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The Impact of Targeted Social Assistance on Labor Market in Georgia[1]

A Regression Discontinuity Approach

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CURRENCY EQUIVALENTS

(Exchange Rate Effective: September, 2014)

Currency Unit	=	Georgian Lari (GEL)
1 GEL	=	0.57465 US$
1 US$	=	1.74020 GEL

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LIST OF ACRONYMS

ECA	Europe and Central Asia
GDP	Gross Domestic Product
GEL	Georgian Lari
HBS	Household Budget Survey
IDP	Internally Displaced Person
LATE	Local Average Treatment Effect
LiTS	Life in Transition Survey
LMMD	Labor Market Micro-level Database
MIP	Medical Insurance for the Poor
MoHLSA	Ministry of Health, Labor and Social Affairs
PER	Public Expenditure Review
PMT	Proxy Means Test
RDD	Regression Discontinuity Design
SAHI Survey	Social Assistance and Health Insurance Survey
SPeeD	Social Protection expenditure & evaluation Database
SSA	Social Services Agency
TFESSD	Trust Fund for Environmentally and Socially Sustainable Development
TSA	Targeted Social Assistance
UDSUF	United Database for Socially Unprotected Families
UNECE	United Nations Economic Commission for Europe
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
USD	US Dollar
WMS	Welfare Measurement Survey

EXECUTIVE SUMMARY

This report examines the impact of social assistance programs on labor force participation in the Republic of Georgia. In particular, it evaluates the 'Targeted Social Assistance' (TSA) program, which provides a monthly subsidy to families below a welfare threshold.

Social assistance programs have a key role to play in protecting households from shocks, ensuring a minimum level of subsistence and facilitating efficient labor market transitions. However, these programs could also unintentionally reduce incentives to work, especially in the formal sector if the income effect is sufficiently large, their design disproportionally taxes work and/or eligibility criteria explicitly or implicitly make working (formally) less attractive. Few rigorous studies exist that establish the causal link between social assistance and labor market outcomes in developing countries.

In the case of Georgia, applicant households are evaluated through a proxy means test to determine eligibility for the TSA program. For this study, a newly designed survey of approximately 2000 households and administrative data were combined with a regression discontinuity design in order to exploit the sharp discontinuities in treatment – defined as being a beneficiary of TSA – around the proxy means score threshold.

Results suggest that the TSA program indeed generates work disincentives around the eligibility threshold, with these disincentives concentrated among women. On average, women who receive TSA are 7 to 11 percentage points less likely to be economically active than women who live in households that do not receive the transfer. This is a very large effect given that the labor participation rate among women in the sample is 60.5 percent. Moreover, the analysis indicates that disincentives effects are larger for younger women, and for women who are married and/or have children. Among men, there is no statistically significant effect. These findings are supported by various robustness and falsification tests.

These findings have important policy implications. First, they highlight the importance of carefully considering potential work disincentive effects of further increases in the generosity of the TSA program, and the potential benefits of considering an expansion of coverage rather than an increase in generosity. A comparable evaluation of the TSA program in 2007 found no work disincentive effects, but the program then was only half as generous as it is today. Second, this report suggests that strengthening the provision of complementary services, such as child and elderly care, can go a long way in reducing the TSA work disincentive effects found among women, since the women that stop working (formally) are young, have young children or are married. In addition, the evidence on potential and reservation wages suggests that improving the access to training and upskilling of women in rural areas can be an important part of the agenda for getting them into work outside of their homes. Finally, the report also points at the potential benefits of combining the social assistance program with more stringent requirements to participate in job search or activation programs, or to make receipt of benefits conditional on training requirements, for either the children in the household, or in the form of life-long-learning, for inactive individuals of working age. Furthermore, these results may be of value to other countries, if they have similar levels of welfare and have adopted, or are planning to adopt, similar social assistance programs.

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This report is part of a larger package of analytical work, which also includes: 1) a general report on inequalities in labor market participation, covering ten countries in Europe and Central Asia; 2) two other case studies on Georgia and Tajikistan; and 3) a series of 9 country-reports based on qualitative research[2], including focus group discussions. The qualitative analysis was financed through country-specific as well as regional World Bank projects, and implemented jointly with María Dávalos, Giorgia Demarchi and Patti Petesch.

[2] The following countries are included in this qualitative work: Bosnia and Herzegovina, Kosovo, Macedonia, Serbia, Georgia, Turkey, Kazakhstan, the Kyrgyz Republic and Tajikistan.

1. INTRODUCTION

Since the transition, Georgia has had poor labor market outcomes, especially among women, youth and older workers. One quarter of all households does not have a single employed individual.[3] Only 55 percent of the adult population aged 15 and over is employed, a decrease from 59 percent in 2001.[4] This is substantially lower than in the best performing European countries. The low employment rate is primarily driven by a high prevalence of unemployment, which stands at 14 percent. Labor force participation, at 64 percent of the adult population, is not exceptionally low overall, but this masks large inequalities between various socio-economic groups.[5] For example, inactivity is much higher among women than among men (the difference in participation rates stands at 14 percentage points)[6], and among youth, aged 15-24, as compared to prime age workers. Almost one fifth (19 percent) of youth are not in employment, nor enrolled in formal education or training, and about three quarters of these are out of the labor force. Similarly, participation is lower among older workers (aged 55-64), and older women in particular often exit the labor force early.

Those who do work often do so in low-productivity, low-paying jobs. For example, the agricultural sector accounts for about half of total employment, and often does not offer a high or steady income year-round.[7] Especially among working women, the agricultural sector dominates – it accounts for 57 percent of female employment.[8] Moreover, 38 percent of working women and 20 percent of working men are family workers, mostly unpaid, and 51 percent of working women (compared to 37 percent of working men) work part-time rather than fulltime.[9]

Social assistance programs can help improve labor market engagement – through, for example, improved household income and protection against shocks. However, such public programs can also create disincentives to work – for instance, by introducing a loss of social assistance income as soon as individuals start working. Hence, social assistance, though meant to support poor and vulnerable households, could also have unintended adverse impacts.

This report examines the impact of a large social assistance program in Georgia, 'Targeted Social Assistance' (TSA), on labor market outcomes. The TSA program provides a monthly subsidy to poor families below a welfare threshold, identified through a proxy-means test. Although any household in Georgia can apply for TSA, only those with low proxy-means test scores – representing low levels of wealth – are granted benefits. The amount transferred to a family depends on the number of household members, and consists of a base benefit (60 GEL currently; 30 GEL at the time of data collection) and a top-up benefit per additional household member beyond the head of the household (48 GEL currently, 24 GEL at the time of data collection).

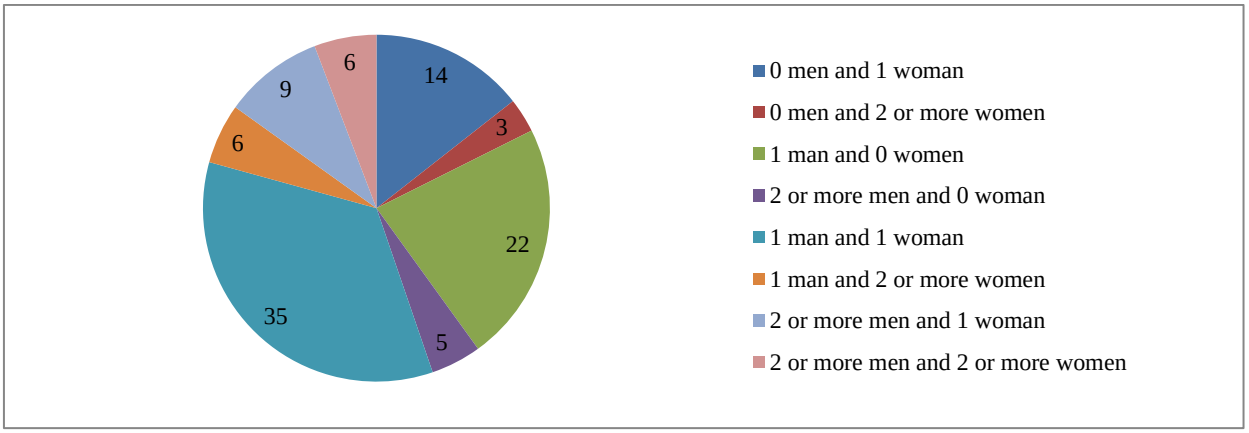
Studying Georgia's TSA program is relevant for a number of reasons. First, the TSA program has a good coverage of the poor when compared to other countries in Europe and Central Asia (ECA), and is well-targeted. Second, recent changes in generosity allow for insights into the links between generosity

[3] HBS, 2009.
[4] World Bank, World Development Indicators.
[5] World Bank, World Development Indicators.
[6] HBS, 2009.
[7] Rutkowski, 2012.
[8] World Bank, World Development Indicators.
[9] World Bank, World Development Indicators.

and work disincentives, as the results obtained here can be compared with an evaluation conducted in 2007, when the TSA program was less generous than it is now. In this previous study, no disincentive effects were found. Third, as mentioned above, Georgia is a country where labor market outcomes remain poor, and where understanding the complex reasons behind low participation or high unemployment for different sub-population groups is of utmost importance. Finally, the design of the TSA program makes it amenable to quasi-experimental evaluation, an opportunity to generate rigorous evidence on the impacts of social assistance on work incentives.

There is reason to believe that Georgia's TSA program may be generating disincentives to work. When asked whether a negative income shock would make one or more household members to start looking for work, about half of all TSA recipients sampled for this study responds positively.[10] Among non-recipients that are close to the eligibility threshold, responses are similar at 49 percent. Among TSA beneficiaries, 17 percent of households responding positively to this question state that one or more women, but no men, in the household would start looking for jobs; 27 percent state that one or more men, but no women, would start looking for jobs, and 56 percent of households state that both men and women would look for jobs in this scenario (Figure 1). Even when asked directly whether at least one household member would *stop* working if the household would start receiving TSA, 6 percent of TSA non-recipient households responds positively.

FIGURE 1: WHO WOULD START LOOKING FOR WORK IF THE HOUSEHOLD LOST 20 PERCENT OF ITS INCOME?
TSA RECIPIENT HOUSEHOLDS WHO INDICATE THAT AT LEAST ONE INDIVIDUAL WOULD SEARCH FOR WORK (%)



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Sample restricted to households receiving TSA, who state that at least one person would start looking for work if the household lost 20 percent of its monthly income.

This report uses of a regression discontinuity design, a new household survey and administrative data to identify the causal effect of the TSA program on labor force participation in Georgia. Due to its design features, the TSA program provides a unique opportunity to apply a regression discontinuity analysis to measure the causal impact of social assistance on labor market outcomes by only focusing on households of very similar socio-economic status.

[10] When asked: "Would currently jobless household members start working / try to find work if the household lost 20% of its monthly income", 48 percent of TSA recipient households states that this would indeed be the case. 20 percent is the typical share that TSA benefits represent of household income in Georgia.

This report contributes not only to the existing literature, but also provides suggestions for future policy-design related to the TSA program in Georgia. First, our findings contribute to the existing literature in two main ways: (i) we investigate, in a rigorous manner, the causal link between social assistance and labor force participation in the context of a developing country, where relatively little rigorous evidence exists; and (ii) we disentangle some of the potential channels through which the effects found may come about, by quantifying the impacts of the program among different demographic, educational and socio-economic groups. Second, the findings presented here can inform future policy design in Georgia regarding the TSA program and related labor market policies. Third, our findings are relevant to countries similar to Georgia that are in the process of expanding their social assistance programs, or of designing new programs.

This study shows that Georgia's TSA program does generate disincentives to search for jobs or work around the threshold of eligibility, with this effect being concentrated among women. On average, the program reduces labor force participation by 7 to 11 percentage points among women. This is a very large effect given that the participation rate among women in the sample is 60.5 percent. Among men, there is no statistically significant effect. The disincentive effects are concentrated among a sub-group of women who are relatively young (15-29) and women who are married and/or have children. We hypothesize that difficulties in accessing formal or informal child care and the lack of other complementary services, together with social norms, help explain these results. In addition, the evidence on potential and reservation wages suggests that improving the access to training and upskilling of women in rural areas can be an important part of the agenda for getting them into work outside of their homes. It should be noted that these results are relevant for households that are concentrated around the eligibility threshold for receiving the TSA benefit.

This report is structured as follows: Section 2 discusses the existing literature and provides a more detailed overview of the TSA program. Section 3 describes the sampling frame, the sampling method and the data used. Section 4 explains the empirical approach of the study. Section 5 elaborates on the main results. Section 6 concludes with a discussion on policy implications.

