we consider labor force participation response. Furthermore, the interquartile range and income gaps between different income percentiles also fall, improving the relative position of those at the bottom.

Table 6
POVERTY AND INEQUALITY - NATIONAL

	Poverty [1]	p10/p50 [2]	p75/p25 [3]	p90/p10 [4]	Gini [5]
Before EITC	0.225*** [0.001]	0.357*** [0.004]	2.987*** [0.046]	9.264*** [0.334]	0.512 [0.007]
Change After EITC, Scenario A	-0.010*** [0.000]	0.007** [0.001]	-0.077*** [0.007]	-0.237*** [0.024]	-0.003 [0.000]
Change After EITC, Scenario B	-0.022*** [0.001]	0.025** [0.002]	-0.138*** [0.010]	-0.745*** [0.061]	-0.008 [0.000]
Change After EITC, Scenario C	-0.021*** [0.001]	0.022*** [0.003]	-0.141*** [0.010]	-0.683*** [0.058]	-0.008 [0.001]

Note: Sample weighted estimates. Bootstrap standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.001.

Source: Own calculations, CASEN 2009.

Table 7
POVERTY AND INEQUALITY - FAMILIES HEADED BY SINGLE MOTHERS

	Poverty [1]	p10/p50 [2]	p75/p25 [3]	p90/p10 [4]	Gini [5]
Before EITC	0.402 [0.007]	0.241*** [0.010]	3.079*** [0.044]	12.683*** [0.707]	0.488 [0.010]
Change After EITC, Scenario A	-0.049 [0.003]	-0.006** [0.006]	-0.326*** [0.027]	-0.774*** [0.275]	-0.019 [0.000]
Change After EITC, Scenario B	-0.110 [0.002]	0.076** [0.010]	-0.681*** [0.030]	-4.342*** [0.402]	-0.049 [0.002]
Change After EITC, Scenario C	-0.106 [0.004]	0.056*** [0.008]	-0.689*** [0.041]	-3.893*** [0.386]	-0.048 [0.002]

Note: Sample weighted estimates. Bootstrap standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.001.

Source: Own calculations, CASEN 2009.

In addition, we look at the change on average income across the income distribution. Table 8 shows the average income before the credit and the change afterwards under the different scenarios. Columns 2 to 4 show that the tax credit benefits deciles 3 and 4 the most in baseline Scenario A, whereas families belonging to the bottom 30% are those who experience the larger income change in Scenarios B and C. This is consistent with the improvement on targeting once we allow for changes in labor force participation, as shown in Table 3.

Table 8
CHANGE IN AVERAGE INCOME BY DECILE

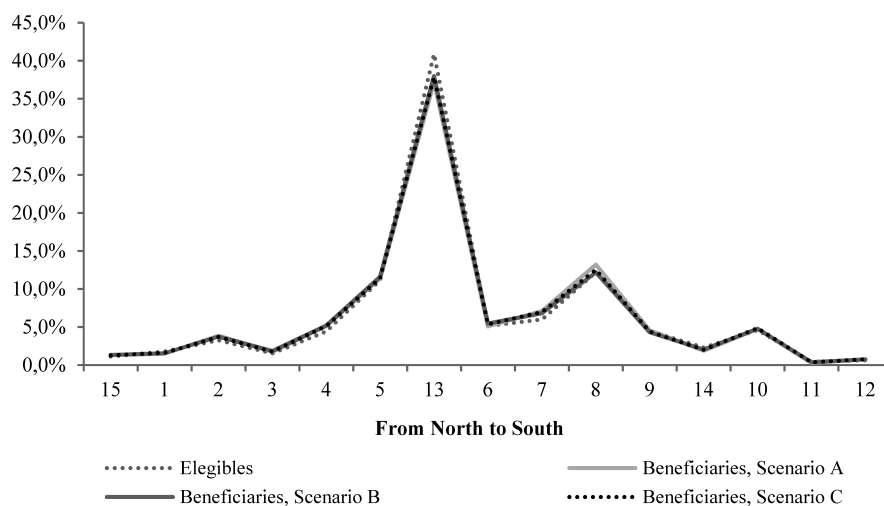
	Before EITC (U\$) [1]	Scenario A (%) [2]	Scenario B (%) [3]	Scenario C (%) [4]	IEF (%) [5]
1	53	0.009***	0.235***	0.240***	0.032
2	79	0.031***	0.078***	0.073***	0.028
3	105	0.023***	0.040***	0.036***	0.010
4	127	0.019***	0.030***	0.026***	0.006
5	155	0.015***	0.022***	0.020***	0.009
6	191	0.007***	0.011***	0.009***	0.004
7	241	0.000***	0.000***	0.000***	0.006
8	316	0.000***	0.000***	0.000***	0.002
9	460	0.000***	0.000***	0.000***	0.002
10	1,207	0.000***	0.000***	0.000***	0.000

