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Targeting Child Benefits in a Transition Economy

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Abstract: Transition economies use their child benefit programs to provide additional economic support for families with children. However, budgetary pressures limit social spending in many countries. Therefore, targeting child benefit programs to the poorest households may be a sensible solution to the problem of supporting families with children when social spending is in decline. Few transition economies have attempted to target child benefits. Hence evidence on the efficacy of means-testing child benefits is scarce. This study considers the implementation of one of the few means-tested child benefit programs in a transition economy and finds relatively little evidence of targeting problems. Moreover, means-testing the child benefit substantially alters the distribution of benefits relative to the distribution of benefits in the more typical universal child benefit program.

Keywords: Social Assistance, Child Allowance, Family Allowance, Benefit Take-up

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1. Introduction

Child benefit programs provide cash assistance to families with children. Nearly every European nation has a child benefit program, sometimes called a child or family allowance, and most are universal in nature, i.e. every parent with a child is eligible for the benefit.¹ The economic insecurity associated with transition in Central and Eastern Europe has elevated the importance of child benefit programs in those countries, and there has been significant pressure to increase benefits (Barr 1994). At the same time, budgetary pressures limit a government's ability to provide social assistance, and there is substantial pressure to cut social spending. A means-test for child benefits is an obvious compromise between these twin pressures. Several Central European countries, with technical assistance from the European Union's PHARE program, have recently begun to implement a means-test of child benefits, but experience with this policy alternative is rare in transition countries. This paper considers the distributional consequences of means-testing child benefits, using as an example the means-tested program in place in Slovenia at the start of its transition.

The Slovene child benefit program represents a unique opportunity to examine the operation of a means-tested child benefit in practice, because it is one of the few means-tested child benefits in a transition economy. In this study, I use a nationally representative household survey from 1993, the last year of the program's operation, to analyze participation in the means-tested child benefit program in practice and the resulting redistributive impact.² The primary aim of this paper is to provide a descriptive analysis of the implementation of the means-tested child benefit. There are three issues in the literature on means-testing child benefits that I consider in this paper. First, Barr (1994) surveys a literature arguing that family size proxies for income, and thus the means test is unnecessary. In this study, the means-test alters the distribution of

¹ The International Social Security Association (1994) describes the programs in Central and Eastern Europe; Atkinson (1995) describes programs in Western Europe. Child benefits were originally pro-natalist, but they have taken on more of a social assistance role in transition economies.

² At the time of writing, there has not been a household survey comparable to the FBS that would enable a comparison of the means-tested program to any of the programs that followed it.

benefits in a way that conditioning on family size alone would not. Second, Cowell (1990) describes research highlighting the importance of cheating and abuse in means-tested programs. While a small number of households may be abusing the system in the data, the program appears strongly redistributive and there is little evidence of abuse. Third, an extensive literature documents that means-testing generates a problem of non-take-up that diminishes the program's benefits (for surveys, see Blundell et al 1988, or Atkinson 1989a). The problem of non-take-up is virtually unexplored in the formerly communist countries (Milanovic 1995 is a notable exception). I find that take-up is correlated with predicted benefits. The poorest households who receive the largest benefits are most likely to participate in the program. The eligible households that elect not to participate are typically the wealthiest of the income-eligible households, and thus their benefit level is smallest.

I begin in the next section with a description of the program in Slovenia. In section 3, I discuss the relevant literature on take-up and means-tested benefits. In section 4, I examine the data. First, I consider the distributive effect of the existing child benefit program and compare that to several policy alternatives to the means-tested program (including the universal program eventually adopted in Slovenia). Second, I explore participation in the means-tested child benefit program. In section 5, I conclude by discussing some remaining issues that this paper has not dealt with in detail.

2. Background on the Child Benefit Program in Slovenia

The Slovene Child Benefit Program (Otroški Dodatek) was implemented in 1949 as a part of a larger Yugoslavian Child Benefit Program. Originally, this program provided a fixed benefit to all households with children regardless of household income. The (formerly) Yugoslav Republics did not have income taxes until the mid-1990s, and the child benefit was the primary subsidy to households with children. In the late 1950s, the Yugoslavian program decentralized its administration; Slovenia became responsible for its own program (Kolaric 1992). In 1966, the Slovenian parliament began targeting benefits to poorer households.

Households above a given income cutoff received no child benefit at all (Cernigoj-Sadar and Vojnovic 1992)

The child benefit law in effect for this study ran from 1984 through May of 1994 (Uradni List SRS St. 26-30. VII. 1984). The law's objective was to provide a guaranteed minimum income to households with children. For a non-farm (*nf*) household i , the household's per child monthly child benefit, B_i^{nf} , in 1993 was forty-three percent of the average monthly household income per capita, \bar{Y} , less the household's income per capita, Y_i , for a non-farm household:

$$(2.1) \quad B_i^{nf} = (0.43 * \bar{Y} - Y_i) * \mathbf{I}(0.43 * \bar{Y} \geq Y_i)$$

where $\mathbf{I}(-)$ is an indicator function capturing that households above forty-three percent of the average monthly household income per capita do not receive any child benefit. Benefits for farm households are lower than for non-farm households, reflecting expectations that farm households will have greater non-reported and in-kind income as well as face lower costs for many agricultural goods. Approximately 2 percent of the population with children is classified as a farm household in 1993. For these farm households, the child benefit was twenty-three percent of the average monthly household income per capita less the household's income per capita for a farm household:

$$(2.2) \quad B_i^f = (0.23 * \bar{Y} - Y_i) * \mathbf{I}(0.23 * \bar{Y} \geq Y_i)$$

Similarly, for a farm household, if Y_i is greater than twenty-three percent of \bar{Y} , then the household did not receive any child benefit. This formulae amounted to maximum monthly benefits for a household with one child of SIT\$ 20,135 (US\$ 153) for a non-farm household and SIT\$ 10,770 (US\$ 82) for a farm household. These benefits compare to an average monthly total household income (excluding the child benefit) of SIT\$ 97,508 (US\$ 741).³

Either parent may claim the child benefit by applying each year (by March) in person at the social work center for their commune. Each commune has a social work center, and all

³ Throughout this paper, I use the abbreviation "SIT\$" to indicate that a number is in Slovenia's currency.

social benefits are administered through the commune's social work center. At the social work center, the applicant parent completes a form that asks the applicant's wage earnings, the applicant's partner's wage earnings, and other household non-wage income in the previous calendar year. The applicant also lists all of his/her children. For the purpose of the benefit, the household is defined as the nuclear family. No consideration is given to the presence of extended family or to the absence of a parent (aside from the effect the later has on per capita income). The benefit is paid to the applicant.⁴ If a previous recipient wishes to continue receiving the benefit, the applicant completes a new application by March 31 of each year. Applicants would normally apply for other social benefits in the same social work centers at this same time. If there is a substantial change in household income or a change in household composition, households may reapply every three months. The applicant must sign a statement attesting to the accuracy of the income and composition information they provide (no other documentation is required). A criminal penalty is associated with misreporting information, and households can be investigated to verify the validity of their benefit application. While some checks on the enrollment of children in school take place regularly in October of each year, in practice, there is virtually no monitoring of the validity of the income that is reported. Widespread abuse is suspected (though undocumented).