2. BACKGROUND

2.1 REVIEW OF EXISTING LITERATURE

Evidence from developing countries, although limited, suggests a negligible impact of social assistance transfers on labor supply among working age individuals, both male and female, associated with the fact that often, transfers in these countries are not very generous. For example, an evaluation of the PROGRESA program in Mexico shows that, although there is a significant poverty reduction effect, the program does not bring about significant disincentives to work for men or women (Skoufias & Di Maro, 2008). This is confirmed by findings from a micro-simulation study that tests the potential impact of cancelling the benefit as well as doubling its generosity (Freije et al., 2006). Adato & Hoddinott (2008) discuss the case of South Africa, where cash transfers have in fact been found to increase labor force participation, possibly because financial resources are needed for job search. In the case of Bolsa Familia in Brazil, the existing evidence also suggests no disincentives to work.[11] In Europe and Central Asia, evidence from Armenia provides similar results (World Bank, 2011). Using a regression discontinuity design, Armenia's Family Benefit Program was found to have no effects on labor force

[11] Medeiros, Britto, and Soares, 2008; Soares, Ribas, and Osorio, 2010; Soares, 2012.

participation or work. For rural workers, a slight negative impact on hours worked was found. In fact, very few studies have found a negative impact of social assistance on labor supply, mostly specifically on the decision to work in the formal sector.[12]

Studies conducted in OECD countries, on the other hand, find that exceptionally generous government transfers can generate disincentives to work.[13] In particular, if the size of the benefits starts to approach the level of market wages for low-paying jobs, there is an increased probability of disincentive effects.[14] The evidence from the United States, moreover, suggests that rather than cutting back on the number of hours worked, social assistance beneficiaries may decide not to participate in the labor force altogether when benefits are sufficiently generous.[15]

Georgia is an interesting case for analyzing work disincentives arising from social assistance. Less than half of all working age individuals work formally or informally in Georgia: employment rates among the working-age population are 49 percent among men (age group 15-64) and 42 percent among women (age group 15-59).[16] In addition, its TSA program is relatively large: it covers 12 percent of the Georgian population and about two fifth of all individuals in the poorest quintile.[17] As of 2012, the average beneficiary household received 78 GEL per month (US$47)[18], or 26 percent of post-transfer household consumption; this was 45 percent among the poorest quintile. As such, the program is relatively generous, especially in comparison to the income of the poorest households, and may, therefore, give rise to disincentives to participate in the labor market.

A previous study on the labor market effect of Georgia's TSA program, using data from 2007, did not reveal any disincentives to participate on the labor market.[19] As part of the 2007 Living Standards Measurement Survey in Georgia, an extra 2000 households were interviewed. These households were all clustered around the proxy-means test (PMT) score that forms the threshold for receiving TSA benefits. At the time, this threshold was set at 52000 points, on a scale with a total range of 0-200,000 measuring household welfare.[20] The sampled households had scores ranging from 50,700 to 53,000. After testing for similarity in terms of basic demographic characteristics – such as age, gender and education level, a regression discontinuity approach was used to determine that receiving TSA, at the time, did not lead to a lower chance of being economically active. However, the analysis did not include models to test for effects among men and women separately. In addition, separate models were tested for the effect on employment – i.e. having worked in the reference week – and for "looking for work", rather than testing for labor force participation as a whole. As mentioned above, the generosity of the program has since increased and the program has been expanded through an increase in the PMT threshold score that defines eligibility (changes effective in 2009). As such, a causal analysis on the impact of TSA, with these new design features, on labor supply decisions in Georgia is warranted. Moreover, the analysis presented in the current paper includes not only evidence on labor market disincentives, but also on the most likely channels through which these could come about.

[12] Gasparini, Haimovich, and Olivieri 2007; Mason 2007.

[13] Barr et al., 2010; Eissa and Liebman, 1996; Eissa and Hoynes, 2005; Eissa et al., 2004; Lemieux and Milligan, 2008; Meyer and Rosenbaum, 2001.

[14] Adema, 2006; Schneider and Uhlendorff, 2005.

[15] Eissa and Liebman, 1996; Meyer and Rosenbaum, 2001; Eissa and Hoynes, 2005; Eissa et al., 2004.

[16] HBS 2009.

[17] 39 percent of the Georgian population applies to the SSA database (World Bank, 2012).

[18] One Georgian Lari (GEL) was equivalent to approximately $0.60 USD at the time of data collection.

[19] World Bank, 2012.

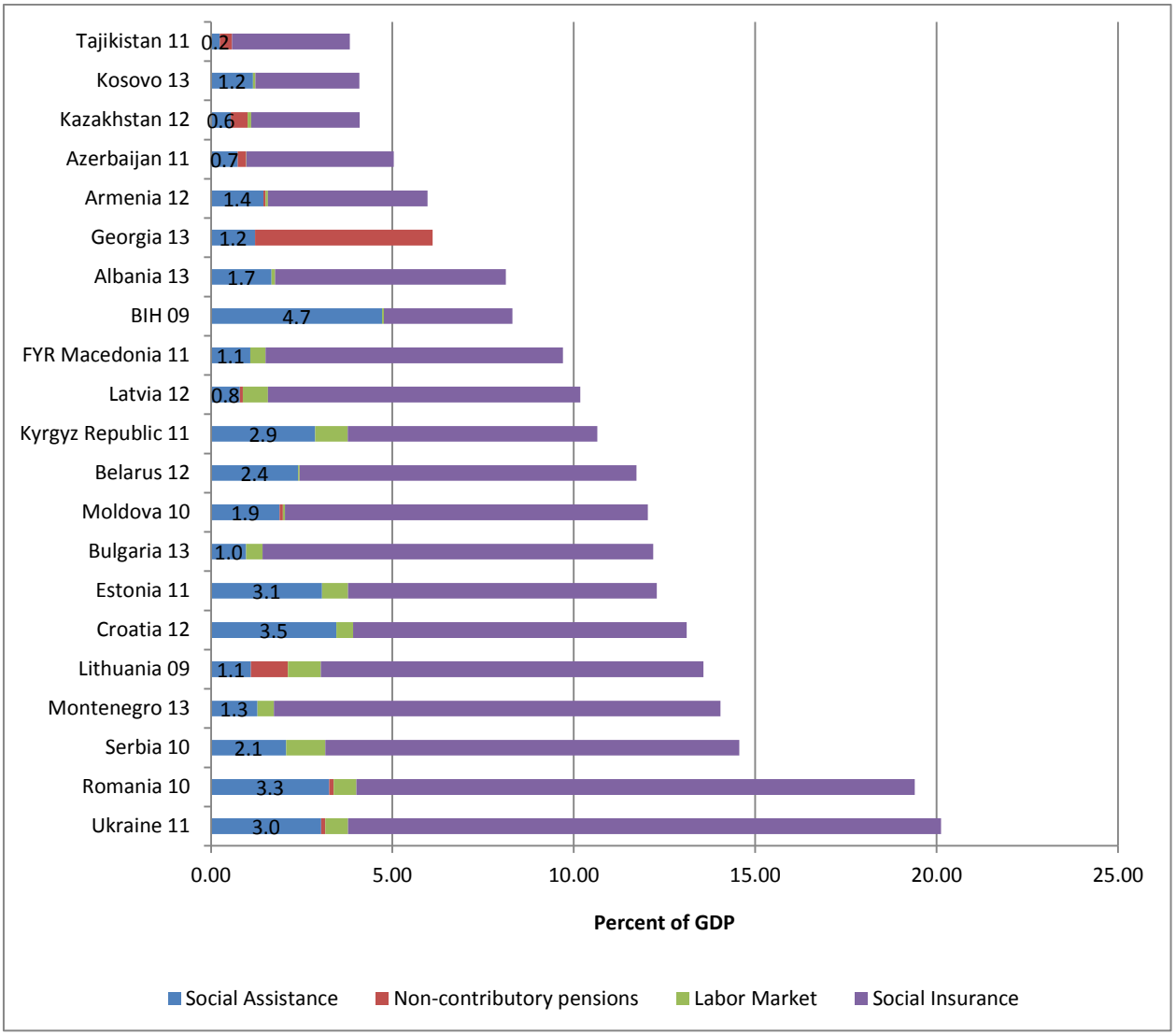
[20] Box 1 explores the scoring method in more detail. In Figure 4, an estimate of income levels within various score ranges is provided.

2.2 GEORGIA'S 'TARGETED SOCIAL ASSISTANCE' PROGRAM

2.2.1. AN OVERVIEW OF SOCIAL PROTECTION IN GEORGIA

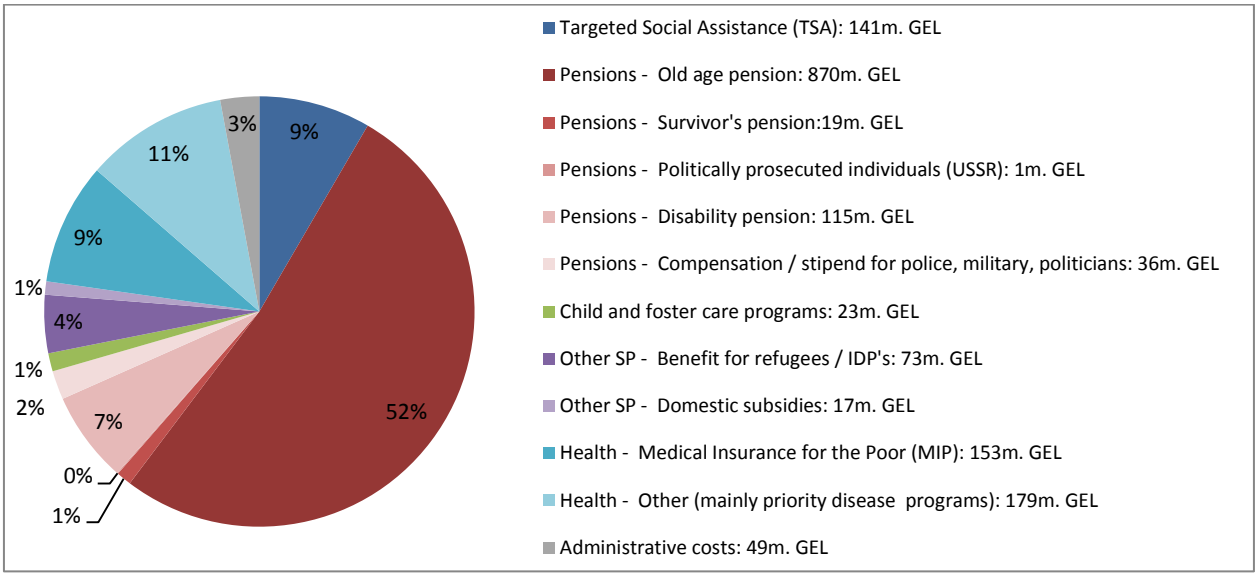
Georgia has a wide range of social protection programs, encompassing the TSA, pensions, child and foster care programs. In 2012, government expenditure earmarked for social protection amounted to approximately 1.8 billion GEL. This is slightly below 7 percent of Georgia's Gross Domestic Product (GDP), or close to 30 percent of overall government expenditure. The majority of this budget goes to non-contributory pensions (4 percent of GDP, and over half of total spending earmarked for social protection), whereas a much smaller share is allocated to social assistance programs (1.1 percent of GDP). In total, the TSA program encompassed about 9 percent of Georgia's social protection budget in 2012. Figure 2 presents an overview of budget allocation towards social protection in Georgia and other countries in the region. Figure 3 breaks down Georgia's social protection budget into the various programs administered.

FIGURE 2: SOCIAL PROTECTION SPENDING IN ECA (PERCENT OF GDP): LATEST YEAR AVAILABLE



Source: ECA SPeeD.

FIGURE 3: SOCIAL PROTECTION EXPENDITURE (PERCENT OF TOTAL), 2012



Source: World Bank, forthcoming.
Notes: Pensions for politically prosecuted individuals are paid out to those who are recognized to have suffered political repression during Soviet rule. The 'Benefit for refugees / Internally Displaced Persons (IDPs)' refers to a social transfer for those that fled Abkhazia and South Ossetia in the early 1990s and in 2008 after the Russian invasion.