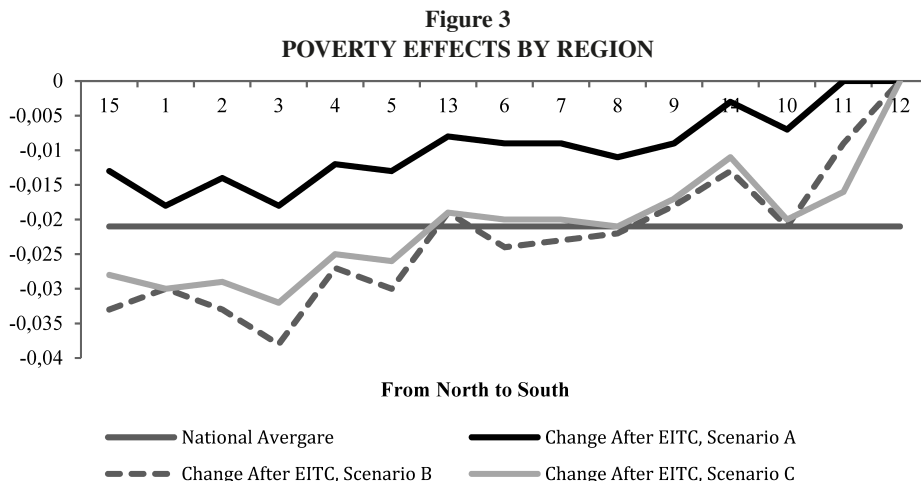
Note: Sample weighted averages. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.001$. IEF estimates are from Acero and Cabezas (2011), they don't provide standard errors or p-values for these estimates.

Source: Own calculations, CASEN 2009.

Finally, we find heterogeneous effects across different regions in the country. Figure 2 shows the share of the eligible families and beneficiaries across territory and Figure 3 shows the change in poverty rate after the tax credit by region. These results suggest that the tax credit is much more effective in reducing poverty in the north than in the south. On the other hand, while poverty before the tax credit is lower in rural than urban areas –18.4% and 23.1% respectively–, the effect of the policy in Scenario A is three times larger (1 vs. 0.3 pp) and almost twice as much under Scenarios B (2.3 vs. 1.3 pp) and C (2.2 vs. 1.2 pp) in urban versus rural areas, which is consistent with the literature for the US²⁷.

Figure 2
ELIGIBLE POPULATION AND BENEFICIARIES BY REGION





6. Sensitivity Analysis

A key assumption of our estimates is that women would enter formal employment (working either 20 or 45 hours) if the EITC would be implemented. But more vulnerable and less educated women may face lower prospects in the labor market than more educated ones. Moreover, low-income women with small children may face even a worse scenario: they are less likely to find a formal job, more likely to be unemployed, or might not be able to participate if free or low-cost childcare is not available for them²⁸. So, in this section we evaluate the sensitivity of our results to all the assumption that women won't be unemployed and they will be able to find a formal job. Finally, we will also evaluate how sensitive our estimates are to a more elastic labor supply.

Informality rates

Informality can dampen the effects of a tax credit. Although the levels of informality in Chile are quite low compared to other developing countries, there is heterogeneity across the income distribution, being higher among low-income families. Therefore, it is relevant to evaluate the sensitivity of the results to the 100% informality rate assumption.

We define formal workers as those working either as a dependent worker (with a contract) or independent worker (subject to third-party reporting for tax purposes or currently contributing to social security). Table A4 in the Appendix shows the observed informality rates across the taxable income distribution in the data. We predict informality using a probit model under the assumption that the distribution of informality across income would remain constant after the credit, which is a conservative assumption given that an EITC scheme should encourage formality (see Table A5 in the Appendix). Then, we rank probabilities

and assign the credit to as many individuals as to keep the distribution of informality across income deciles in its pre-program levels.

We estimate the results using this new informality assumption, an elasticity of participation of 0.3 and assuming that women enter the labor market to work full time, i. e., it is a modified version of Scenario C that considers informality.

Comparing this new scenario to Scenario C above, informality reduces the number of beneficiaries of the program in 39% (the number of beneficiaries in scenario C is 457,333, but the number of beneficiaries under informality is 27,8113). The share of beneficiaries and resources spent in the bottom 10%, fall 9 and 6 percentage points, respectively (Table 9). The presence of informality, then, reduces the aggregated effects in poverty and inequality in roughly 30% (Table 10); poverty decreases in 1.4 percentage points and Gini Coefficient in 0.006 points (Table 10).

Table 9
SENSITIVITY ANALYSIS - TARGETING

Decile	Informality		Unemployment	
	Share of Beneficiaries (%)	Share of Resources (%)	Share of Beneficiaries (%)	Share of Resources (%)
	[1]	[2]	[1]	[2]
1	9.6	8.7	12.9	11.2
2	15.8	18.1	19.5	21.2
3	16.7	19.4	16.6	19.7
4	18.6	20.9	16.9	19
5	23	21.5	20	18.8
6	16.4	11.4	14.2	10

Source: Own calculations, CASEN 2009.

Table 10
SENSITIVITY ANALYSIS - POVERTY AND INEQUALITY

	Poverty [1]	p10/p50 [2]	p75/p25 [3]	p90/p10 [4]	Gini [5]
Change After EITC, Informality	-0.014*** [0.001]	0.012*** [0.001]	-0.112*** [0.020]	-0.430*** [0.047]	-0.006*** [0.000]
Change After EITC, Unemployment	-0.017*** [0.001]	0.016*** [0.002]	-0.121*** [0.009]	-0.537*** [0.049]	-0.006*** [0.000]
Change After EITC, Elasticity of Supply	-0.021*** [0.001]	0.022*** (0.002)	-0.124*** (0.012)	-0.552*** (0.060)	0.012*** (0.002)

Note: Sample weighted estimates. Bootstrap standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.001.