In 1993, 75,259 households were receiving the child benefit for their 147,478 children (Statistical Office of the Republic of Slovenia 1995). All households with children age 15 or less are eligible for the child benefit if they income qualify.⁵ In addition, a household is age eligible for the child benefit until the child is 26 if the child is a full time student or disabled.

Throughout this paper, I refer to a household as *age eligible* if it contains a child meeting these

⁴ The amount of the benefit is transferred to the applicant's bank account. This payment procedure is standard for all government benefits. It is also possible to receive the benefit and all other government benefits in cash from the post office. This option is rarely used.

⁵ Non-resident citizens are eligible to receive the benefit provided they are not receiving the equivalent social benefit in their country of residence. Also, resident non-citizens can receive the benefit provided that at least one member of the household is employed. There is no employment qualification for resident citizens.

qualifications irrespective of income. The 147,478 children in households receiving the child benefit represent 28 percent of all children who meet the age qualifications for the child benefit. The child benefit makes up a substantial part of all government assistance in Slovenia. In 1993, the program's budget was SIT\$ 7.6 billion (US\$ 58 million). This is 0.5 percent of Slovenia's Gross Domestic Product in 1993. Thus, Slovenia's child benefit spending is roughly comparable in terms of share of GDP to Russia's family allowance program, though it is well below that of Bulgaria (2.3 percent of GDP) or Hungary (4.5 percent of GDP, World Bank 2002).

3. Background on the Analysis of the Targeting of Means-Tested Child Benefits

A program is means-tested in order to concentrate its benefits among the poorest of possible recipients. Yet, the imposition of a means-test is not without its costs. First, the means-test can be expensive to administer. In many contexts, the administrative overhead may be so excessive as to dilute a significant portion of the program's overall budget. However, in much of Central and Eastern Europe, commune social service centers are already in place, and they administer an array of other means-tested social assistance benefits. Thus, the incremental administrative cost of means-testing a child benefit is likely small relative to countries without an already in place local social service network. As a result, in the policy debate over eliminating the means-test in child benefits in Slovenia, one finds no mention of administrative savings from eliminating the means-test. The focus in this study is on other costs of means-testing the child benefit program. These include the problems of non-take-up, abuse of the system, and disincentive effects of the means-test.

3.1 Take-up

For a household to participate in a means-tested child benefit program, it needs to be aware of the program, apply for it, be selected to participate, then actually take-up the program (Duclos 1995 is a formal model of take-up with these features). Separately identifying each of these aspects of benefit take-up is infeasible in the present data (described in section 4.1); only identifying whether a household receives the benefit is feasible. In the present discussion, I

assume that receipt of the benefit is driven by the application decision. Awareness is a minor concern because of the high policy profile of the program. Take-up conditional on approval is also of minor significance, because there is nothing the applicant needs to do upon approval as all relevant information is attained at application. It is not possible to identify rejection rates conditional on application, because there is no centralized reporting of these statistics.

Significant rejection rates do not concord with the available anecdotal evidence - most of the screening takes place in commune social service centers where the social worker informs a low-income application about what benefits are available to her.

Let S_i^* denote an index of household i 's net benefit from participating in the means-tested child benefit. The household's expected net benefit depends on its predicted benefit amount (based on the eligibility formula in section 2) and any perceived costs. Imposing a linear functional form on S_i^* yields:

$$(3.1) \quad S_i^* = \alpha + X_i\beta + Z_i\gamma + u_{si}$$

where α is a constant, X_i are variables that determine whether or not the household is eligible for the child benefit and the benefit level, and Z_i are variables that might influence a household's decision to apply but do not directly enter the benefit formula. Of course, the index S_i^* is not directly observed. Instead, it is only possible to observe whether or not a household receives the child benefit, S_i . The assumption that take-up is driven by the application decision implies that take-up occurs when the expected net benefit from applying is positive. That is:

$$S_i = \begin{cases} 1 & \text{if } S_i^* > 0 \\ 0 & \text{if } S_i^* \leq 0 \end{cases} .$$

Hence, the take-up problem can be modeled empirically as a standard discrete choice problem.

The existing literature on social assistance take-up in other countries highlights several factors that enter into the household's calculation about the net benefit of applying for a means-tested child benefit. First, participation in a means-tested may be costly to a household.

Applying for the benefit takes time and there is an opportunity cost associated with this time.

Second, there may be a stigma or psychic cost to applying for the benefit (Moffitt 1983). Both Fry and Stark (1987) and Atkinson (1989b) consider the problem of non-take-up in a program in Great Britain that is similar to the Slovene program and find substantial non-take-up that they associate with social stigma. Third, previous research on other means-tested programs in the U.S. and Western Europe indicates that the size of the predicted benefit is an important determinant of whether or not the household is willing to incur these costs (Blundell, et al 1988) as is the length of time the household expects to receive the benefit (Blank and Ruggles 1995). Fourth, participation in one social program also seems to be related to whether or not the household participates in additional programs (Dorsett and Heady 1991). Participants in other social programs may be better informed about benefit availability or have already sunk the transport and time costs of applying. Moreover, participation in another social program may mean that the social stigma cost is relatively small for the household either because participation in another program reveals an individual to care little about any stigma or because the marginal stigma associated with participation in an additional program is small. Obviously, none of these factors operate in isolation, and together contribute to whether applying for the child benefit is net beneficial for the household. Surprisingly, the problem of non-take-up has received substantial mention but little research in transition economies.