2.2.2. THE TSA PROGRAM

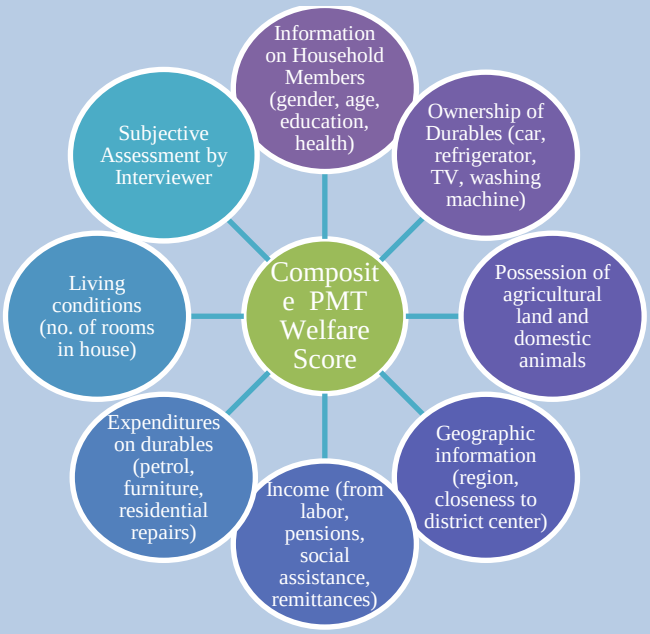
The TSA program was launched in 2006, in an effort to provide financial assistance to the poorest families of Georgia. Beneficiaries are identified through a proxy-means test that measures household welfare through a large set of welfare indicators (Box 1). The program is administered by the Social Services Agency (SSA), which maintains a live database containing key information on all applicant households. This is referred to as the United Database for Socially Unprotected Families (UDSUF). The SSA is part of the Ministry of Health, Labor and Social Affairs (MoHLSA). Applicants can register on a continuous basis, and are recertified at least every 4 years[21]. Although any household in Georgia can apply for TSA, only those with low proxy-means test scores – representing low levels of wealth – are granted benefits (Figure 5). For TSA, the PMT threshold score is set at 57,000 points. Households scoring below 57,000 earn approximately 42 GEL per month per capita when adjusted for adult equivalent units.[22] In total, the UDSUF database contains scores ranging from 0-200,000. As of January 2013, 39 percent of the Georgian population is registered in this database.[23] Households that receive TSA also receive state-financed medical insurance coverage through a program called "Medical Insurance for the Poor" (MIP). For MIP, the eligibility threshold is slightly higher than for TSA, meaning that more households qualify for MIP than for TSA.

[21] In some cases, recertification occurs sooner: for example, if the household appeals the first evaluation of its PMT score, if the address of the household changes, or if there is a change in household composition.
[22] The definition of 'adult equivalence' is identical to the definition used by the Georgian Department of Statistics, as reported in UNICEF (2012).
[23] Authors' calculations, based on administrative data.

BOX 1: GEORGIA'S MEANS-TESTING METHODOLOGY

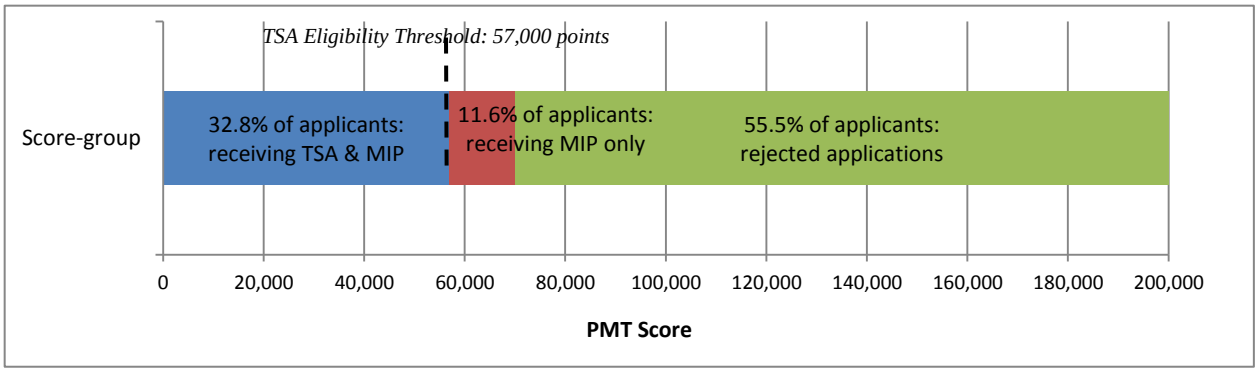
Eligibility for TSA is determined by a proxy means test (PMT) that is administered by the SSA to any household that applies. The test is based on a complex scoring formula that yields a composite score based on over 100 household welfare indicators that include economic, demographic, and regional measures (Figure 4). The overall score also takes into account a subjective assessment of the household's welfare, conducted by a government representative.

FIGURE 4: INDICATORS INCLUDED IN COMPOSITE PMT WELFARE SCORE



Source: Ministry of Labor, Health and Social Affairs of Georgia, 2012.

FIGURE 5: SCHEMATIC OVERVIEW OF PMT SCORE-GROUPS



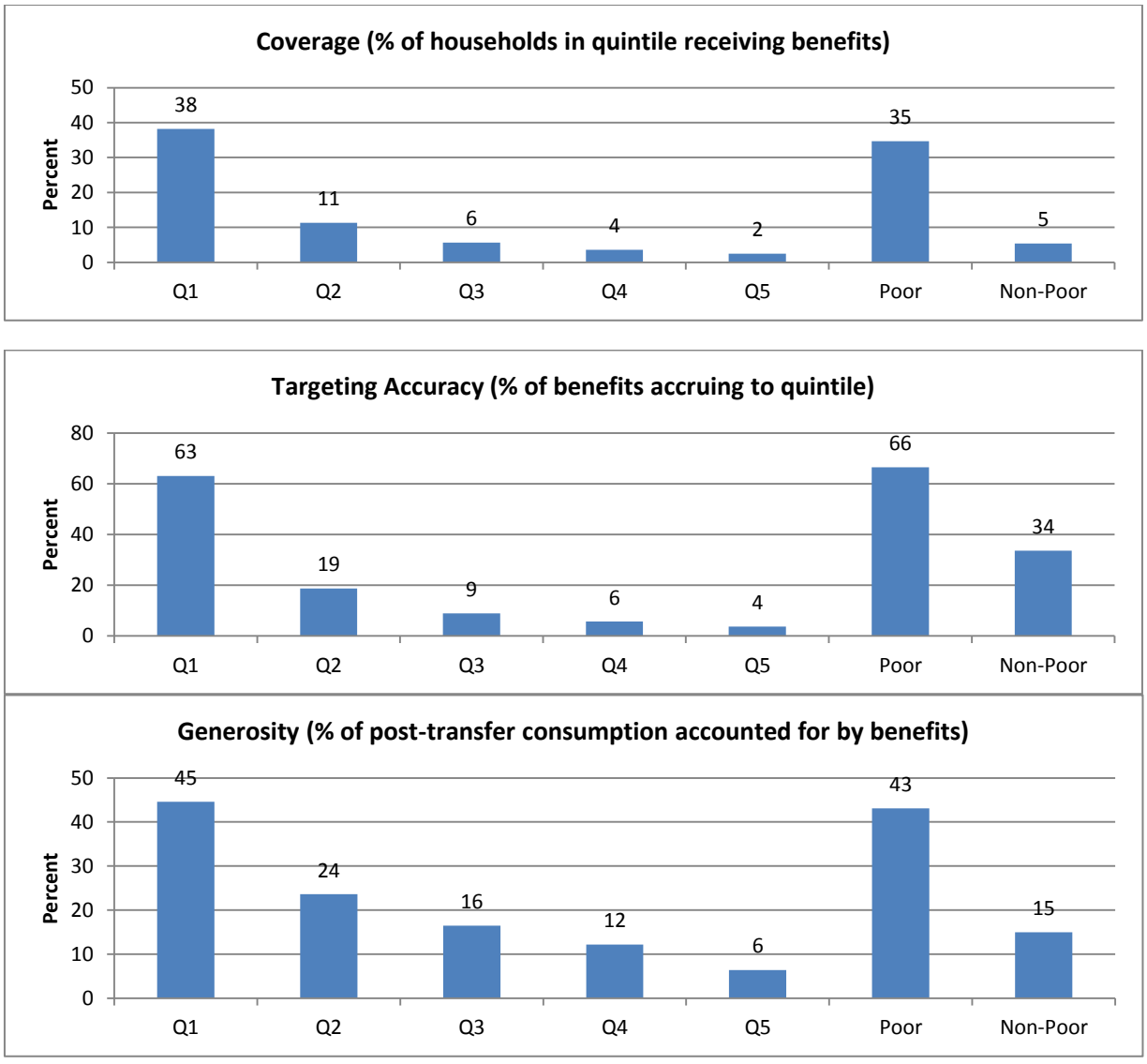
Average Monthly Adult Equivalent per Capita Income level, by score-group:

0 - 57 000	57 001 - 70 000	70 001 - 100 000	100 000 - 200 000
42 GEL / month	97 GEL / month	107 GEL / month	148 GEL / month

Source: Authors' calculations, based on UDSUF Database, Nov. 2012 and WMS, 2011 (income per capita).
Notes: Income of TSA beneficiary households is adjusted by deducting the amount received from the TSA program.

The TSA could still expand in terms of coverage, but performs well in terms of targeting accuracy and generosity. As of 2011, TSA covered 12 percent of the Georgian population (450,000 individuals), and 38 percent of the poorest quintile (figure 6). While two thirds of the poorest Georgian households are still not covered by the TSA program, the data on targeting accuracy shows that this is due to the program size rather than to a lack of accuracy: close to two thirds of benefits accrue to households in the poorest quintile, which is high in comparison to other countries in the region. At the same time, the TSA is a relatively generous program: for each household, benefits in 2011 consisted of a core sum of 30 GEL per month (US$18), complemented by a benefit of 24 GEL per month ($14 USD) per additional family member. The average family received 78 GEL per month (US$ 47), which made up 26 percent of post-transfer household consumption (45 percent among the poorest quintile). Average spending per individual beneficiary was around GEL 29, compared to GEL 20 in 2008. In 2013, after data collection for this study, benefits were doubled, to a core payment of 60 GEL per month and additional payments of 48 GEL per family member (Table 1). Figure 7 shows how government spending on the programs has evolved in recent years.

FIGURE 6: TSA – COVERAGE, TARGETING ACCURACY AND GENEROSITY, 2011



Source: World Bank, ECA SPeeD, based on WMS, 2011.

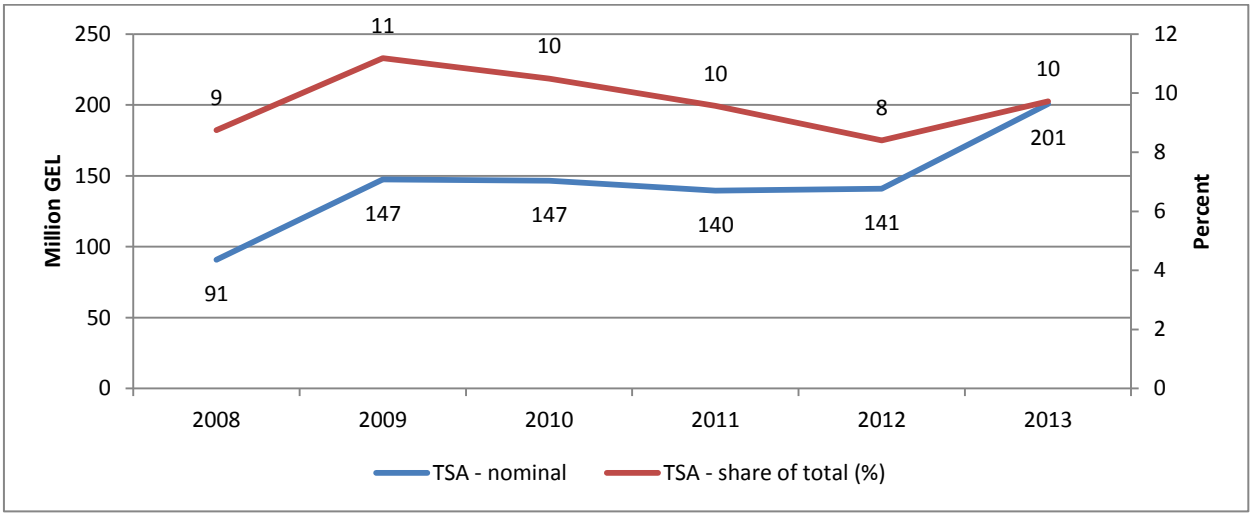
Notes: 23.3 percent of the Georgian population falls below the poverty line. Average annual consumption among the poor is 502.7 GEL per capita, versus 2129.8 GEL among the non-poor. Income quintiles are constructed on the basis of pre-transfer income.

TABLE 1: RECENT CHANGES IN TSA PROGRAM DESIGN, 2009-2013

	2009	2010	2011	2012	2013
TSA Program					
Targeting	Threshold increased from 52,000 to 57,000	Certain assets excluded from scoring formula; more say for communities			
Generosity	Benefit for additional family members: increased from 12 to 24 GEL				Base benefit: increased from 30 to 60 GEL; Benefit for additional family members: increased from 24 to 48 GEL
Other changes		SSA started cross-referencing databases			

Source: World Bank, 2012; World Bank, forthcoming.