Source: Own calculations, CASEN 2009.

Full employment and labor supply elasticity

We then analyze the sensitivity of the results to the assumption of full or partial employment for those entering the labor force and to the labor supply elasticity (ε_k) assumptions made for our simulations.

Probability of employment. In Chile unemployment is around 7%²⁹. We change the threshold of finding employment from 0.6 to 0.5, what is equivalent of assuming that the top 10% would not find a job, which is a conservative estimation of how unemployment would affect the results. Again, for this purpose, we modified Scenario C and compare this new result with those presented above. As expected, it is found that the number of beneficiaries decreases and the distribution by number of children and tax credit region changes, increasing the proportion of women with children and the number of beneficiaries in the flat and phase-out segments (Table 9). Poverty decreases in 1.7% and the Gini Coefficient in 0.006 points (Table 10).

Labor supply elasticity. We also evaluate how sensitive the results are to the labor supply elasticity (ε_k) assumptions. The results above assume $\varepsilon_k = 0$. So, now we assume that women enter the labor market to work 45 hours have a participation elasticity of 0.3 but they have an uncompensated labor supply elasticity, ε_k equal to 0.1. Results show that the total number of beneficiaries does not change because the new predicted income after the credit does not change enough to exceed the upper limit of the phase-out region. However, the distribution of hours worked shifts to the right changing the distribution of beneficiaries across credit segments. Women with children move from the flat to the phase-out region, increasing both beneficiaries and resources spent in the latter. Additionally, there is a reduction in the program costs (0.2% less), because with the increase of beneficiaries in the phase-out section, where the credit is decreasing, the average amount of EITC benefits drops. Poverty and inequality slightly change compared to Scenario C. However, the Gini coefficient increases, since those receiving the largest amount of money are the least poor among the beneficiaries (Table 10). However, in the second year of implementation, hours worked would also shift for those who entered the labor market with the EITC, and so inequality would be expected to drop, and the targeting of resources would further improve compared to Scenario C.

7. Tax Credit vs Conditional Cash Transfer. Discussion

In this section, we compare the costs, in terms of the amount spent, and benefits of a CCT and an EITC. We evaluate these policies in the same context and using the same methodology. More specifically, we compare our simulated tax credit to a simulation of the first CCT program in Chile implemented in 2012, called “*Ingreso Ético Familiar (IEF)*”.

The IEF was created to eradicate poverty by 2014 and replaced the previous Chile Solidario (CHS), which gave unconditional cash transfers and social assistance to very poor families. Families in the IEF can participate for a minimum of 12 and a maximum of 24 months and receive two monthly unconditional cash transfers, both decreasing in time, and

two monthly transfers conditional upon doctor visits and school attendance of children, respectively. In addition, there are four achievement-related bonuses: a bonus for outstanding school performance of children awarded every year; a wage subsidy to women for up to four years (paid monthly or annually)³⁰; and two one-time bonuses upon formal employment of any family member and when a child in the household graduates from high-school. These last two bonuses were included in 2016, four years after the program had started.

There is no causal evidence on the effects of the IEF so far. Nonetheless, comparing our EITC simulation to an ex-post evaluation of the program would be seemed unfair given that many inefficiencies that occur in real life, such as bad targeting, are not considered in a simulation. Therefore, to make a more reliable comparison between these policies, we use the simulation of the IEF in Acero and Cabezas (2011) who use the same dataset and make similar assumptions.

More specifically, Acero and Cabezas (2011) simulate the effect of implementing the IEF though making the employment subsidy available for men and women and assigning a one-time employment cash transfer for first time female workers. Also, they assume that all 273,732 families declaring to participate in the CHS in CASEN 2009 are IEF beneficiaries. However, at the end this program benefited the poorest 170,000 families and gave cash transfers to 137,155 families in 2012. Thus, the actual IEF had a much smaller magnitude than the simulated program so their results may be overestimating the actual effect of this policy.

The simulated IEF reduces the Gini coefficient by 0.001 points, the poverty rate by 0.7 percentage points and labor participation of women decreases 13 percentage points. On the other hand, no important effects on the intensive margin are observed. The authors conclude that the effects of the employment subsidy are canceled out by the increase in non-labor income, especially in women and non-household heads. These results must be interpreted with caution since the standard errors of their estimates are not reported, so it is unknown if these differences are statistically significant.

Because Acero and Cabezas (2011.) do not adjust their simulation results to informality, we compare their results to our long run estimates. Nonetheless, they show smaller effects than the tax credit even considering informality or unemployment.

Since both simulations use the same dataset, we compare the change in the average income per capita for each decile of the income distribution after the implementation of the simulated IEF and EITC. This comparison is shown in Figure 4. Except for the effect on the first 10% in the baseline scenario (A), which is the minimum potential effect of the tax credit, the EITC dominates the IEF in the bottom 60% of the income distribution; the effect of the EITC for the first two deciles is more than seven times larger than the estimated for the IEF if we consider labor participation effects (Scenarios B and C).