Not all individuals who are eligible for the child benefit will participate, but it is also likely that not all participants are eligible. Abuse of means-tested programs is widely suspected in both rich and poor country programs (Grosh 1994), and this issue is unexplored in the context of child benefits in a transition economy. Milanovic (1995), using household survey data from before the break up of Yugoslavia, finds that targeted cash assistance in general went to wealthier households. This finding contrasts with his results for other eastern and central European nations. Milanovic's findings also contrast sharply with those presented below. This may be because the administration of social benefits in Yugoslavia was decentralized. The richest republics could afford to offer the largest social benefits. Thus, it is not clear whether his

findings for Yugoslavia would hold for Slovenia. In this paper, the data suggest that the poor appear to be the primary beneficiaries of the program.

3.2 Disincentives

The imposition of the means-test changes the marginal tax rate on earned income. For example, consider a non-farm household with 2 adults and 2 children that are eligible for the child benefit. Each additional Tolar of earned family income lowers the total child benefit payments to the household by half a Tolar. Thus, disincentive effects on labor supply and income accompany the means-tested child benefit, and in the present case, they could be large. The resulting distortions may be costly for the economy and may be highly politicized. It seems feasible that the disincentive effects of a means-test in the modern Slovene economy could be large, and this may be part of the reason why Slovenia terminated its means-tested program.

Disincentive effects are also problematic for the researcher analyzing the redistributive aspects of a means-tested benefit, because in order to analyze redistribution the researcher must construct an estimate of what the distribution of income would be absent the means-tested benefit. This study follows convention and uses household income less the child benefit as a measure of what income would be absent the child benefit. This assumption is always problematic, but in the present case, there are reasons to believe that disincentive effects of the child benefit may be small in the midst of the economic instability of Slovenia's transition, especially given the pending termination of the means-test.

There are several reasons why any disincentive effects in the context of transition Slovenia are likely minor. First, there are few incentives for a household to quit working formally. At the time of the survey, it was very costly for an employer to fire a worker for any reason other than plant closing, and workers received substantial non-wage benefits from employers (year long maternity leave at full pay; highly subsidized, month long vacation housing; pensions at close to full income). Consequently, prior to transition, the unemployment rate was very low (unemployment was 1.3 percent in 1986, Statistical Office of the Republic of

Slovenia 1995) despite the high marginal tax rate in the child benefit means-test. While the high marginal tax rates on earned income or the income effect of the child benefit might induce a change in hours worked (the intensive margin), it is feasible that a worker would do this through shirking rather than formally changing labor supply, because there was little likely penalty for shirking in 1993 and part-time work is rare (less than 1 person per 1000 report working part time, Statistical Office of the Republic of Slovenia 1995), leaving little scope for formally adjusting hours.⁶ Moreover, prior to transition, most labor received a fixed salary rather than an amount based on the number of hours worked. Therefore, even if a household reduced its hours worked in reaction to the child benefit, this might not imply any difference between household income in a hypothetical world without a child benefit and household income (excluding the child benefit) in the world with the means-tested child benefit.

Second, the transition in Slovenia has led to job insecurity and much higher unemployment (the number of registered unemployed persons increased by 300 percent between 1990 and 1993, Statistical Office of the Republic of Slovenia 1995). Hence, it would be surprising for workers to radically alter their employment status as a result of a benefit that is at most 43 percent of average monthly per capita income per child if the household has no other income source. Moreover, the forthcoming in 1994 elimination of the means-test and the resulting decline in benefits were well known in 1993. Thus, given the rising unemployment and anticipatable decline in benefits, it seems plausible to assert that disincentive effects such as withdrawal from the labor force are small in 1993, and with the absence of part time work and labor market restrictions that limit firing, it also seems plausible that any disincentive effects on hours worked might not be reflected in household income absent the child benefit.

Thus, in the analysis below, the counterfactual of what a household's income would be absent the child benefit is constructed by subtracting the child benefit from total household income. This assumption of no disincentive effects is also necessitated by the data which

⁶ This argument obviously applies more to farm households than non-farm households.

collects no information on individual labor supply. In extrapolating from the evidence in Slovenia in 1993, it is important to remember that disincentive effects may be much larger in a post-transition economy so that the means-test would appear more redistributive than it is in reality if the analysis below were replicated. Thus, this setting of transition Slovenia is unusual in the relative clarity with which one can consider the redistributive effects of a means-tested child benefit.

4. Main findings

4.1 Data

I examine the implementation of child benefits in Slovenia using the 1993 Slovene Family Budget Survey, FBS (Statistical Office of the Republic of Slovenia 1993). Over three thousand households were contacted in February of 1993 and asked to participate in a survey. The aim of the survey design was to capture a nationally representative, random sample of 0.5 percent of the population.⁷ Participating households were asked to keep track of their consumption and income receipts for the next year. Surveyors visited the participating households between December 10th and 25th asking households about their consumption and income for the entire year. Income data are only available as household totals; I do not observe any individual income information.

Table 1 summarizes the basic characteristics of households in the sample. The first column of table 1 uses data for the entire survey sample. The second column of table 1 focuses on the 1,796 households in the survey who are age eligible for the child benefit. Much of the analysis in later sections of the paper focuses on age eligible households. Hence, column 2 includes all age eligible households with dependent children regardless of the household's income. The third column of table 1 focuses on the 266 households in the survey who receive a child benefit. All of the entries in table 1 are weighted to reflect differences in sampling

⁷ The sample was stratified with 6 strata, dividing the country into the Ljubljana area (urban, non-urban), other communities (urban, non-urban, and rural), and new enumeration areas (without a known urban / rural designation). More information on the sample design is available in Statistical Office of the Republic of Slovenia (1993).

probabilities. Households receiving the child benefit are larger than the population average. This reflects the fact that child benefit households all have children. Child benefit recipient households also are poorer.⁸ This may be evidence of the means test at work, or it could indicate that households with children have younger heads that are earlier in their life-cycle earnings.

4.2 The Progressiveness of the 1993 Child Benefit

The child benefit program described in section 2 aims to guarantee that each child in the family has an income that is 43 percent of average per capita income in the case of a non-farm household and 23 percent for farm households. This section examines the redistributive impact of this child benefit program. Redistribution occurs from three channels: the benefit formula, errors in targeting from self-selection and leakage, and the population distribution of children. The data suggest that the benefit formula itself is responsible for most of the program's progressiveness although self-selection also plays a role.