FIGURE 7: GOVERNMENT EXPENDITURE ON TSA, 2008-2013



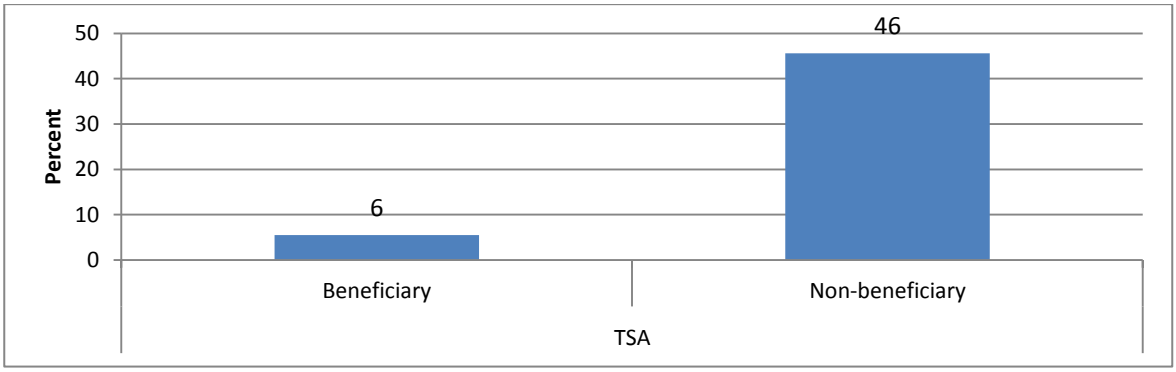
Source: World Bank, forthcoming.
Notes: Expenditure for both programs is displayed in nominal values, and as percentages of total social protection expenditure for each year.

2.2.3. EVALUATION OF TSA: SATISFACTION WITH PROGRAM IMPLEMENTATION AND EFFECTIVENESS

Previous studies have identified possible causes for the TSA coverage gap among the poor. According to a report published by UNICEF and USAID (2011), many of those in the poorest quintile have heard of the UDSUF database, but still did not apply. Some of these individuals have negative attitudes to the application system, and some are unaware of the procedures that must be followed. Particular barriers faced by this group include lacking documention, language barriers, the distance from the dwelling to the regional office, and a lack of permanent residence status. Three quarters of non-applicants stated that they did not know how to apply for the database.

Non-beneficiaries of TSA but who are close to the threshold of eligibility often evaluate the application process for TSA to be unfair, whereas only very few beneficiaries of TSA say the same (Figure 8). The most commonly cited reason for perceived unfairness is that the eligibility criteria are thought to be an inadequate measure for who really needs assistance. The second most cited reason is that officials do not adhere to the eligibility criteria. It should be noted that these results, though informative, may be biased due to the subjective standpoint of applicant households who were not granted the TSA benefit.

FIGURE 8: SHARE OF RESPONDENTS EVALUATING THE APPLICATION PROCESS AS 'UNFAIR'



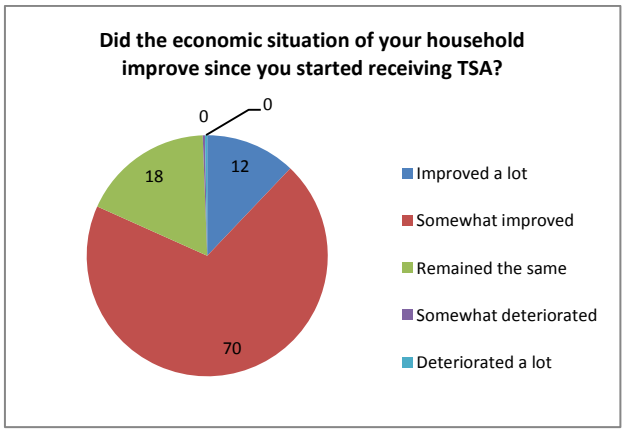
Why do you believe the application process was unfair?

	Beneficiary	Non-beneficiary
Eligibility criteria are inadequate	45	56
Application process is too complex for many	18	5
Officials don't adhere to eligibility criteria	36	38
Officials often accept side payments	2	1
Total	100	100

Source: Authors' calculations, based on SAHI survey, 2012-2013.
Notes: Only one respondent per household was randomly selected to answer this question.

For beneficiary households, TSA is contributing to household welfare. 82 percent of households report that their economic situation improved when they started receiving TSA (Figure 12). The two most commonly cited reasons for improvement are that the TSA helps cover household expenses and that the TSA provides stable and predictable source of income. At the same time, only 3 percent of recipient households argue that the TSA provides "enough support" to cover basic expenses.

FIGURE 9: TSA EVALUATION BY RECIPIENT HOUSEHOLDS



Source: Authors' calculations, based on SAHI Survey, 2012-2013.

There does not seem to be a social stigma associated to receiving social assistance in Georgia. According to data from the Life in Transition Survey (LiTS), people in Georgia mostly believe that poverty is to be attributed to "injustice in society" or to "being unlucky" (59 percent of respondents), whereas only a very small share links poverty to "laziness and lack of willpower" (less than 9 percent). Indeed, data from 2009 suggest that among households receiving TSA, a substantial share of those who could be expected to work actually did have jobs at the time: among the 55 percent of TSA recipients who were of working age in 2009, approximately one third was working, and another quarter was looking for a job. Approximately one sixth was not working because of family or household duties, or because they were discouraged to enter the labor market. The remainder of working age individuals was inactive for other reasons, including studies, illness, disability, and being a pensioner.[24] Among TSA beneficiaries of all age groups, those who were inactive because they were either discouraged or did not want to work, only constituted about 5 percent of the total.

Results from the survey administered for this particular study generally confirm these findings (Table 2). A vast majority agrees that social benefits are an effective tool to reduce poverty levels in Georgia. By contrast, only about one third of non-TSA recipients agree that only those in need receive benefits. Although more than half of all respondents acknowledge that social benefits lead to a more equal society, over three quarters contend that in the case of Georgia, benefits are too small. Adverse effects of social benefits, such as making people less willing to look after themselves and their family, and permitting laziness and a lack of motivation to work, are only acknowledged by few.

TABLE 2: SHARE OF SUBJECTS EXPRESSING AGREEMENT WITH VARIOUS STATEMENTS ON SOCIAL BENEFITS IN GEORGIA

	Beneficiary	Non-beneficiary
Social benefits are effective tools to reduce poverty levels in Georgia	74	66
Benefits in Georgia are provided only to those people who really need them	62	35
Social benefits are too small to provide effective help for the population	84	81
Social benefits lead to a more equal society	64	50
Social benefits cost businesses too much in taxes or charges	39	35
Social benefits make people less willing to look after themselves and their family	10	20
In Georgia, people receiving pensions / living in a household with pension	10	12

[24]UNICEF WMS, 2009 in World Bank, 2012.

recipients are not motivated to work		
In Georgia, people receiving social assistance are not motivated to work	7	13
In Georgia, people who receive pensions are lazy	7	9
In Georgia, people who receive social assistance are lazy	8	11
Older people get more than their fair share from the government	5	7

Source: Authors' calculations, based on SAHI survey, 2012-2013.
Notes: Only one respondent per household was randomly selected to answer this question.

3. SAMPLING FRAME, SAMPLING AND DATA

The main analysis uses a regression discontinuity design (RDD) to examine the causal impact of the TSA program on labor force participation among households that are close to the eligibility threshold. This section provides detailed information on the sampling method used and the data that was collected.

3.1 SAMPLING FRAME AND SAMPLING

A newly designed survey – henceforth referred to as "the Georgian Social Assistance and Health Insurance (SAHI) Survey" was administered to a carefully selected random sample of 4006 households, concentrated around two score thresholds: one for TSA and one for the MIP program. For the current study, a subsample of 2002 households, concentrated around the TSA threshold, was used. The UDSUF database of the SSA as of August 2012, described in more detail in Section 2.2, was used as the sampling frame. This database includes basic demographic information as well as the exact PMT score received by each applicant household. The sample is representative of Georgian households registered in the UDSUF database around the threshold score at the national, regional and urban/rural levels.

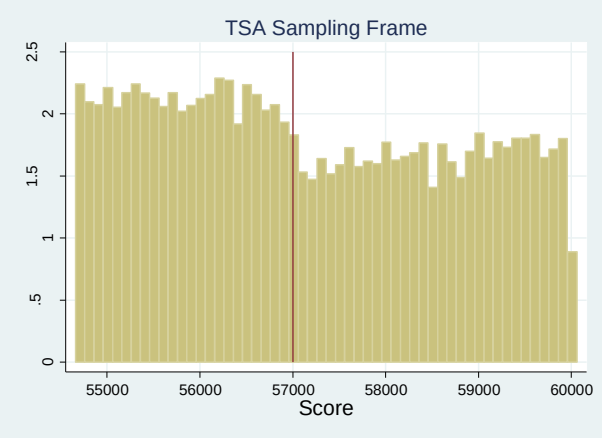
The sampling frame was restricted to only include households with scores deviating from the threshold by a maximum of 3000 points.[25] This means that the sampling frame covers households that, as of August 2012, fell between 54,000 points and 60,000 points (57,000 points is the eligibility threshold). If below the threshold, the household qualifies to receive TSA benefits. As of August 2012, 5.6 percent of all applicant households included in the UDSUF database had obtained a score within this bandwidth.

Among this group, the selection of the final sampling frame was subject to certain conditions to ensure comparability and data quality, leading to a further reduction in the number of included households by 21.1 percent. First, those households that had not been re-scored by the SSA since 2010 were excluded, to ensure up-to-date information on households' overall welfare status. Within the selected score range, 13.5 percent of households were excluded from the sampling frame for this reason. Second,

[25] The overall score range runs from 0 to approximately 200,000. A bandwidth of 3000 points was chosen because, on the one hand, it included enough households to draw a random sample with enough power to predict relatively small effects accurately, and on the other hand, it represents a range of scores that is still narrow enough to only include a relatively homogenous group of households. In order for the treatment and the control groups in the sample to be proportional to the final sampling frame, the original score range of ± 3,000 points was slightly adjusted. The adjusted score range includes scores 54,660-60,000. The bandwidth of 3000 was also that used in the earlier study of TSA in Georgia.

households that were included in the database on or after January 1st, 2012 were excluded from the sampling frame, to ensure that the registration process for all households in the sample had been completed at the time of data collection and to allow time for program impact. Among the selected score range, 8.8 percent of households were excluded from the sampling frame for this reason. Third, eligible households who did not receive benefits as of October 2012 – shortly before fieldwork – were excluded from the sampling frame, and households who were not eligible but did receive assistance were also excluded. This was done to ensure that only households with up-to-date administrative records were included in the sample. Among the selected score ranges, 4.2 percent of households were excluded from the sampling frame for this reason. Lastly, households were excluded if they were eligible for TSA at the time of data collection, but had a previous score that was higher than 80,000 points. This was done because such extreme reductions in scores could reflect erroneous records. Among the selected score ranges, 4.6 percent of households were excluded from the sampling frame for this reason. In the UDSUF database as of October 2012, therefore, 4.4 percent of the applicant households fell within the sampled score range *and* met these conditions. A distribution of this final sampling frame is shown in Figure 10.

FIGURE 10: SAMPLING FRAME: DENSITIES AROUND THE CUTOFF SCORE



Source: Authors' calculations, based on UDSUF database, 2013.
Notes: Binsize: 100 points.

As can be seen in Figure 10, there is some "bunching" of households just below the TSA threshold in the sampling frame. In the early years of the program, scores were smoothly distributed. However, two recent changes have resulted in bunching below the threshold: first, since 2011, households were given the opportunity to appeal if their initial score did not fall below the 57,000 threshold. The households filing for appeal were rescored, and some of them did receive a new score below 57,000. In the final sample, we introduce extra robustness tests in our models to eliminate any remaining bias as a result of this appeal process. Second, in 2011, the SSA started to cross-reference its own database with other sources that contained information on the welfare of specific households. It was found that some households reported to possess more assets in these other databases. Hence, the PMT scores of these households were likely to be biased downwards, and they were taken out of the UDSUF database and disqualified from receiving benefits. This could explain a decrease in the number of households just to the right of the PMT score. Even without robustness tests, our results would remain valid because households do not have precise control over their PMT scores. Even if they can attempt to push their score down, they cannot ascertain that this will result in a score below the threshold. For a regression discontinuity design, the identifying assumption is that subjects do not have precise control over their scores. This requirement is met, as explained in Section 4.

The sampling design controls for observable as well as unobservable community-level characteristics that may impact the results of interest. In particular, and following the sampling design used in Bauhoff et al. (2010), 6-household clusters were selected within each stratum based on probability proportional to size. The sample was pre-stratified for urban and rural areas. Clustering adds value to an RDD design as it allows researchers to control for unobserved characteristics associated with households' geographic location. In this study, clusters generally include a mixture of applicant- and non-applicant households, so that observable and unmeasured community-level characteristics that may have an impact on the investigated outcomes are controlled for. Proportions of beneficiary and non-beneficiary households and total cluster size vary somewhat due to non-response. We sampled with replacement. The results presented in this report are adjusted for this specific sampling design.

The final sample is comprised of 2,002 households and 6,575 individuals. This is 10 percent of the final sampling frame. Table 3 provides a breakdown of the sample by treatment status.[26] Annex 1 provides an overview of the regional composition of the two sample groups, each broken down into their treatment and control – "beneficiary" and "non-beneficiary" households. Interviews were conducted between mid-December 2012 and mid-March 2013.