Both policies have, however, different costs. Introducing an EITC in Chile would imply spending on transfers around US\$225M in the baseline scenario, which would increase to approximately US\$300M in Scenario B and US\$271M in Scenario C when labor market

participation is considered. On the other hand, approximately US\$170M were spent on transfers in the IEF in 2012, representing 0.08% of the total national budget; the income tax credit proposed in this study requires between 0.11% and 0.14%.

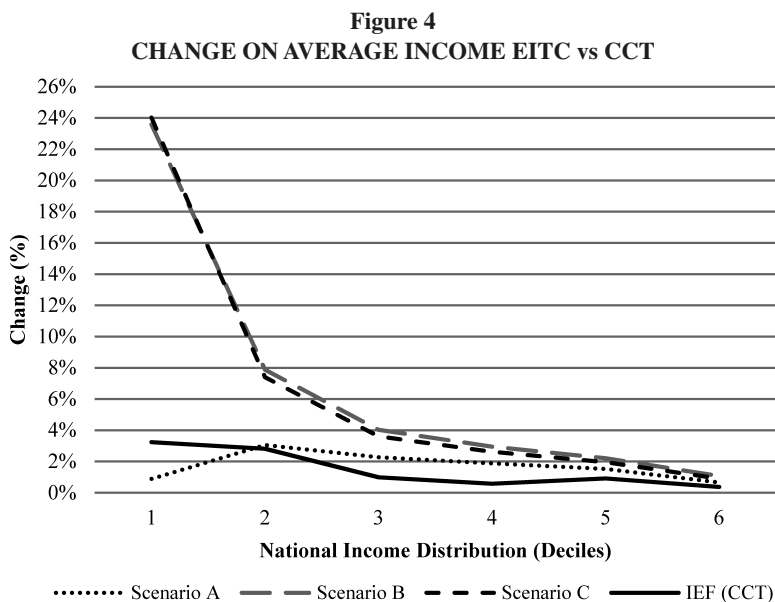


Table 11 shows the estimated annual costs per family of the IEF and the tax credit proposal. While the total cost of the tax credit proposal is about 1.7 times the one of the IEF, the EITC benefits almost two times the number of families. This results in a per capita cost for the EITC that is 15% lower than the IEF's. Moreover, if we were to evaluate the number of resources that are needed under the different scenarios to get a one percentage point reduction in the poverty rate, in all our scenarios, the EITC dominates the CCT (see Table 11). A similar result is found when calculating the cost of decreasing the Gini coefficient: the reduction in Gini coefficient under the IEF and Scenario A, is 0.003, but 0.008 under Scenarios B and C. So, the cost of a reduction of a 0.01 in the Gini coefficient is US\$ 563M under the IEF, but US\$751M, US\$ 370M and US\$ 339M respectively under scenarios A, B, and C.

We also perform another robustness check. We simulate two restricted versions of the tax credit: limiting the number of beneficiaries to the 273,732 poorest families as in the IEF simulation and using the same total amount of money spent in transfers in the IEF in 2012. Under assumptions of Scenario C, the results show that in both cases the reduction in poverty and inequality remains significant and it is still greater than the one estimated by Acero and Cabezas (op. cit.); poverty falls 2 percentage points, and the Gini coefficient decreases 0.008 points³¹.

These results are consistent with the benefit structure of the IEF –and of other CCTs– i. e., strong incentives, especially in the case of women, to leave the labor market. In particular,

the incentives to work might not be enough to offset the effect of non-labor income on labor participation. On the other hand, the EITC encourages labor market participation of women, formality and it should reduce dependence to the social welfare system in the long run.

Table 11
AVERAGE ANNUAL TRANSFER COSTS

Program	Annual cost (Millions of US\$)	Beneficiaries	Poverty Reduction (in pp)	Cost per Beneficiary (US\$)	Cost per pp in poverty reduction (Millions of US\$)
<i>IEF (2012)</i>					
IEF Cash Transfers	129	137,155		875	
Women Wage Subsidy	40	156,000		260	
Estimated Total Cost (a/)	169	258,866	0.7 b/	709	241
<i>Earned Income Tax Credit</i>					
Scenario A: 0 hours/ $\gamma_k = 0$	225	370,249	1.0	609	225
Scenario B: 20 hours/ $\gamma_k = 0.3$	296	510,886	2.2	580	135
Scenario C: 45 hours/ $\gamma_k = 0.3$	272	456,489	2.1	596	129

Note: Amounts are in US dollars of December 2011, the month the national budget is approved by Congress. a/ While cash transfers are given to families in extreme poverty, the Woman Wage Subsidy is provided to working women belonging to the bottom 40% of the distribution. To estimate the total cost we assume that 40% of families in the IEF use the subsidy and there is only one beneficiary per family.

Source: Prepared by the authors based on 2009 Casen data and the 2012 National Budget Office (Dipres [2012]). b/ Estimated poverty reduction for IEF is reproduced from Acero y Cabezas (2011).