In order to examine the progressiveness of the child benefit program, the population is sorted into deciles of the per capita income distribution (excluding child benefits from this calculation). Table 2 considers three indicators of program involvement for each decile. The "participation" rate is the share of each decile that is in the child benefit program. 32 percent of children in the poorest decile of the population participate in the child benefit program. The "incidence" rate is the share of the population receiving the child benefit that lies in that cell. Thus, 33 percent of child benefit recipients are in the poorest decile of the population income distribution. The "share" of the total child benefit spending that goes to each decile is also reported. 40 percent of the child benefit Dollars reported in the survey goes to children in the poorest decile of the population. 66 percent of the reported child benefits go to the poorest 20

⁸ Total income in this paper is computed by summing the reported components of household income plus dividends and interest.

percent of the population. Benefits for this means tested program are more concentrated among the poor than any of the Latin American programs surveyed by Grosh (1994). Also, this means-tested child benefit program directs more of its resources to poorer households than a similar, non means-tested child benefit program in Hungary described in Jarvis and Micklewright (1995). In their assessment, 42 percent of child benefit expenditure goes to the poorest 20 percent.

While the data in table 2 suggest that most of the program is concentrated in the poorest households, much of the literature evaluating the targeting of programs focuses on the problem of leakage and undercoverage. Leakage takes place when households participate in the program that should not (errors of inclusion). Leakage may not necessarily be bad. Lanjouw and Ravllion (1999) develop a model where leakage is necessary to generate political support for a means-tested program. Undercoverage is when eligible households do not participate (errors of exclusion). The Family Budget Survey (FBS) data is problematic for looking at leakage and undercoverage. The FBS only contains income totals for households. Thus, calculating the benefit the household should receive under the benefit formula in section 2 (I call this the "predicted benefit") is only feasible for two-generation households where the younger generation is age eligible for the benefit. This limits the sample to 1,320 two generation, age eligible households in the 1993 household survey (all households that report receiving the child benefit are age eligible). Since the actual child benefit in 1993 is based on 1992 income and the data only reports 1993 income, I cannot identify whether errors in targeting are the results of changes in household income, measurement error in income, or if they are genuine errors. With this caveat in mind, I consider undercoverage and leakage in table 3.

Table 3 is limited to the two generation, age-eligible households for which I can calculate child benefits based on the formula in section 2. The columns of table 3 are based on whether a

household reports participating in the child benefit program and the rows are based on whether the household should participate in the program based on survey responses and the benefit formula in section 2. Two main results follow out of table 3. First, households where there appears to be leakage (self-reported participants, predicted non-participants) are generally poorer than true non-participants (self reported non-participants, predicted non-participant). These households also report smaller child benefits than true participants (self reported participants, predict participants) suggesting that they were richer in 1992 than were true participants. Hence, leakage appears to be in households that are closer to receiving or not receiving the child benefit and may be consistent with households experiencing changes income through time. Second, the problem of undercoverage appears to be in richer households than the true participants. This is consistent with the predicted benefit being an important determinant of whether or not the household participates in the program, a finding in the next section. Thus, while there is both undercoverage and leakage, neither problem appears so large or obvious that it could undermine the progressiveness of the means-tested program.

Moreover, the poorest households receive the largest child benefits. Figure 1 contains the nonparametric regression of the *total* child benefit reported in each age-eligible household in the FBS regressed against per capita income. Reported child benefits fall off in income rapidly. Few households that are above the average monthly per capita income receive a child benefit. In figure 2, I limit the sample to households that are both age eligible and income qualify for the child benefit based on the benefit formula in section 2 and responses in the FBS. I picture both the regression curve and the raw data. Even among the very poor households in figure 2 (who are dwarfed by the scale of figure 1), benefits decline in income per capita. Hence, the evidence in both figures 2 and 3 and in table 2 suggests that the means-test appears to succeed in directing

most of its benefits to poor households. This is explicit in figure 3, which plots the cumulative distribution of income per capita with and without the child benefit (only the bottom 50 percent of the distribution is pictured). Most of the impact of the child benefit falls on the bottom 35 percent of the population. For this group, the child benefit results in a substantial forward shift in the distribution. The forward shift in the CDF appears smaller as households grow richer. This reflects the means-test in the benefit apparent in figures 2 and 3.⁹

To consider the importance of the distribution of children in the redistributive impact of the child benefit program, Table 4 considers the hypothetical distribution of benefits if the program of section 2 were made universal and uniform to families with children. Advocates of uniform child benefits generally argue that children and family size proxy for household well-being so there is little need for a means test. In Slovenia, the pre-existence of a support network through commune centers kept the cost of the means-test to a minimum. The fact that few resources were devoted to monitoring self-reported income also limited the costs of the program. However, Slovenia began to move away from the means-tested child benefit starting in 1994 towards a uniform child benefit. Part of the logic (discussed in Edmonds 2002) for this change was to provide support to all families with children. Thus, the question of how important the distribution of children is for the program's progressiveness is of considerable policy relevance in the present case.

The first column of table 4 shows the mean number of age-eligible children per household by decile of the per capita income distribution. Poorer households have more children (although this is in part definitional given that each child lowers per capita income without

⁹ The earlier, working paper version of this study considered how the analysis of the redistribution in the Slovene program changes under different adult equivalence and economies of scale assumptions. The lower the assumed cost of children, the less progressive the existing program appears.

bringing in additional income). The poorest 30 percent of the population average 1.1 age eligible children per household. Thus, when a uniform child benefit program is considered, it will be less progressive than the existing program where two thirds of benefits go to the poorest 20 percent of the population.

To compare the child benefit program described in section 2 to a uniform child benefit program like the one that replaced it, I compute the uniform per child benefit by dividing the total reported child benefit in Slovenia by the total age-eligible population. I compute the household's uniform child benefit by multiplying this number by the number of age-eligible children in a household. Table 4 shows participation rates, benefit incidence, and benefit share by decile of the per capita income distribution.

The universal child benefit is still somewhat progressive, because poorer households have more children. However, the universal system is substantially less progressive than the existing system. While 66 percent of benefits go to the poorest twenty percent of the population in the existing system, only 23 percent of benefits go to the poorest twenty percent in a universal benefit system. Participation rates in the universal system drop below 50 percent in only the richest 40 percent of the population. Thus, little of the means tested system's progressiveness comes from the population distribution of children, and a universal child benefit system is not a close substitute for a means tested system in the present case.

Self-selection (or errors of exclusion more generally) also play a role in the progressiveness of the benefit structure. In table 5, the sample is restricted to nuclear families with one resident father and mother. Table 5 contains a comparison of the actual distribution of the program in 1993 based on responses in the FBS, a universal uniform child benefit (as in table 4), and the distribution of an exact implementation of the benefit formula in section 2 with the

relevant survey responses regarding household income, household composition, and farm status from the FBS. The distribution given by the benefit formula and the actual distribution may differ because of errors of inclusion, errors of exclusion, the timing of income from the FBS and that used in the computation of actual benefits, and measurement error in the response to the child benefit question or any of the survey responses used in the benefit formula.