TABLE 3: SAMPLE COMPOSITION

	TSA
Number of Households: Beneficiaries	1001
Number of Households: Non-beneficiaries	1001
Total number of individuals	6575
Total number of working age individuals	3904

Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Working age individuals cover age groups 15-64 for men and 15-59 for women.

3.2 THE DATA

The response rate was 79 percent, equally distributed among beneficiaries and non-beneficiaries. Among the 2,002 households, 1,580 were part of the original sampling frame, whereas the remaining 422 households (21 percent) were chosen from a "reserve" sample that was constructed to replace households in the original sampling frame which could not, or refused to, be interviewed. Reasons for non-response were similar among beneficiaries and non-beneficiaries. In approximately half of all non-response cases, nobody was at home or the dwelling was not found.[27] Only 1 percent of the original sample (4.75 percent of non-response cases) refused to participate in the survey.

[26] The chosen sample size was based on power calculations designed to identify, at the 5 percent level of significance, a five percentage point effect on average labor force participation of the TSA program. This effect size was determined based on the outcomes typically found in similar studies, as well as in previous work in Georgia itself. The recommended sample size resulting from these power calculations was 1454 households around the TSA cutoff. The actual sample was about 25% larger than this.

[27] Annex 2 presents an overview of reasons for non-response among these 21%. Apart from small variations in regional composition and household size, there are no systematic differences between the non-response cases and the rest of the sample. Differences in household size mainly reflect a higher non-response rate among single-individual households. This is most likely the result of a higher statistical likelihood of missing a one-person household, as compared to missing any member of a household consisting of several individuals. Indeed, household size is similar

Surveyed households were asked to provide information on a range of topics. The survey covers basic demographic information (such as gender, age, ethnic background and marital status), information on educational background, information on employment status, type of employment, wages earned, and employment history, and information on household welfare, consumption and housing conditions. A short, self-reported evaluation of the TSA program (among beneficiaries) and self-reported behavioral responses to being granted TSA (among the control group) is also included. A sub-sample was asked to respond to a number of questions on values and trust.

As expected, the TSA sample is more rural, poorer and less educated than the average Georgian individual. Table 4 illustrates that even the demographic outlook of the sample differs from that of the general population: there are less working age individuals in the TSA sample as compared to the population average. Similarly, the sample is predominantly made up of rural residents, whereas in the general population, a slight majority is urban. Education levels are also lower in our sample: in particular, a much larger share of our sample has only completed primary education as compared to the general population, and fewer individuals have completed tertiary education. Similarly, Table 5 illustrates that on average, a household in the sample has only 59.5 percent the amount of income of an average Georgian household, after adjusting for household size and composition, and without taking the TSA benefit into account.

TABLE 4: BASIC CHARACTERISTICS OF THE SAHI SAMPLE COMPARED TO GEORGIAN POPULATION

	TSA	Georgian Population
% Women	53.8	52.9 [A]
% Children (0-15)	18.5	17.3 [A]
% Working Age [B]	59.5	65.8 [A]
% Retirement Age [B]	22.2	16.9 [A]
% Rural	62.8	47.3 [C]
% Compl. Primary Education	22.5	6.9 [D]
% Compl. Secondary Education	66.8	60.3 [D]
% Compl. Tertiary Education	10.0	29.5 [D]
Average Household Size	4.4	4.6 [D]
Average no. of Children	1.2	1.1 [D]

Source: Authors' calculations, based on SAHI Survey, 2012-2013 (TSA.
Notes: [A] United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, DVD Edition. 2010 data. [B] The working age is defined as 15-59 for women and 15-64 for men. [C] World Bank, World Development Indicators, 2010. [D] HBS, 2009. Estimates refer to the share of the adult population aged 25+ that has, as their highest level of education, completed each of the mentioned education levels.

TABLE 5: INCOME & ASSETS IN THE SAHI SAMPLE, BY URBAN / RURAL LOCATION

	Urban	Rural	Total
Average AE per Capita Income, GEL per month *(Total population: 160.8)*	154.6** (5.2)	122.9** (3.8)	135.4 (3.2)
Median AE per Capita Income, GEL per month	138.7	102.0	117.2
Average AE per Capita Income, without TSA, GEL per month	120.5** (5.7)	79.6** (4.4)	95.7** (3.6)

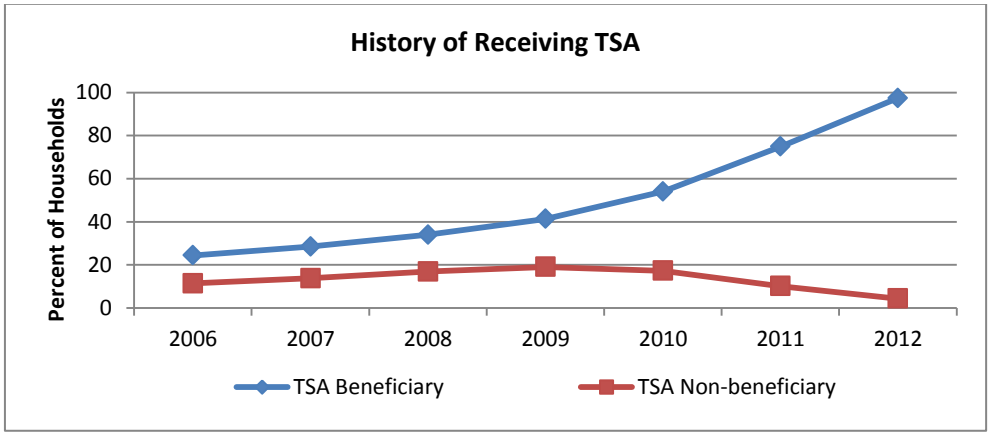
among non-respondent households with scores below the TSA eligibility threshold as compared to those above the threshold.

Median AE per Capita Income, without TSA, GEL per month	113.0	64.3	82.2
% with Internet	0**	11**	5
% with Phone	65	68	66
Asset Indices (range: 0-100): Sample Average			
Radio and TV goods	27.50**	24.00**	26.25**
Housing assets	10.75**	18.63**	13.88
Luxury goods	1.57**	2.43**	1.86
Transport goods	0.67	0.33	0.59**
Financial products	28.50	27.25	28.00**

Source: Authors' calculations, based on SAHI survey, 2012-2013 (TSA sample); and WMS, 2011 (Georgian population).
Notes: Differences in income, consumption and assets between the urban part and the rural part of the sample are not significant unless marked with a ** ($p<0.01$) or * ($p<0.05$). "AE per capita Income" refers to monthly adult-equivalent per capita income. For details on the composition of the asset indices, see Annex 3.

Not all sampled households in the treatment group have been receiving TSA for the same amount of time, and some of the households in the control group did receive TSA benefits in the past. In the models presented in Section 5, we control for the number of years during which the household has received TSA (Figure 11). Moreover, to the extent that control subjects did receive benefits in the past, estimates would be lower-bound ones since the control could also exhibit some program effects.

FIGURE 11: HISTORY OF RECEIVING TSA



Source: Authors' calculations, based on SAHI survey, 2012-2013.

4. EMPIRICAL APPROACH

We use a regression discontinuity design (RDD) to evaluate the impact of TSA on labor force participation.[28] An RDD is uniquely suitable to examine these impacts in Georgia, because it allowa for a comparison in outcomes between beneficiaries and non-beneficiaries who are highly similar, apart from the treatment condition. In doing so, a causal interpretation of results requires less stringent assumptions

[28] Labor force participation is defined as being either employed or actively looking for work. Employment is defined as having worked, for at least one hour, during the last 7 days, paid or unpaid. Unemployment is defined as having tried to find a job or start a business during the past 4 weeks at the time of the interview. Discouragement is defined as having stopped looking for work, either because the subject believes that there are no jobs available for someone with his or her qualifications, or because the subject does not know how to search for work.

than other statistical methods. In the case of the TSA program in Georgia, treatment and control groups can be identified by making use of the PMT scores assigned to applicant households to determine eligibility for the program. As discussed earlier, the threshold score used to distinguish eligible and ineligible households is 57,000. The control group consists of households with PMT scores just above 57,000 – i.e. households *not* receiving TSA.

Following Lee and Lemieux (2010), we estimate:

$$Y_i = \beta_0 + \beta_1 TSA_i + \beta_2 Score_i + \beta_3 Score_i \wedge 2 + \sum_{x=1}^{x=n} \beta_i X_i + \varepsilon_i \quad (1)$$

$$Y_i = \beta_0 + \beta_1 TSA_i + \beta_2 Score_i + \beta_3 Score_i \wedge 2 + \beta_4 TSA_i * IT_{ni} + \sum_{x=1}^{x=m} \beta_i X_i + \varepsilon_i \quad (2)$$

where Y reflects the outcome variable of interest (labor force participation status) for individual *i*, β_0 is a constant, TSA is a dummy variable indicating whether the individual pertains to a household that receives TSA benefits (TSA=1 if so; zero otherwise), β_1 is the estimated local average treatment effect, β_2 and β_3 measure the relationship between the score and the outcome[29], and β_4 measures the impact of various interaction terms (IT_n). *X* represents the x'th control variable (ranging from 1 - m)[30], and ε_i is the error term. As explained below, certain respondents were not aware of their status regarding the receipt of benefits or misreported their treatment status. We use administrative records to avoid any bias that may result from "selective recall" (Bauhoff et al., 2010) or from confusion of the TSA program with other benefits.

The structure of the data allows us to exploit a sharp jump in treatment at one specific threshold in the PMT score. This jump is not accompanied by any other systemic differences that might affect the outcome variable of interest. Although there is some degree of variance in welfare between the treatment group and the control group, the only sharp jump in income comes from treatment. As highlighted by Lee and Lemieux (2010), as long as subjects do not have precise control over their assignment to either the treatment or the control group, an RDD allows for isolation of the treatment effect.[31]

The research design meets the key identifying assumptions of an RDD (see Lee and Lemieux, 2010). First, the assignment variable – in this case, the PMT score – is continuous around the cutoff, and is determined before treatment. As discussed in Section 2.2, the PMT score ranges from 0-200,000, with no interruptions within this range. Second, the choice of the cutoff value in the assignment variable is not driven by anything other than the treatment. There is no reason to believe that factors other than receipt of

[29] In addition to a linear and a quadratic relationship, higher-order polynomials were also tested. These were found not to affect the results.

[30] As is discussed below, certain background characteristics, including gender, age, the household's PMT score and other socio-economic and educational characteristics were included as controls to account for variation within each treatment status along these characteristics that matters for the outcome of interest. See Annex 6 for more details.

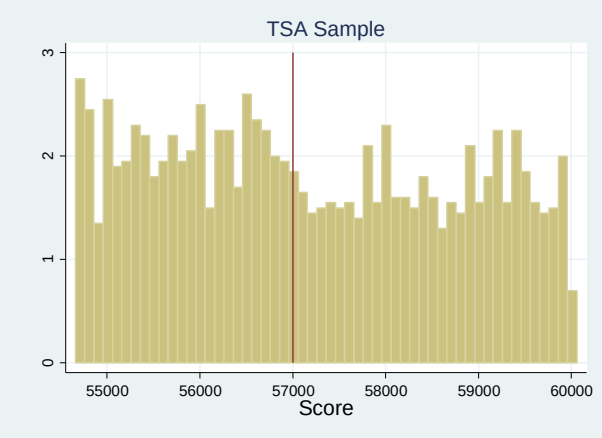
[31] The underlying assumption is that assignment of beneficiary status is properly enforced (Bauhoff et al., 2010). In reality, there may be cases where expected beneficiaries are in fact not receiving the benefit. However, this seems to be unlikely. Less than 1% of all sampled households could present a certificate with their score to the interviewer that indicated a different recipient-status than was recorded in the UDSUF database. Results presented in Section 5 are not sensitive to excluding these households from the sample, nor to using their self-reported treatment status as opposed to the administrative records.

TSA would change abruptly at the cutoff score and thus, affect labor force participation. The formula on which eligibility for TSA is based has many variables, and, incidentally, labor force participation and employment are not direct components of the formula.

Third, random assignment to treatment and control groups was tested by examining the statistical similarity of recipients and non-recipients, based on demographic and socio-economic outcomes (Annex 3). Only very few characteristics are significantly different across the treatment and control group, and where differences exist, they remain negligible in size. The most important difference between the two groups is that beneficiaries are more likely to live in rural areas. This is to be expected, as income levels are generally lower in rural environments, which is picked up by the PMT scoring procedure. Correspondingly, households in the treatment group have, for example, slightly lower levels of education. In addition to these differences correlated to urban/rural status, TSA beneficiaries also have slightly fewer assets (as expected, given the PMT formula). In the models presented below, we control for these variables where appropriate. We also examine whether the TSA program had differential impacts on the outcome of interest depending on these variables. We also make separate estimations for rural and urban samples.