It is important to note that the IEF only gives employment-related bonuses to formal workers defined as those contributing to the pension system, health insurance and unemployment insurance. This feature of the program limits the ability to target the most vulnerable individuals and encourage employment of the poor, which is the main concern for a tax credit in developing contexts. Moreover, a tax credit could impose lower costs for independent workers since they could potentially file taxes and still waive their social security contributions and health insurance payments, being able to receive the credit.

In term of costs, one feature of the IEF program – and of other CCTs- that makes it more expensive than the EITC, is that the subsidy increases with the number of family members. This further distorts the decision by household heads to participate in the labor market and does not recognize the economies of scale within families. In addition, the EITC uses the information and institutional capacity of the National Tax Office, which significantly reduces administrative costs, unlike traditional transfer programs that must generate information to assign the benefits.^{32,33} Additionally, the tax system has the advantage of being less subject to fraud, as all sources of formal income are subject to third-party reporting to the tax authorities, allowing better targeting and implementation at a lower cost. This might not always be the case, especially in underdeveloped countries, but in the case of Chile, the tax system was already used for a similar purpose during the Covid-19 pandemic. The main subsidies

to alleviate the reduction in income during the pandemic were implemented through the tax system. For this purpose, all sources of income reported to tax authorities over previous years and during the pandemic were considered to determine the beneficiaries and the magnitude of the subsidies. The experience was quite successful in terms of targeting and in terms of speed of transferring the subsidies to the beneficiaries. For this reason, in the case of Chile, it makes sense to implement an EITC through the tax system as the infrastructure for doing it has already been implemented and successfully used for similar purposes.

Finally, the effects of the income tax credit may vary depending on its funding source. More specifically, to avoid offsetting the positive effects on poverty and inequality, the resources would ideally have to come from progressive or neutral taxation. Alternatively, and maybe even better in terms of the efficient use of public resources, it could be funded by replacing other existing social programs that have been negatively evaluated.³⁴

8. Conclusions

Over the last couple of decades, developing countries have increasingly used Conditional Cash Transfer Programs as the main policy for reducing poverty. While these programs have been effective in reducing poverty in the short term, they can have the negative effect of discouraging employment and potentially creating dependence on the social welfare system.

In more developed countries, tax credits for earned income (working income tax credit) and for family expenses such as childcare (childcare tax credit) have been successful policies to address high levels of poverty and inequality. In countries like the US, New Zealand, and England, these programs have become the most important tool to fight poverty and have also contributed to reducing inequality³⁵.

In this context, this paper simulates the implementation of a work income tax credit in Chile based on the existing Earned Income Tax Credit (EITC) scheme in the United States adjusting it by the difference in income per capita levels between the two countries. The main goal is to present a viable alternative to the Conditional Cash Transfer Programs in a developing economy aiming to replicate the successful experiences of other countries. More specifically, we simulate the implementation of transfers through tax credits on labor income, which would establish proper incentives for beneficiaries to participate in the labor market and generate permanent autonomous income that will allow them to leave poverty.

The simulation benefits unmarried women in the first six deciles of income, mostly heads of households since they tend to have higher levels of poverty and have been the main beneficiaries of the program implemented in the United States. The results show that in Chile the EITC would benefit around 500,000 families, one-third headed by women who enter the labor market because of the incentives provided by the program.

The increase in labor force participation produced by the EITC significantly improves the targeting of resources, since those who decide to start working life in much more pre-

carious conditions than those who were already working before the policy. It is possible that due to low skill levels, these women have been unable to find a job to cover the fixed costs of going to work, such as transportation and childcare. The EITC supplements salaries and, therefore, makes the labor market more attractive for them.

Besides encouraging labor participation, the program would be very effective in reducing poverty and inequality; the poverty rate drops from 22.5% to 20.3%, and the Gini coefficient falls from 0.512 to 0.504. Comparing the EITC scheme to an equivalent cash transfer program suggests that the EITC is more effective in increasing the income of individuals below the poverty line, reducing both poverty rates and income inequality. Moreover, the EITC has lower transfer costs per family and it is more cost-effective: when evaluating the number of resources that are needed under the different scenarios to get a one percentage point reduction in the poverty rate, in all our scenarios, the EITC dominates the CCT.

It is true that a program like the EITC mostly benefits those who have a higher chance of seeking and obtaining employment. Therefore, this program must be considered as a complement to job placement programs that increase the likelihood of eligible individuals finding employment. It is also important to note that the EITC program would not cover individuals who are working informally and do not report income to tax authorities. Although levels of informality in Chile are the lowest in Latin America, 18% among dependent workers compared to the 30% average for Latin America (Perry *et al.*, 2007), this figure is higher among the poorest households. The question that remains then is whether the incentives of the EITC would be strong enough to push them out of informal employment, which would be an additional benefit of implementing an EITC program.

In future research, it would be important to analyze and evaluate potential adjustments to the structure, design, and elements associated with the implementation of a program like the EITC in any developing country. For this purpose, it is relevant to take into consideration the country's demographic characteristics and the extent of informal work arrangements in the lowest quintiles, which might prevent low-income families from having access to the program, even when such a program raises the relative value of formal jobs. It is also important to consider that the lack of access to childcare might prevent women from getting jobs in the formal sector, even though that is true for any program considering incentives to work and it is not a particular concern related to the EITC. Any policy aiming at helping women to improve their labor outcomes and income need a coordinated effort to improve women's chances of finding formal and high-quality jobs. Finally, in future research, it would also be interesting to evaluate different options for financing an EITC and evaluate the full impact of the EITC plus its financing sources on poverty and inequality.