An exact implementation of the benefit formula leads to a greater share of benefits going to the poorest decile and no participation beyond the third decile of the population distribution. Scope for self-selection to play a role in the progressiveness of the current program is evident by looking at participation rates. Participation rates are much lower with the current program for the poorest 30 percent of the population. For the second to poorest decile, participation rates are 31 percentage points below what would be suggested by the benefit formula. Moreover, benefit take-up is such that in the actual program, incidence is higher for the poorest decile than would be suggested by the benefit formula alone, because largely of lower participation rates in the second and third to poorest deciles. The benefit amounts for these deciles is small relative to the poorest decile, and in the next section, the data suggest that the size of the benefit available to the household is a critical predictor of whether the household takes up the child benefit.

4.2 The Correlates of Take-Up

One concern with the lower take-up rates in the population than would be predicted by the benefit formula is that eligible and needy households may be forgoing participation because of some type of stigma associated with means-tested programs. To look at this, I begin by considering whether there is an association between benefit take-up and the benefit computed by responses to the FBS and the benefit formula of section 2. In this section, I find that the data suggest the size of the expected benefit plays an important role in benefit take-up as do

accessibility and each of the inputs to the benefit formula separately. Participation in other social programs is not a robust predictor of participation once one controls for measurement error in income. This is interpreted as evidence against social stigmas driving errors of exclusion in the means-tested program.

Figure 4 contains the nonparametric regression of an indicator for whether or not a household receives the child benefit in 1993 against the logarithm of the household's predicted child benefit based on 1993 income.¹⁰ Households with higher predicted benefit levels are more apt to receive the benefit. This is consistent with households applying for the child benefit when the benefit of applying is highest. For households with predicted child benefits that are relatively small, the relationship between the predicted benefit level and take-up is flat. When predicted benefits reach 1 percent of average monthly household income (1.8 on the log scale), take-up is increasing in the benefit level. Take-up does not exceed 50 percent until *total* predicted benefits are about 50 percent of average monthly *per capita* income.

In order to consider how take-up is affected by additional factors, a parametric regression framework is necessary because of the small sample size. Table 6 contains the linear probability estimates of 3.1.¹¹ The first column is limited to the sub-sample of two-generation households for which I can calculate the predicted benefit. As in the figure 4, even after conditioning on the indicated control set, predicted benefits are positively associated with the probability that the household receives a child benefit. Conditioning on the predicted benefit, the addition of a benefit eligible child raises the probability the household receives the benefit. Travel to social work centers is probably more costly for rural households, and I find that rural households are

¹⁰ The regression curve in figure 5 is the result of a local regression of an indicator for if a household reports receiving the child benefit on the household's predicted benefit with a bandwidth chosen by visual inspection.

¹¹ I correct standard errors for arbitrary heteroskedasticity and the clustered sample design throughout this paper.

less likely to apply given the same predicted benefit and number of eligible children. Regional effects (not shown) are also jointly significant. These two results suggest that access to social work centers may be an important determinant of the household's decision to apply.

In column two, the determinants of the benefit level from equations (2.1) and (2.2) are not constrained to enter only through the predicted benefit level. Column two also includes all age eligible households (not just two generation households). In a supplementary regression for two generation households (not shown), the data reject the restriction that total income, household size, and the agricultural household indicator affect the probability the household receives a child benefit only through their impact on the predicted benefit level (the F-statistic for this test is 59.22). Total income is negatively correlated with the probability the household receives the child benefit. Agricultural households are less likely to receive the benefit. The effect of household size is not significant when one controls for the number of eligible children in the household. Households with young heads and heads with little education are also more likely to receive the child benefit when I condition on income. Interpreting these results can be difficult, however. If household income is measured with error, these variables proxy for components of unobserved, true income.

In column four of table 6, I instrument for measurement error in household income with an indicator for whether the household engages in the informal sector and counts for the number of members who are entrepreneurs, who participate in regular wage employment, and who receive non-wage (non-child benefit) income.¹² Instrumenting for measurement error in income does not substantively alter my discussion above. A Hausman test of the instrumental variable estimator rejects the OLS specification in favor of instrumenting for measurement error.

¹² The F-statistic for the joint significance of these instruments in the first stage regression is 42.35.

Unfortunately, identification of this model relies both on the assumed linearity of the regression function and the assumption of a uniform distribution in errors. Even small departures from these assumptions bias my estimates.

In column 3, I consider the question of whether or not the receipt of other types of social assistance is a predictor of take-up of the child benefit. Dorsett and Heady (1991) show, in the case of the United Kingdom, that participation in a means-tested program is positively associated with participation in other types of social assistance. My results in column 3 are consistent with this picture. Conditioning on household income and characteristics, receiving other social benefits is positively correlated with receiving the child benefit. However, if income is measured with error, participation in other social programs may reveal that the household is poor. When I instrument for measurement error in income in column 5, the observed correlation between participation in other programs and the child benefit decreases in magnitude and becomes statistically insignificant.

Thus, the size of the child benefit appears to be an important predictor of whether the household applies for the means-tested child benefit. This appears to work both through the number of children (conditional on household income, more eligible children implies a higher probability of take-up) and through the means-test itself (conditional on the number eligible children, poorer households are more likely to apply). Issues of accessibility also seem to affect participation in the child benefit program, but participation in other programs is not a statistically significant predictor of participation when measurement error in income is addressed. In magnitude, the largest predictors of whether a household chooses to participate in the child benefit program are the number of age-eligible children, the household's type (farm or otherwise), and the household's rural location (conditional on whether or not its agriculture and

thereby receives a different benefit). Coupled with the strong link between the expected child benefit and take-up, these findings suggest that if social stigma plays any role in benefit take-up, stigma costs are not so large as to break the link between take-up and the household's expected net benefit from the child benefit.

5. Conclusion

This paper has considered the efficacy with which a means-tested child benefit program in Slovenia has delivered cash transfers to poor households with children. In considering the problem of non-take-up, it appears that non-take-up is closely related to the size of the predicted child benefit. Households that anticipate a greater benefit from applying for the child benefit are more apt to participate. I also find some evidence that accessibility may be an important factor in whether or not a household receives the child benefit. When I correct for measurement error in income, I do not find evidence suggesting that there are spillovers in participation from other social programs. Moreover, there is little evidence of substantial leakage in the program. Hence, most of the program's benefits go to the poorest households. As a consequence, the program has an important redistributive role that would not occur in the absence of the means-test.