Finally, subjects have only imprecise control over the assignment variable. As discussed in Section 2.2, the PMT formula used in Georgia is too complex to precisely manipulate, largely due to the fact that the number of welfare measures on which the score is based is very large. However, as shown in Figure 12, there is some bunching of households just below the eligibility threshold. As such, one could be concerned about the possibility of indirect manipulation. For example, households are able to appeal their initial score, and to be rescored upon appeal, with some possible bias towards getting included in the TSA program after rescoring.

FIGURE 12: SCORE DISTRIBUTIONS IN THE SAMPLE



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Binsize: 100 points.

Households can get rescored for various reasons. All households in the UDSUF database, get rescored periodically. A regular re-evaluation of the household's PMT score is done every 4 years, to examine whether an adjustment of the PMT score is necessary. In addition, rescoring can also occur for other reasons, including appeal of the initially assigned score. Households get rescored if there are substantial changes in living conditions, such as a change of address, a change in household composition, or a change in employment status. In addition, the SSA recently started allowing households to file for appeal if the household believed that the assigned PMT score did not accurately reflect actual levels of welfare.

The opportunity to appeal one's score seems to have introduced bunching. As explained in Section 3.1, the PMT score was characterized by a smooth distribution before the appeal process was introduced. As such, there is a high likelihood that the bunching observed just below the TSA eligibility threshold is related to the appeal process. However, in the data collected for this study, it is not possible to distinguish between the various reasons for rescoring, and hence, households that got rescored because of appeal cannot be isolated. As a proxy, we investigate two groups in particular: households that got rescored within a very short timeframe, and households that jumped from the non-beneficiary group to the beneficiary group after rescoring, in particular in cases where rescoring took place within a short period of time. The first group is of interest because the SSA is obliged to rescore households that file for appeal within a period of 2 months.

Households that get rescored within a period of 2 months (15 percent of the households included in the TSA sample) differ from other households on certain observables.[32] In particular, beneficiary households that were rescored within two months have a larger average household size as compared to other beneficiary households; they more often have young children and youth in the household; they have more working age household members, and they have fewer pensioners. Non-beneficiary households that were rescored within 2 months differ from the rest of the non-beneficiary households on the same observables. In addition, they are more often found in urban environments, and contain more men. In both the treatment and control groups, there is no difference between those rescored within two months and the rest of the sample in terms of education levels. Lastly, households rescored within two months that are currently in the treatment group are characterized by a lower average adult equivalent per capita income than the remainder of the treatment group. This result is not found in the control group. It remains unclear whether this is the result of a genuine negative income shock or of a conscious effort to under-report income in the survey. In the results presented in Section 5, we control for these characteristics. However, since the two groups could also differ on unobservables that matter for the outcomes examined here[33], we also control for this group of households as a whole. In addition, we test the sensitivity of our results to exclusion of these households. This does not affect the results.

In the selected sample, 26 percent of households that were rescored changed from non-beneficiary to beneficiary status – a share that is almost twice as high as the 14 percent who changed from beneficiary to non-beneficiary status. If these changes in status simply reflected errors or changes in family composition or income, one would expect these two numbers to be very similar. The observed asymmetry could be an indication of manipulation, although it could also reflect the overall worsening of economic conditions over the observed period (2006-2012) in Georgia, possibly associated with the global economic crisis.[34] Indeed, the share of rescored households that obtained a lower second score – by at least 1000 points – (58 percent) is much higher than the share of rescored households that obtained a higher second score by at least 1000 points (38 percent), regardless of what side of the eligibility threshold the new score was on. Similarly to the first group, those who switch from being non-beneficiaries to beneficiaries are different on some observables from others in the treatment group.[35] In particular, these

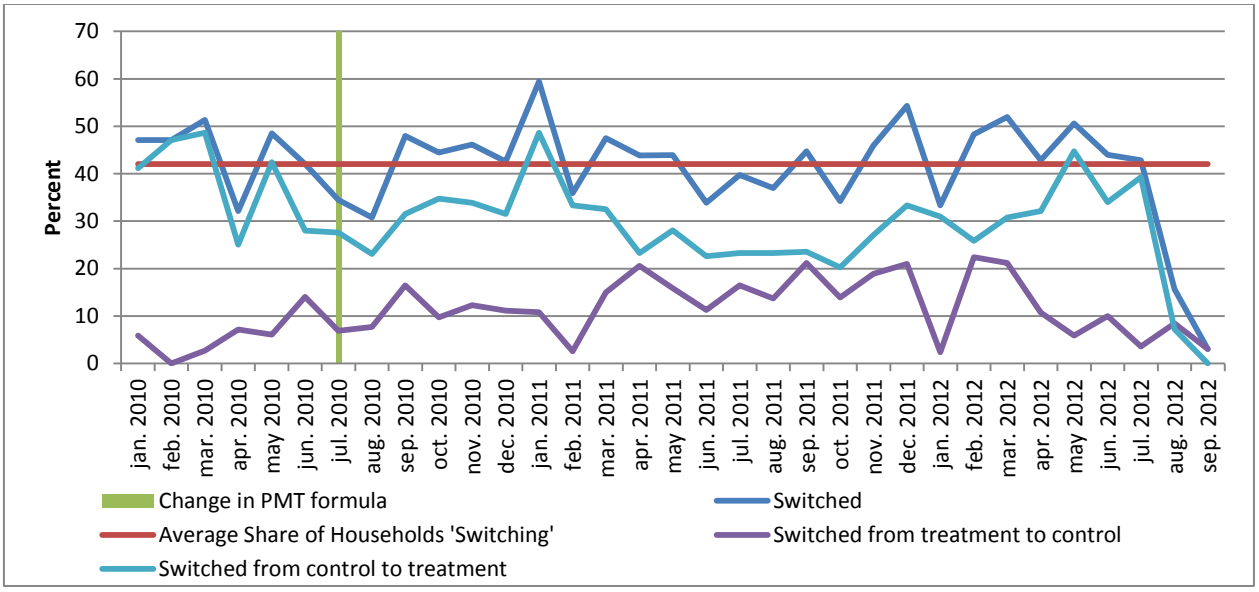
[32] Descriptive statistics comparing the two groups are available upon request.
[33] This would be the case, for example, if members of these households are particularly interested in receiving a government transfer, and are hence more likely to "game" the system. This would generate bias if these unobservables are correlated with their interest in working.
[34] This would correspond with evidence from the Welfare Measurement Survey, 2011, in which half of all households surveyed state that their situation had worsened because of the crisis (UNICEF, 2012).
[35] Descriptive statistics comparing the two groups are available upon request.

"switching" households are likely to be urban.[36] In the results presented in Section 5, we control for these characteristics. To eliminate any potential bias due to unobservables, we test the sensitivity of our results to controlling for, and to excluding switchers. This does not affect the results.[37]

Very few households were rescored within 2 months in such a way that they switched from beneficiary status to non-beneficiary status. Among those who were rescored within 2 months (13 percent of individuals, and 15 percent of households), less than one fifth (2 percent of the total TSA sample) received a second score that was below the TSA threshold of 57,000 points.

A third issue of concern is a change in the PMT formula in mid-2010. The PMT formula used by the SSA was changed in mid-2010 in order to let communities play a greater role in reviewing households' eligibility, and to exclude certain assets which are difficult to measure or to translate into an indicator of household welfare. However, as shown in Figure 13, we do not observe an increase in the share of households switching from the control group into the treatment group after mid-2010. As such, it seems that the change in PMT formula has not contributed to the observed bunching.

FIGURE 13: SWITCHING PATTERNS OVER TIME: SHARE OF HOUSEHOLDS IN TSA SAMPLE 'SWITCHING' TREATMENT STATUS, BY THE TIMING OF THEIR LATEST SCORING EVENT



Source: Authors' calculations, based on SAHI Survey, 2012-2013.

In short, we are confident that the research design meets the identifying assumptions of the RDD strategy.

[36] In the control group, 'switchers' – i.e. households that used to be TSA beneficiaries before rescoring – have a larger average household size, more working age individuals, a lower average age, and, similar to the treatment group, a different regional composition.

[37] At the same time, it should be noted that, when not restricted by the time interval between subsequent scoring events, a substantial share of the sample switches from control to treatment status. Especially in cases where this time interval is large, such a switch may have nothing to do with appeal, but may very well reflect a genuine deterioration of wealth in the Household. As such, we test different specifications, in some of which we add restrictions based on the time interval between scoring events.

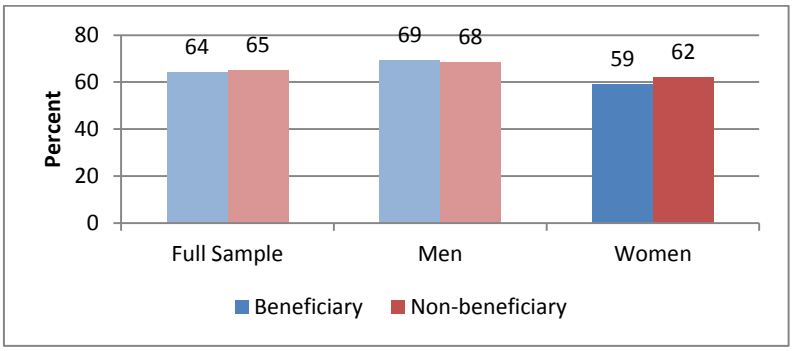
In terms of external validity, there are three main limitations. First, since the sampling frame only includes households that have applied to the UDSUF database, households that did not apply but that would have received similar scores are not represented. These households may be systematically different from those included in the sampling frame. Second, the sampling strategy systematically excludes clusters that do not have a mix of beneficiaries and non-beneficiaries. Third, results identify average treatment effects around the TSA eligibility threshold rather than for the total population that receives TSA benefits (hence we estimate local average treatment effect). These caveats need to be kept in mind when interpreting the findings of this study.

Next, we discuss the main results.

5. MAIN RESULTS

Statistical analysis suggests that the TSA program generates work disincentives around the threshold of eligibility, and that these disincentives are concentrated among women. As a first step in analyzing the impact of TSA on labor force participation, we compare means on labor force participation rates between beneficiary and non-beneficiary individuals (Figure 14). In households benefiting from TSA, the female labor force participation rate is 59 percent compared to 62 percent among women in non-beneficiary households. The difference in means is not significant for men. The number of working age individuals among TSA beneficiaries – i.e. the treatment group, at 58 percent, is also significantly lower than the number of working age individuals in the control group (61 percent).

FIGURE 14: LABOR FORCE PARTICIPATION IN THE TSA SAMPLE

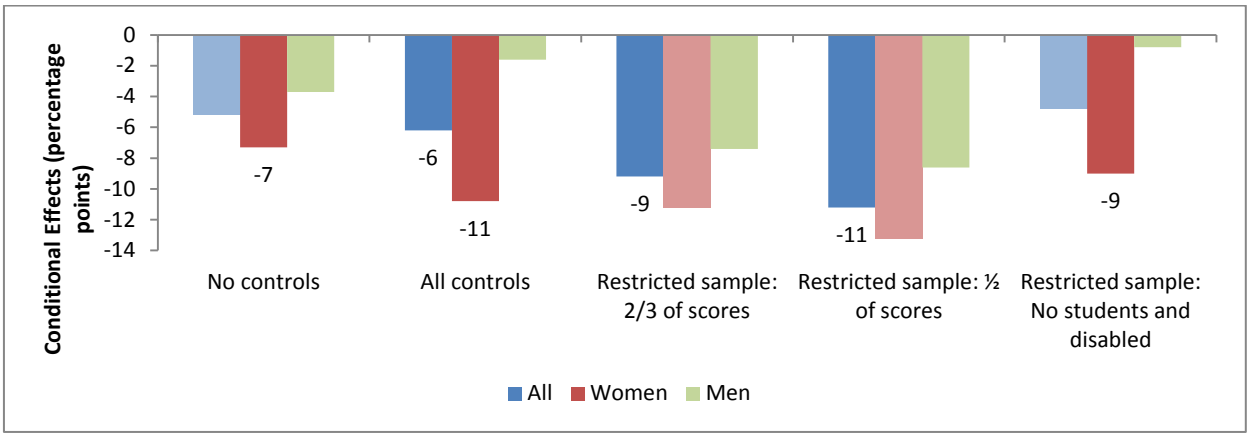


Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Differences in participation between the treatment and control group are insignificant for the full sample and for men, and are significant at the 10 percent level for women.

The regression discontinuity analysis confirms this finding. A participation disincentive effect is found, and once again, this effect is concentrated among women (Figures 15 and 16. Annex 5 provides a list of means of included covariates, and Annex 6 presents results for the main specifications.[38] Similarly, in models where only men are included, no effect is detected in any of the specifications tested. On the other hand, in models where only women are included, a conditional effect of 7-11 percentage points is found in most models. As such, the findings from this survey suggest that able-bodied, non-student women who live in households that receive TSA are approximately 9 percentage points less likely to join the labor force, as compared to women living in similar households, but which do not receive TSA.