Appendix

Table A1
SAMPLE STATISTICS

	Complete Sample			Sample used in simulations		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Younger than 24	244118	40%	49%	230116	40%	49%
Between 25 and 34	244118	11%	31%	230116	11%	31%
Between 35 and 44	244118	14%	34%	230116	14%	34%
Between 45 and 60	244118	19%	39%	230116	18%	39%
Older than 60	244118	17%	38%	230116	17%	38%
Years of education	193763	9,1	4,3	182246	9,1	4,3
No education	193763	6%	23%	182246	6%	23%
Incomplete primary-secondary education	193763	55%	50%	182246	55%	50%
Complete secondary education	193763	27%	44%	182246	27%	44%
Higher education	193763	13%	34%	182246	13%	34%
Marital status (1: Single)	246924	49%	50%	232772	49%	50%
Marital status (1: Married)	246924	42%	49%	232772	42%	49%
Marital status (1: Widowed)	246924	5%	21%	232772	5%	21%
Marital status (1: Divorced)	246924	4%	19%	232772	4%	19%
Zone (1: Urban)	246924	64%	48%	232772	64%	48%
Metropolitan Region	246924	20%	40%	232772	20%	40%
Hourly salary	85784	2,333.5	5,454.5	82991	2,321.4	5,473.7
Before tax household per capita income	246924	124,774.8	219,286.6	232772	125,459.6	220,510.4

Source: Own calculations based on Casen 2009.

Table A2
HECKMAN SELECTION ESTIMATES OF WAGE ECATION (People Age 18 To 60)

	Hourly Salary Logarithm
Years of Education	0.038*** (0.001)
Potential work experience (age-school years-6)	0.006*** (0.001)
Squared potential work experience	-0.000 (0.000)
Other household members' income	0.000*** (0.000)
Zone (1:urban)	0.037*** (0.009)
Metropolitan Region	0.025*** (0.008)
Mother's Education: secondary education	0.067*** (0.012)

(Continued)

	Hourly Salary Logarithm
Mother's Education: higher education	0.132*** (0.022)
Father's Education: secondary education	0.036*** (0.010)
Father's Education: higher education	0.179*** (0.019)
Gender	0.085*** (0.007)
Constant	2.561*** (0.023)
Rho	-0.216
Lambda	-0.069
Observations	132565
F Test	250.3

Note: Standard error in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Own calculations based on Casen 2009.

Table A3**SELECTION ECUATION- PROBIT MODEL OF LABOR PARTICIPATION**

	Labor Participation
Years of Education	0.046*** (0.002)
Age	0.196*** (0.004)
Squared Age	-0.002*** (0.000)
Other household member's income	-0.000*** (0.000)
Zone (1:urban)	0.042** (0.018)
Metropolitan Region	0.152*** (0.019)
Mother's Education: secondary education	0.118*** (0.028)
Mother's Education: higher education	0.257*** (0.077)
Father's Education: secondary education	0.018 (0.025)
Father's Education: higher education	0.046 (0.062)

(Continued)

	Labor Participation
Gender	0.925*** (0.016)
Other > 18 who are employed in the household	-0.253*** (0.023)
Other > 18 who neither work nor study in the household	-0.033* (0.017)
Disabled	-0.729*** (0.031)
Other disabled in the household	-0.029 (0.022)
Marital status (1: Widowed)	0.058 (0.056)
Marital status (1: Divorced)	0.276*** (0.030)
Children between 0 and 2 years in the household	0.044** (0.020)
Children between 3 and 5 years in the household	0.062*** (0.021)
Children between 6 and 12 years in the household	-0.002 (0.015)
Constant	-4.302*** (0.091)
Observations	132,565

Note: Standard error in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Own calculations based on Casen 2009.

Table A4
INFORMALITY RATE ACROSS TAXABLE INCOME DISTRIBUTION

Income Decile	Informality Rate
1	59.7%
2	41.7%
3	28.8%
4	25.8%
5	23.4%
6	22.5%
7	20.6%
8	17.3%
9	15.9%
10	10.2%
Total	21.2%

Source: Own calculations based on Casen 2009.

Table A5
FORMALITY PROBABILITY MODEL (People Aged 18 to 60)

	(1) Formal Worker
Years of Education	0.091*** (0.003)
Age	0.023*** (0.006)
Age Squared	-0.000*** (0.000)
Other household members' income	-0.000 (0.000)
Zone (1:urban)	0.147*** (0.025)
Mother's Education: secondary education	0.141*** (0.035)
Mother's Education: higher education	0.192** (0.097)
Father's Education: secondary education	0.030 (0.035)
Father's Education: higher education	0.004 (0.085)
Gender	0.181*** (0.021)
Other > 18 who are employed in the household	-0.460*** (0.033)
Other > 18 who neither work nor study in the household	0.160*** (0.022)
Disabled	-0.179*** (0.052)
Other disabled in the household	-0.023 (0.026)
Marital status (1: Widowed)	-0.106 (0.077)
Marital status (1: Divorced)	-0.072** (0.033)
Children between 0 and 2 years in the household	0.041 (0.025)
Children between 3 and 5 years in the household	-0.025 (0.025)
Children between 6 and 12 years in the household	0.005 (0.022)
Other formal workers in the household	0.597*** (0.035)
Constant	-1.986*** (0.164)
Region Fixed Effects	Yes
Before Tax Per Capita Income Decile Fixed Effects	Yes
Observations	73513
F	77.001

Note: Standard error in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Source: Own calculations based on Casen 2009.