Few other transition economies means-test child benefits, hence there is little evidence outside of this study on the efficacy of means-testing child benefits. There are, however, two important issues that I have not been able to address. First, absent data on labor supply, I need to rule out any distortions induced by the means-test. In section 3, I discuss several reasons why this assumption is perhaps tenable, but this caveat is critical in interpreting this paper. Second, I have ignored the political economy issues associated with a means-tested program. To the extent that a means-test creates disincentive effects on labor supply, anecdotes about abuse of the system may undercut political support for the program. Even absent disincentive effects, concentrating benefits among the poor may undermine its political support if the poor lack political power (Gelbach and Pritchett (1996)). Hence, while means-testing may make sense in an environment with tight budget constraints, it might be politically unwise. Moreover,

disincentive problems may further undermine political support for the means-tested benefit. In Slovenia, its first elected government transformed the means-tested child benefit into a universal child benefit. This is somewhat hard to understand in the framework of this paper, because it resulted in lower benefits for poor households and reduced the progressiveness of the program. Thus, while the evidence in this paper suggests a role for means-testing child benefits, further attention should be paid to political economy concerns in future research before any concrete policy conclusions can be drawn.

These political economy questions are central to whether Slovenia's experience generalizes to other transition economies or even post transition Slovenia. The (formerly) commune level social infrastructure in place in Slovenia is similarly in place in many other transition economies in Central and Eastern Europe. The existence of these institutions minimizes the administrative start-up costs of a means-tested child benefit, especially in countries where these commune social centers administer other means-tested benefits. Likewise, the lack of compelling evidence regarding a social stigma from means-testing in Slovenia might be evident in other transition economies as well where there is a history of transfers from the state. While these costs might be relatively minor in transition economies, other factors in the efficacy of targeting in transition Slovenia might vary substantively across countries and through time. Relevant country characteristics include the distribution of children in the population, the accessibility of commune social centers (an important determinant of take-up in Slovenia), and the scope for abuse and disincentive effects. In post-transition Slovenia, government knowledge of individual incomes has declined, and scope for abuse of the means-test has likely increased. Similarly, as labor supply becomes more flexible over time, there is greater opportunity for disincentive effects. How significant abuse or disincentives are, how political costly anecdotes about them can be, and whether political support for a means-tested program can be maintained should be important considerations in deciding whether to adopt a means-tested child benefit in other countries.

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Table 1: Household Characteristics and the Child Benefit

		Full Sample	Age-Eligible Households	Child Benefit Recipients
Number of Households		639,668	321,791	51,875
Type of Household				
	Agricultural	17,449	5,235	786
	Mixed	158,235	77,380	12,895
	Non-Agricultural	463,984	239,177	38,193
Location				
	Ljubljana			
	Non-Urban	12,937	7,518	844
	Urban	100,073	50,306	4,875
	Outside Ljubljana			
	Urban	245,718	123,564	17,487
	Rural	44,969	19,568	3,667
	Non-Urban, Non-Rural	231,677	117,367	24,663
	Undefined	4,295	3,468	338
Demographics				
	HH Size	3.01	3.97	4.16
	Children 0-15	0.63	1.24	1.75
	Women			
	16-25	0.23	0.35	0.33
	26-60	0.74	0.97	0.93
	>60	0.30	0.13	0.11
	Men			
	16-25	0.23	0.31	0.19
	26-60	0.72	0.92	0.85
	>60	0.20	0.09	0.06
Per Capita Income				
	Total w/o Child Benefit			
	Mean Total	324.28	300.28	179.90
	Median Total	261.80	256.00	158.46
	Gini for Total	0.29	0.29	0.26
	Child Benefit			
	Mean Benefit	1.61	3.20	19.81
	Median Benefit	0.00	0.00	17.50
Household Income				
	Total Income	925.89	1151.72	805.18
	Wage Income	643.94	942.65	573.76
	Other Income	58.52	81.23	52.90
	Gov't Transfers (w/o cb)	216.94	114.93	98.41
	Child Benefit	6.50	12.91	80.10

Counts or means weighted by the household's sampling probability. There are 3,284 households in the survey. All Tolar amounts are in 100s of Tolars per month. Age-eligible households include all households that meet the eligibility requirement based on age without consideration of household income. Family Budget Survey, 1993.

Table 2: Participation, Incidence, and Benefit Shares by Decile of Per Capita Income

Decile of Per Capita Income	Participation	Incidence	Share of Benefits
1	31.6	33.3	40.3
2	24.3	26.1	26.1
3	9.2	10.0	9.3
4	7.1	8.3	5.3
5	7.1	8.6	7.1
6	5.1	6.5	4.7
7	2.7	3.5	2.7
8	1.2	1.5	1.5
9	0.6	0.9	2.0
10	0.9	1.3	1.0
Pop.	8.1	100.0	100.0

3,283 households. All numbers are in percentages.

Table 3: Actual vs Predicted Participants

		Self-Reported Participation	
		Non-Participants	Participants
Predicted Non-Participants			
	Population	179,972	12,814
	<i>Total Income (w/o C.A.) Per Cap</i>		
	Mean	374.91	277.03
	S.D.	187.55	78.62
	<i>Child Benefit</i>		
	Mean	0.00	65.12
	S.D.	0.00	50.20
Predicted Participants			
	Population	33,349	28,465
	<i>Total Income (w/o C.A.) Per Cap</i>		
	Mean	165.19	133.59
	S.D.	35.71	40.88
	<i>Child Benefit</i>		
	Mean	0.00	88.40
	S.D.	0.00	56.54

Tolar amounts are in 100s of Tolars per month. All data are weighted to reflect sampling probabilities. Source: Family Budget Survey, 1993. Limited to age-eligible, 2 generation households.

Table 4: Participation, Incidence, and Benefit Shares for a Uniform Child Benefit

Decile of Per Capita Income	Mean # of Age			Share of Benefits
	Eligible	Participation	Incidence	
1	1.1	55.2	9.4	11.7
2	1.1	57.8	10.0	11.6
3	1.1	63.4	11.1	11.9
4	0.9	57.2	10.8	10.5
5	0.8	52.8	10.3	9.8
6	0.8	52.0	10.5	9.8
7	0.7	46.2	9.8	9.1
8	0.7	43.2	9.0	8.7
9	0.6	43.1	9.5	8.5
10	0.6	39.3	9.5	8.3
Pop.	0.8	50.3	100.0	100.0

Benefit amounts are computed by dividing total reported child benefits from the FBS by total reported age eligible individuals, then assigning benefits to individual households based on number of age eligible individuals. 3,283 households (full sample).