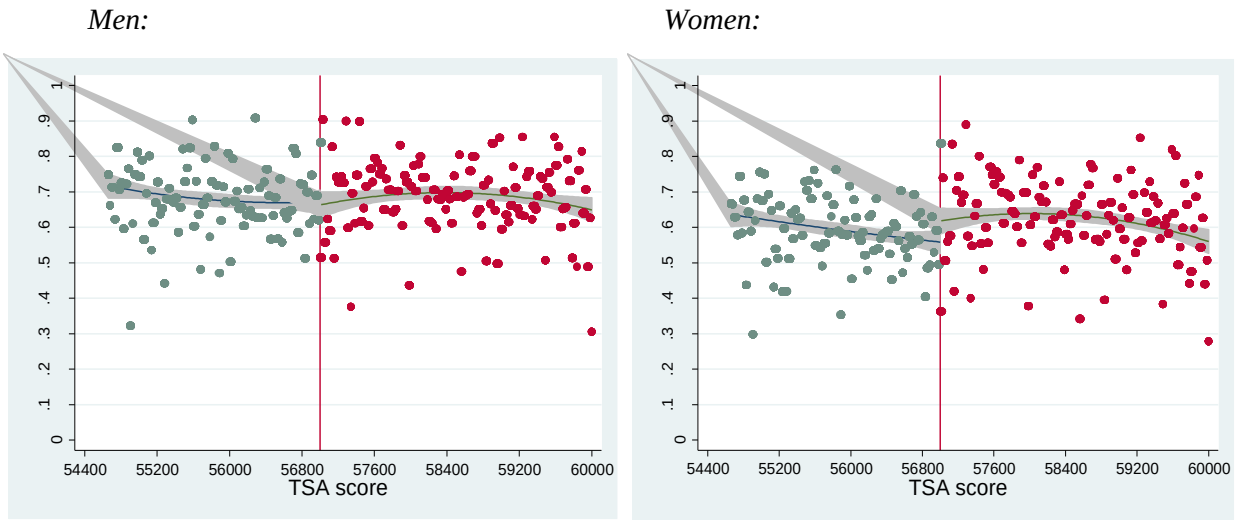
[38] The models shown in Annex 6 are probit models. We also used linear probability models as a robustness check. In these linear regression models, similar results were found. Results are available from the authors upon request.

FIGURE 15: CONDITIONAL EFFECT OF RECEIVING TSA ON LABOR FORCE PARTICIPATION: SUMMARY OF MODEL SPECIFICATIONS



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: See Annex 6 for more details on model specifications. Statistically insignificant effects are portrayed in lighter colors and without labels.

FIGURE 16: PREDICTED LABOR FORCE PARTICIPATION, BY GENDER



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Figures reflect the gender-separated equivalents of Model 2 in the basic models reported in Annex 6.

Various falsification tests confirm these findings. As a falsification test, identical regression discontinuity models were tested for one score below the actual threshold, and one score above the actual threshold. The score values chosen were 55830 and 58500. No significant differences were found between subjects below and subjects above these two random scores, supporting the findings presented here.[39]

Results from labor force participation do reflect a fall in employment and hours worked, rather than a fall in unemployment. There is a negative impact on employment, and we find a negative impact on hours worked, conditional on working, among both men and women. Across specifications, TSA

[39] In addition, a model was tested where the per capita transfer amount received by the Household was added to the model as an extra control variable. This did not change the results, and this additional control was not significant.

receipt reduces men's work week by 3-5 hours, conditional on working; TSA receipt reduces women's work week by 5 hours, conditional on working.[40]

Among women, results suggest that the participation disincentive effect is particularly large in younger age groups, and among those who are married and / or have children. Firstly, we find an interaction effect between receiving TSA and age: the disincentive effect of receiving TSA seems to be weakened significantly as individuals, and women in particular, get older. This may be related to the household- and family related responsibilities that many younger women face. In order to examine this in more detail, we test additional model specifications in which we split the female half of the sample based on marital status, whether there are children in the household[41], and whether women belong to the age-group 15-29 or 30-59 (Table 6). Although results must be interpreted with caution due to the restricted sample sizes, these models suggest that in addition to a concentration of disincentive effects among young women, being married indeed strengthens rather than weakens disincentives. Similarly, living in a household with children seems to strengthen disincentive effects.

A simple comparison of means indeed shows that the strongest difference in labor force participation rates between the treatment- and control group is found when splitting up women of working age into two age-groups: 15-29 and 30-59 (Figure 27). This result holds when students and disabled individuals are excluded from the sample. Although there are also differences between treatment- and control group when women are split by family status, these differences are not found to be statistically significant. However, once again, these results should be interpreted with caution, due to limitations in sample size.

TABLE 6: CONDITIONAL EFFECT OF RECEIVING TSA ON LABOR FORCE PARTICIPATION: SUMMARY OF MODEL SPECIFICATIONS FOR VARIOUS GROUPS OF WOMEN

	1	2	3	4	5
Further sample restrictions:	No Controls	All Controls	Restricted sample: 2/3 of scores	Restricted sample: 1/2 of scores	Restricted sample: No students or disabled
All	-0.073*	-0.108**	-0.112	-0.132	-0.090*
Unmarried, no children	-0.048	-0.162	-0.179	0.152	-0.104
Unmarried, children	0.018	-0.203	-0.436***	-0.361**	-0.145
Married, no children	-0.186*	-0.135	0.016	-0.010	-0.133
Married, children	-0.102*	-0.073	-0.099	-0.142	-0.090
Unmarried	-0.011	-0.146	-0.280**	-0.239	-0.071
Married	-0.129**	-0.091	-0.093	-0.128	-0.100*
No children	-0.125	-0.147	-0.041	-0.082	-0.097
Children	-0.044	-0.116*	-0.147*	-0.156	-0.106*
Women aged <30	-0.115	-0.158*	-0.153	-0.224	-0.135
Women aged 30+	-0.069	-0.055	-0.069	-0.070	-0.065
Women <30, controlling for age & age^2	-0.115	-0.162*	-0.185	-0.256*	-0.139

[40] Results are available from authors upon request.

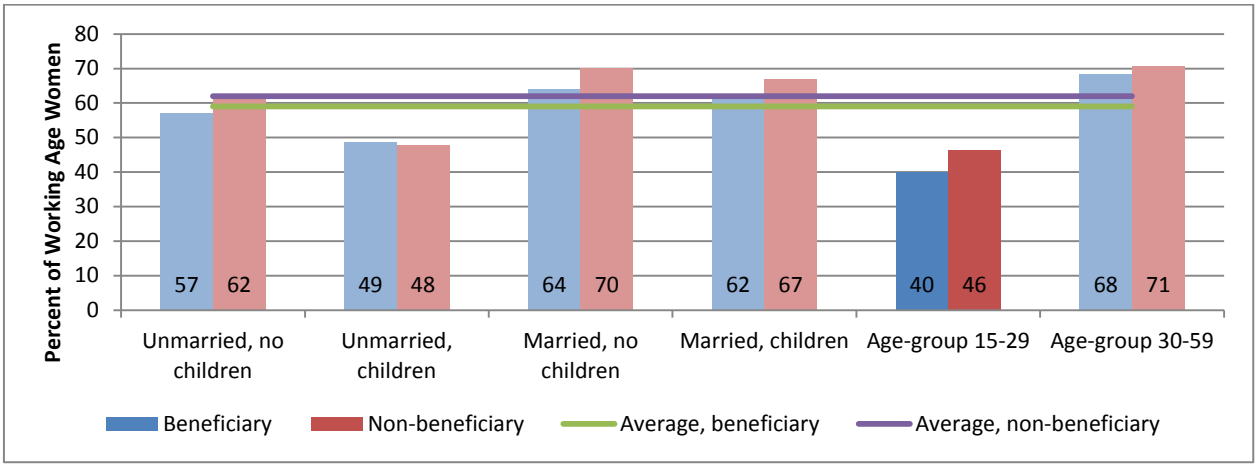
[41] The data used here do not allow for a distinction between a woman's own children, and children living in the same household who have a different mother.

Women 30+, controlling for age & age^2	-0.069	-0.053	-0.072	-0.069	-0.064

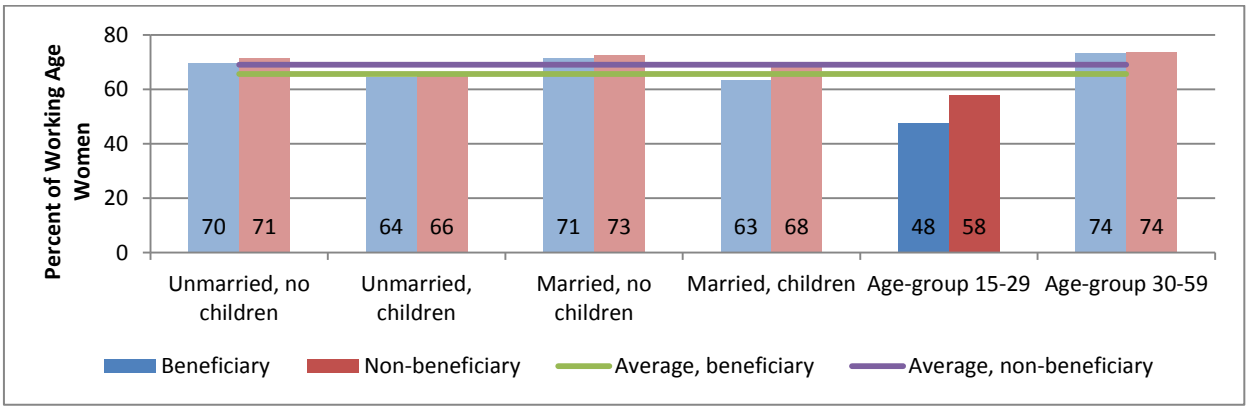
Source: Authors' calculations, based on SAHI Survey, 2012-2013.

FIGURE 17: LABOR FORCE PARTICIPATION RATES FOR WORKING AGE WOMEN, BY FAMILY STATUS

Including Students and Disabled:



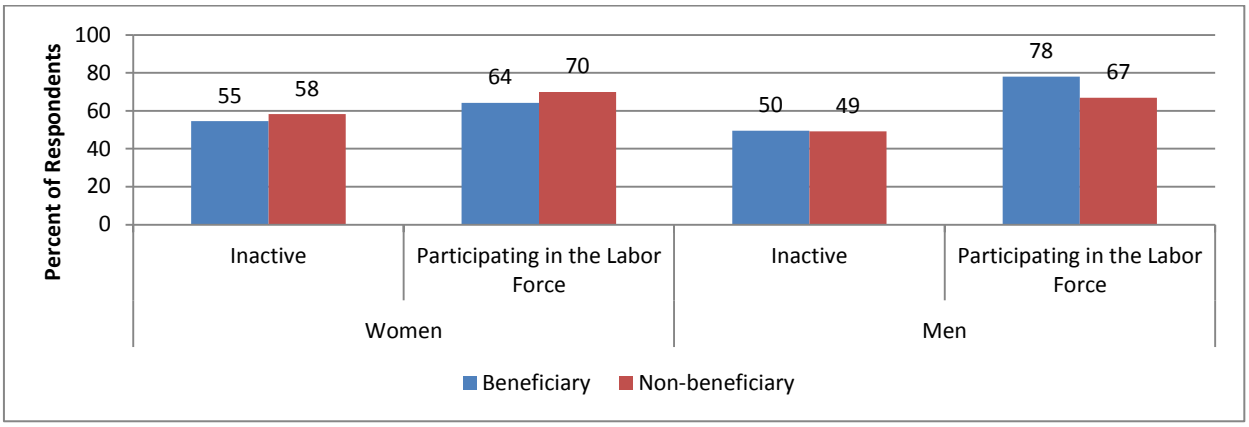
Excluding Students and Disabled:



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Only the observed differences in participation rates between women in the treatment and control group in two categories were found to be significant: 1) married women with older children (p=0.09) and 2) single, divorced or widowed women with both young and older children (p=0.06).

Among women, there are differences in motivation to work between those receiving TSA and those not receiving TSA. A sub-sample of male and female individuals was asked to respond to questions on attitudes regarding work and family responsibilities. For example, a larger share of women in the treatment group as compared to the control group report disagreement when asked whether they would enjoy having a paid job, even if they do not need the money (Figure 18). Similarly, when women who are currently out of the labor force are asked whether they would want to work if they could choose without restrictions, many among the recipient households report that they would not want to work (28 percent of respondents), whereas this is a much lower share in the control group (19 percent of respondents) (Figure 19).