Notes

1. The credit is conditional upon employment, and if the amount of the credit is greater than what a family owes in taxes, then the family receives an annual monetary transfer.
2. Grogger (2003) identifies the EITC as one of the main sources of the decline in welfare use, increase in earnings, and employment of poor families in the '90s in the US.
3. The U.S. General Accounting Office (1995) has estimated that the administrative costs of the EITC are less than 1 percent of dollars transferred, while the estimation for the program Aid to Families with Dependent Children (AFDC) was 16% (Committee on Ways and Means, 1996).
4. In Chile, for example, there are tax deductions for voluntary retirement savings and mortgage payments from small housing; VAT exemptions for health and education services; and a tax credit for schooling expenses. In Cyprus, there are tax deductions for expenses on rented property donations to charities, and VAT exemptions for medical and educational services. In South Africa, there are tax allowances for disabled people, cultural workers, people older than 65, and journalists. In Slovenia, there is a zero VAT tax rate on some goods (bread flour and sanitary towels for example), a tax credit for R&D expenses, and tax deductions for medical expenses. In Mexico, there is a tax deduction for expenses on education, medical services, and mortgage payments.
5. Among countries with a tax credit, the US has a particularly low informality rate (9%). On the other hand, there are several developed countries with similar figures to Chile, like Sweden (19.9%), Canada (17.5%), Denmark (18.6%), Finland (19.1%), France (16%), Germany (15.6%), Norway (20.5%) (Medina and Schneider, 2017).
6. In general, there is not necessarily a trade-off between efficiency and equity as a reduction in inequality can, for example, increase economic growth (OECD, 2015; De Mooij *et al.*, 2020).
7. Chile had a GDP per capita of US\$15,732 in 2013, one of the highest in Latin America (IMF, 2013).
8. It is also important to mention that Chile has a long tradition of having reliable statistics and good survey data.
9. Universidad del Desarrollo (2014), "Informe Final Evaluación de Impacto de la Bonificación Ingreso Ético Familiar del Ministerio de Desarrollo Social (ex MIDEPLAN)", *Working Paper*.
10. Leisure time grows from the origin to the right. When there is maximum leisure, there are zero hours of work. Therefore, the closer to the origin, the more working hours spent by the individual.
11. Strictly speaking, the income after taxes is observed after applying the EITC.
12. In previous literature, Eissa and Liebman (1996) find an increase in the hours worked of single mothers in general and a null effect for those with low levels of education. Keane and Moffit (1998) estimate a 1.4% increase in aggregate hours, though they do not differentiate across those initially working or not. Similar results are found in Meyer and Rosenbaum (1999) and Rothstein (2005).
13. With more recent data, Hoynes and Patel (forthcoming) find similar results regarding married women. These results had been explained by differences in the initial location of single and married women across the nonlinear budget constraint. Single women are mainly in the phase-in region, where the substitution effect dominates, and the number of hours worked increase. Married women, however, are initially located in the phase-out region, where the income effect prevails, reducing hours worked and labor force participation.
14. See Triest (1990); Evers *et al.* (2005); and Hotz and Scholz (2003).
15. <https://www.bls.gov/opub/reports/minimum-wage/2016/home.htm>.
16. Note that we are targeting individuals and eligibility requirements will ignore the aggregate income of the household. We are then, on purpose, ignoring that some households are composed of more than a nuclear family. Although it is true that ignoring this possibility might compromise the principle of horizontal equity, as two households with similar economic capacities might receive different amounts of income transfers, we believe this is the right way to perform our simulation as the program targets individuals and aims at improving income while inducing labor market attachment. It might not be feasible to implement a program based on

households, as it might be more difficult for the tax system to have this information in place. On the contrary, the tax authorities can merge tax data with birth data in order to assess how many children each woman has.