Table 5: Participation, Incidence, and Benefit Shares for current program, uniform child benefit, and based on the benefit formula (no errors in targeting)

Decile of Per Capita Income	Current Program			Uniform Child Benefit			Benefit Formula		
	Partic.	Inc.	Share	Partic.	Inc.	Share	Partic.	Inc.	Share
1	34.6	42.3	49.6	49.8	9.9	12.1	49.2	40.2	74.0
2	17.7	21.9	21.3	50.4	10.1	11.8	49.1	40.5	24.3
3	7.5	9.4	7.5	55.3	11.2	11.5	23.2	19.4	1.7
4	6.6	8.4	6.0	52.6	11.0	10.6	0.0	0.0	0.0
5	6.0	7.9	6.2	48.3	10.4	10.1	0.0	0.0	0.0
6	2.9	4.0	2.5	46.1	10.3	9.7	0.0	0.0	0.0
7	1.9	2.6	2.6	38.8	8.7	8.4	0.0	0.0	0.0
8	1.1	1.5	1.2	42.6	9.5	9.1	0.0	0.0	0.0
9	1.1	1.5	2.8	40.8	9.5	8.6	0.0	0.0	0.0
10	0.3	0.5	0.4	37.8	9.4	8.2	0.0	0.0	0.0
Pop.	7.4	100.0	100.0	45.9	100.0	100.0	11.1	100.0	100.0

Sample restricted to families with two resident, married adults (and no other resident adults), 1,320 households. Columns 1-3 mimic that of table 2 and columns 4-6 mimic table 4 but for nuclear families only. Columns 7-9 contain participation rates, incidence rates, and benefit shares if the benefit formula of section 2 were implemented exactly with the FBS data.

Table 6: Probability a Household Receives a Child Benefit for Age Eligible Households

	<u>OLS</u>			<u>2SLS</u>	
	1	2	3	4	5
Predicted Benefit	0.0022** (0.000)				
Total Non-Benefit Income [^]		-0.0106** (0.001)	-0.0102** (0.002)	-0.0232** (0.004)	-0.0213** (0.004)
Household Size		-0.0038 (0.009)	-0.0114 (0.009)	0.0185 (0.011)	0.0110 (0.012)
Agr Household		-0.1193** (0.053)	-0.1194** (0.053)	-0.1168** (0.049)	-0.1173** (0.050)
# Age Eligible Children		0.1113** (0.015)	0.1182** (0.015)	0.0971** (0.016)	0.1032** (0.016)
Rural Household	-0.1215* (0.071)	-0.0598 (0.042)	-0.0608 (0.042)	-0.0847** (0.042)	-0.0821* (0.042)
Non-Urban Household	0.0151 (0.021)	0.0126 (0.019)	0.0124 (0.019)	0.0056 (0.020)	0.0064 (0.020)
Receives other Social Benefits			0.0463** (0.021)		0.0283 (0.021)
<i>Head Characteristics</i>					
Spouse Absent	0.0798** (0.039)	0.0551* (0.030)	0.0459 (0.030)	0.0335 (0.031)	0.0307 (0.031)
Age	-0.0185** (0.039)	-0.0122** (0.004)	-0.0119** (0.004)	-0.0108** (0.004)	-0.0108** (0.004)
Age Squared	0.0040* (0.000)	0.0001** (0.000)	0.0001** (0.000)	0.0001* (0.000)	0.0001* (0.000)
Primary School or Less	0.1254** (0.026)	0.1224** (0.028)	0.1185** (0.027)	0.0120 (0.041)	0.0240 (0.042)
Vocational School	0.0865** (0.022)	0.0607** (0.023)	0.0578** (0.023)	-0.0277 (0.033)	-0.0180 (0.033)
High School	-1.8465 (0.016)	-0.0228 (0.018)	-0.0247 (0.018)	-0.0751** (0.025)	-0.0695** (0.024)
N	1320	1797	1797	1797	1797
R2		0.1773	0.1803	0.1409	0.1522

** is significant at 5%. * is significant at 10%. [^] Coefficients and standard errors for total non-benefit income have been multiplied by 100. Standard Errors (in parenthesis) are corrected for heteroskedasticity and clustering. Linear regression of probability of receiving child benefit on listed variables plus a constant and region indicators. Columns 4 and 5 instrument for measurement error in income with an indicator for informal sector work in the household, the number of persons employed in regular employment, the number of persons employed as entrepreneurs, and the number of persons receiving fixed income from sources other than the child benefit.

Figure 1: Child Benefits and Living Standards for Age Eligible Households

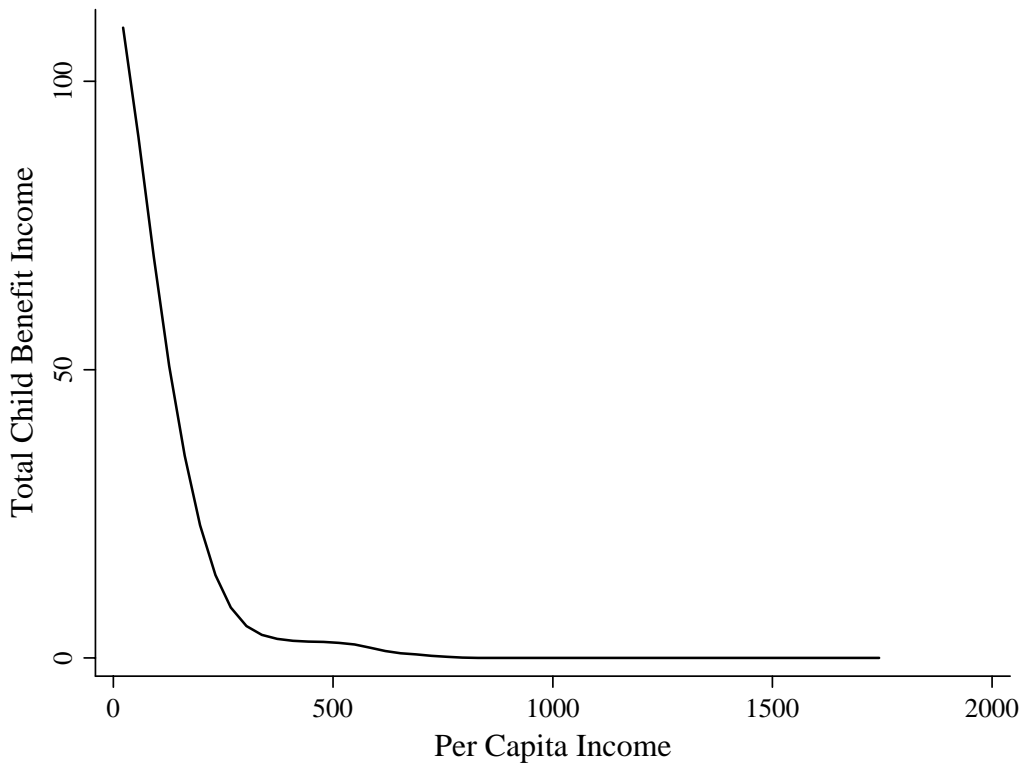


Figure 2: Child Benefits and Living Standards for Income Eligible Households

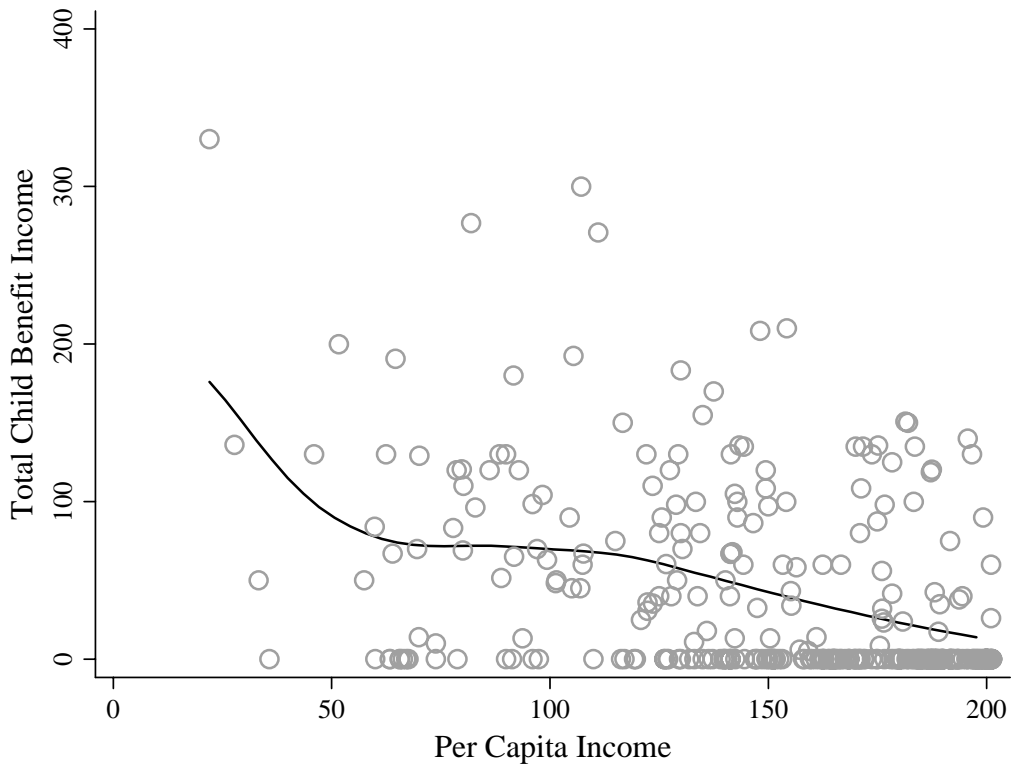


Figure 3: The Child Benefit and the Distribution of Income for Age Eligible Households

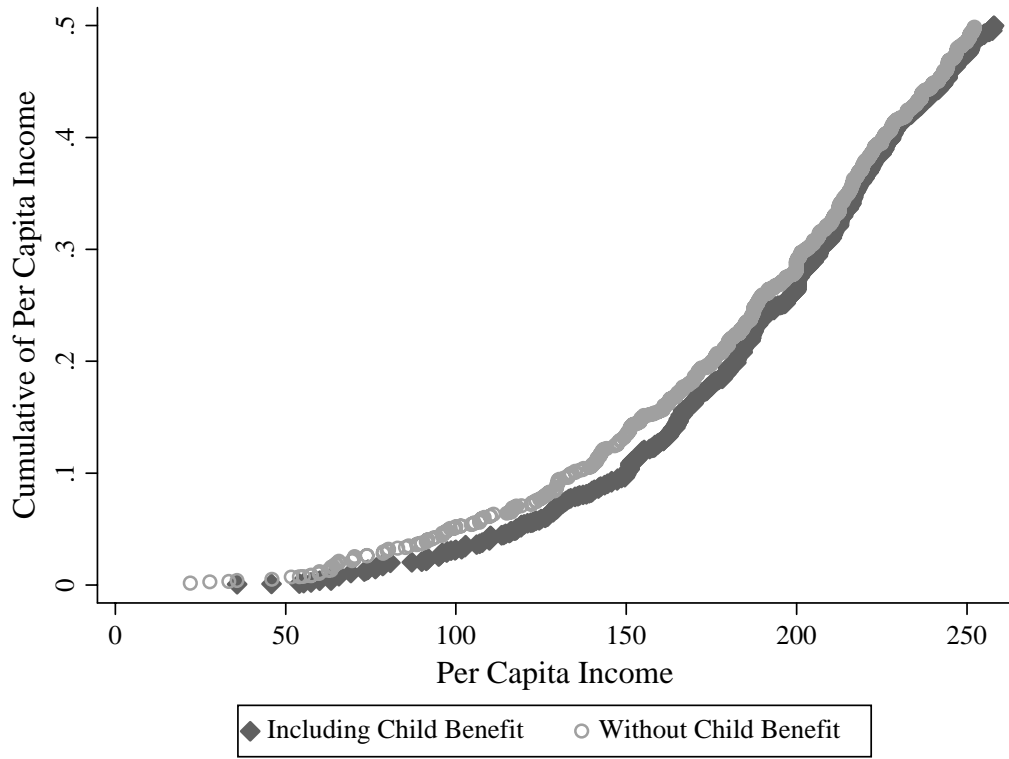


Figure 4: Take-up and Benefit Levels