17. In 2009, the average exchange rate was US\$1=Ch\$635.
18. Equivalent to 44% of the median wage (US\$590) and 71% of the average wage (US\$370).
19. The evidence in the economic literature is robust in showing that the VAT is a regressive tax (Caspersen and Metcalf, 1994, Decoster *et al.*, 2010, Leahy *et al.*, 2011), including Chile (Cantalalops *et al.*, 2007).
20. To predict the income of the non-employed we assume a normally distributed error term with zero-mean and variance equal to the one estimated for the employed.
21. As one anonymous referee pointed out, EITC programs are implemented with one-time annual payments. However, a greater periodicity of payments might improve the financial situation of vulnerable families (Maag *et al.*, 2021). Although it would be interesting to observe how a month-to-month schedule could smooth consumption and likely improve the financial situation of families, labor income is observed for the month prior to the survey only and we do not have the information needed for this type of analysis.
22. Unemployment benefits for those entering the labor market with the simulated tax credit are subtracted.
23. The values assumed here are independent of the wage model with selection bias estimated in the first stage. The purpose of the estimation of the selection equation is just to consistently predict labor income for those not working at the time of introducing the tax credit. Additionally, from this first stage the probability of initial participation in the labor market is obtained for those not working before the EITC.
24. One possible explanation is the difficulty beneficiaries to understand the EITC structure. See Holt (2006) and Chetty and Sáez (2009).
25. The results for the other four scenarios are available from the authors upon request.
26. These results are not presented in the paper; they are available upon request.
27. Note that our simulation parameters do not change by region or type of zone (rural or urban areas). So, any heterogeneity of the results by region or zone might be related to the regional/urban/rural differences in coverage and intensity of the policy, which depends on income levels, preexistent labor force attachment of women, and/or how prevalent the different beneficiary types are across regions/zone.
28. The lack of access to childcare might prevent women from entering the labor market. In Chile, childcare coverage for children under 5 years old is around 50% for the first two quintiles. Vulnerable households (quintiles 1 to 3) have priority in public childcare centers, so we expect that restrictions for this group to be relatively low. In CASEN survey, households are asked why children under five are not attending childcare. Only 6% of the households answer that it is because they couldn't find a spot in the public sector, they cannot pay for the service, or they don't have a childcare center close by.
29. Labor market indicators for Chile could be found at <http://data.un.org/CountryProfile.aspx?crName=CHILE>.
30. The Women Wage Subsidy (Bono al Trabajo de la Mujer), targets women between 25 and 60 years old in the poorest 40%. Beneficiaries receive a 20% increase in their wages for four years and employers 10% for up to 24 months. As the EITC it has a phase-in, flat and phase-out regions. It is available only for formal workers earning less than US\$600.
31. These results, not presented in Table 11, are available upon request.
32. In the United States, it is estimated that EITC administrative costs are 0.5% of the total amount of benefits provided, while for traditional transfer programs administrative costs are 16% (Eissa and Hoynes 2011).
33. Goldin (2018) discuss the importance of reducing filling burden to increase take-up for the EITC in the US. And notes that the use of assisted preparation methods can be implemented in any filling procedure and might increase take-up. Goldin also claims that "... one of the main arguments for administering social welfare bene-

fits through the tax code is that they yield higher take-up rates than when administered on their own”, what is an argument in favor of using the tax system.

34. There are several options to finance the proposed EITC and it is beyond the scope of the article to propose a specific one. For example, the income tax could be made more progressive through many alternatives: increasing the tax rates in all brackets, creating new tax brackets for the top 3%-1% incomes, reducing the income thresholds for all brackets, or using any combination of these alternatives. The tax system could be made more progressive also changing the mix of taxes, for example, reducing the VAT rate and increasing income taxes (corporate and/or personal). The EITC could also be financed by reducing government expenditures, for example, in defense or eliminating specific programs that have a poor impact evaluation. It could also be financed with a mix of reducing expenditures and increasing taxes.
35. EITC schemes are also popular programs in other European countries such as Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Spain and Sweden. To our knowledge, most evaluations of EITC programs have been carried out for the US and the UK. For other European countries, the evidence is scantly. See for example Edmark *et al.* (2012) for Sweden and Stancanelli (2007) for France.

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Resumen

Durante las últimas tres décadas los Programas de Transferencias de Renta Condicionadas (PTC) han sido estrategias muy populares para luchar contra la pobreza en los países en desarrollo. Aunque estos programas pueden ser eficaces para mejorar el bienestar de los individuos vulnerables en el corto plazo e incluso para garantizarles servicios básicos, como la sanidad y la educación, también pueden desincentivar su participación en el mercado de trabajo aumentando la economía sumergida. Sin embargo, estos programas pueden generar una dependencia de las ayudas e impedir la obtención de ingresos procedentes del trabajo. Muchos países desarrollados han utilizado el impuesto sobre la renta para aplicar políticas sociales. Un buen ejemplo es el *Earned Income Tax Credit* (EITC) en Estados Unidos, que ofrece un crédito reembolsable a personas de bajos ingresos condicionado a su participación en el mercado de trabajo. Este trabajo analiza empíricamente el efecto que un sistema como el EITC tendría sobre la pobreza y la desigualdad en Chile. Nuestro estudio se centra en el colectivo de mujeres solteras de 18 a 60 años, sin pareja, con y sin hijos. Los resultados muestran que un crédito fiscal reembolsable podría aumentar el empleo reduciendo la pobreza y la desigualdad. Un diseño equivalente al EITC podría aumentar los ingresos de los individuos por debajo del umbral de la pobreza reduciendo la desigualdad. Debido a que un programa como el EITC beneficia en mayor medida a quienes buscan y obtienen un empleo en el sector formal, dicha política debería aplicarse como herramienta complementaria a otros programas de política social destinados a ayudar a los individuos a salir del sector informal.

Palabras clave: EITC, pobreza, desigualdad, Ingreso Ético Familiar, Chile.

Clasificación JEL: H24, H53, I38.