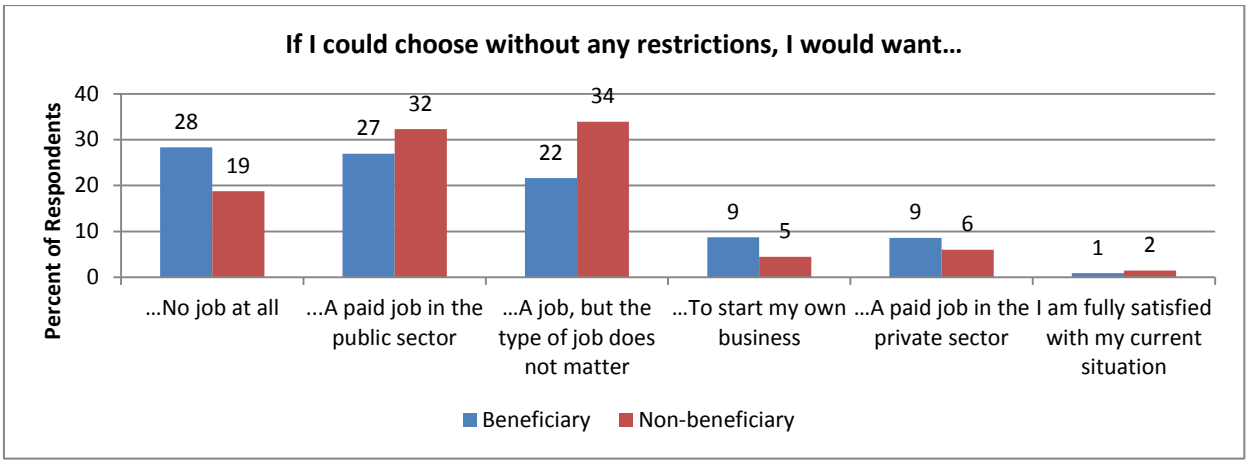
FIGURE 18: SHARE OF WORKING AGE RESPONDENTS EXPRESSING AGREEMENT WITH THE STATEMENT: "I WOULD ENJOY HAVING A PAID JOB EVEN IF I DID NOT NEED THE MONEY"



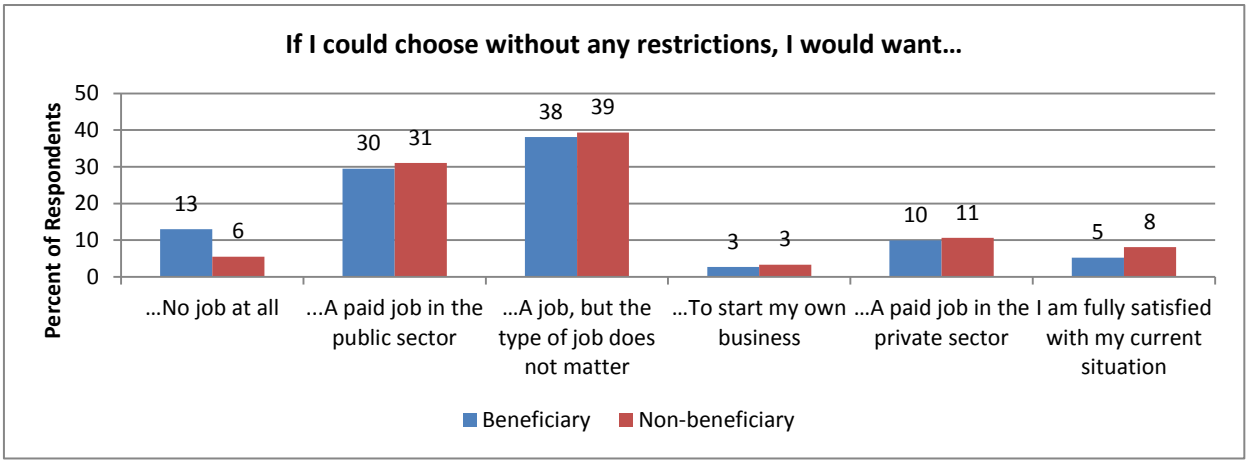
Source: Authors' calculations, based on SAHI survey, 2012-2013.
Notes: Only one respondent per household was randomly selected to answer this question.

FIGURE 19: LABOR MARKET PREFERENCES: INACTIVE WOMEN AND WOMEN IN THE LABOR FORCE, WORKING AGE (15-59)

Inactive Women:



Women in the Labor Force:



Source: Authors' calculations, based on SAHI survey, 2012-2013.
Notes: Only one respondent per household was randomly selected to answer this question.

Self-reported attitudes of men and women on the relation between family responsibilities, social norms and work for women are consistent with these findings. As reported in Table 7, a large majority of both men and women in our sample report that they believe that paid work for women harms the ability of the household to raise the children. Similarly, many women, and a similar share of men, are of the opinion that for a woman, being a housewife is not less fulfilling than having a paid job. Lastly, even when asked whether men should have priority over women in accessing jobs, a majority of women agrees. Here, an even larger majority of men expresses agreement. These findings provide important supporting evidence for the hypothesis formulated above: that disincentives for women to join the labor force may be related to social norms and family responsibilities.

TABLE 7: SELF-REPORTED ATTITUDES ON WORK, FAMILY RESPONSIBILITIES AND GENDER: SHARE OF WORKING AGE RESPONDENTS (15-59 FOR WOMEN, 15-64 FOR MEN) EXPRESSING AGREEMENT WITH EACH STATEMENT

	Men	Women	Total
Agree: "When a mother works for pay, the children suffer."	64	68	65
Agree: "Being a housewife is just as fulfilling for a woman as working"	65	65	65
Agree: "When jobs are scarce, men should have more right to a job than women"	58	66	61

Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Only one respondent per household was randomly selected to answer this question.

Further analysis suggests that the disincentive effect on labor force participation among women is concentrated among those who live in rural areas (Table 8). When the sample is split up by urban / rural location of the residence, we find no statistically significant effect among women who live in urban areas.

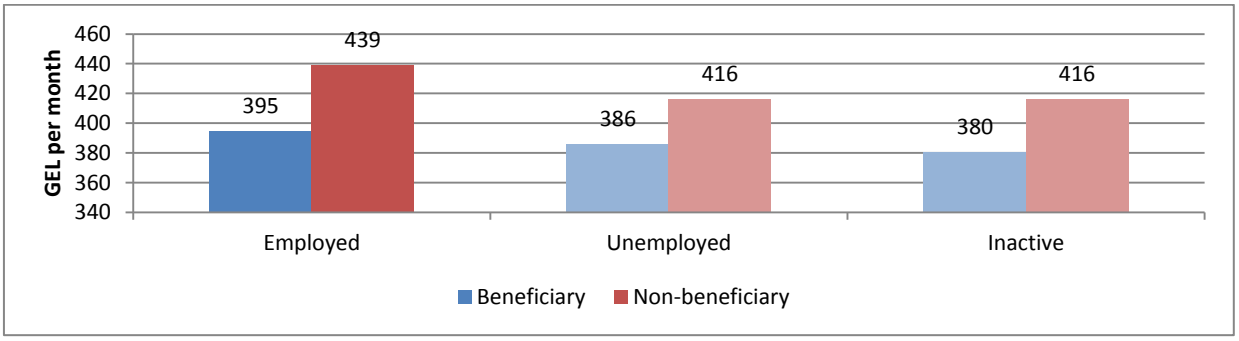
TABLE 8: CONDITIONAL EFFECT OF RECEIVING TSA ON LABOR FORCE PARTICIPATION: SUMMARY OF MODEL SPECIFICATIONS FOR URBAN/ RURAL SAMPLE

	1	2	3	4	5
Further sample restrictions:	No Controls	All Controls	Restricted sample: 2/3 of scores	Restricted sample: 1/2 of scores	Restricted sample: No students or disabled
Urban	-0.029	-0.052	-0.128	-0.101	-0.039
Rural	-0.071*	-0.094**	-0.115**	-0.160**	-0.074*
Urban, men	0.002	0.038	-0.030	0.015	0.056
Urban, women	-0.058	-0.113	-0.222*	-0.208*	-0.103
Rural, men	-0.065	-0.040	-0.125**	-0.174	-0.040
Rural, women	-0.086	-0.158**	-0.106	-0.143	-0.129**

Source: Authors' calculations, based on SAHI Survey, 2012-2013.

In addition to age, marital status, family responsibilities and location, low expected productivity seems to shape labor market decisions. TSA beneficiaries who work earn very low wages. The median wage of paid workers in the treatment group of our sample is 152 GEL per month, whereas this is 195 GEL per month for the control group.[42] In Georgia as a whole, the median monthly wage amounts to 269 GEL.[43] In addition, the profile of TSA beneficiaries included in this sample in terms of education level, geographic location and access to productive assets suggests that the supply of jobs for this group may be more limited than for individuals that do not qualify for receiving TSA. Yet, despite these differences in potential earnings, reservation wages among TSA beneficiaries are not statistically different from those of non-beneficiaries (Figure 20). Critically, reservation wages are significantly higher than the earnings of beneficiaries actually working. As a result of these forces, inactive TSA recipients may be discouraged to seek employment because of low anticipated wages, or may decide to stay at home and fulfill house and childcare responsibilities based on the lower opportunity cost of staying at home. This evidence on potential earnings and reservation wages suggests that improving the access to training and upskilling of women in rural areas can be an important part of the agenda for getting them into work outside of their homes.

FIGURE 20: RESERVATION WAGES AMONG TREATMENT AND CONTROL GROUP



Source: Authors' calculations, based on SAHI Survey, 2012-2013.

[42] Author's calculations, based on wages reported in the SAHI survey 2012-2013.
[43] World Bank (2011).

Notes: Data represent responses given by one selected individual per household. Among this sub-sample, women and elderly individuals are overrepresented. The difference between treatment- and control groups was only found to be significant among employed individuals (P<0.05).

Finally, we find a positive and significant interaction effect between recipient-status and the number of years during which the household has received TSA in the past. This effect is found in our aggregate model, which includes both men and women and in our model that includes women only. No such effect was found in a model including only men. This evidence would be inconsistent with benefit dependency. On alternative hypothesis is that TSA allows households to build assets over time that could be used for productive activities, increasing female labor force participation. Given the relevant debates on benefit dependency, this is one important area for further research.

In short, the results above suggest that work disincentives are concentrated among women who are young, with children or married, and living in rural areas. Together with the qualitative evidence also gathered, it appears that the lack of complementary services for raising children, such as affordable childcare, may be an important constraint to participation. In addition, the evidence on potential and reservation wages suggests that improving the access to training and upskilling of women in rural areas can be an important part of the agenda for getting them into work outside of their homes. More research would be needed to thoroughly investigate what induces disincentives to participate in the labor force.

6. CONCLUSION

The results presented here suggest that recent increases in generosity of Georgia's TSA program, such as the increase in benefits for additional family members that occurred in 2009, may have generated disincentives for women to enter the labor force. The findings from this paper apply specifically to households around the eligibility threshold of the TSA. However, we have some reason to think that the TSA more generally could be creating work disincentives. Although not causal evidence, using a nationally representative survey (UNICEF's Welfare Monitoring data survey for 2011), we find that—controlling for basic socio-economic and demographic characteristics— a member of a household which gets TSA is about 7 percentage points less likely to be working or looking for job compared to individuals in households that receive no TSA. More research is needed to determine the exact causes of any disincentive effects among women. However, results here suggest that, for example, disincentives effects are larger for younger women, and for women who are married and/or have children.

This suggests that in large part, the disincentive effects found from the TSA program in Georgia are mediated by the lack of appropriate mechanisms for supporting working women, especially when they are married and/or have children. In such cases, it appears that the TSA program serves as a safety net that allows these women to care for their children and homes. This is likely to be caused, at least in part, by a lack of affordable formal childcare facilities, especially in rural areas: for every group of 100 children under the age of 3 in Georgia, there are less than 10 formal childcare spots available, and only 6 in every 100 are actually enrolled[44]. What could add to this is low expectations in terms of wages and/or (types of) jobs available for these groups of women in particular, as outlined in Section 5 above. Moreover, descriptive evidence from the SAHI survey and preliminary qualitative evidence suggests that social norms may inhibit women to work as well: many individuals, including women, in Georgia seem to view the rights and opportunities of men and women very differently when it comes to jobs and labor force participation. Lastly, our findings suggest that the average TSA recipient is more likely to live in a rural area and to have a relatively low education level. This may further limit the number of jobs on offer

[44] UNECE Statistical Division Database, 2010-2011.

for those who receive TSA. For women, if there are no jobs available locally, commuting to work may go against the norms that are upheld by the community.

The current findings are relevant for Georgia and beyond. In Georgia, these results suggest, firstly, the need to carefully re-evaluate the design features of the TSA program. One of these is the most recent generosity-expansion of the program. Given the available evidence on poverty reduction effects, it could be an option to focus more on coverage of the program and less on (further) expanding generosity. For example, one option would be to introduce proxy-means testing for (part of) the currently universal pension benefits, and to divert the thus freed resources to expanding coverage of the TSA program. Certainly, there are to be trade-offs between expanding coverage and increasing generosity in terms of overall welfare. However, since new beneficiaries are most likely richer than existing beneficiaries, one would expect that a given amount of transfers would have smaller disincentive effects than increasing further the transfer amount for a given group. This is particularly the case given, as is in Georgia, that disincentive effects seem to arise from an income effect rather than a substitution effect, as suggested by the lack of impact in the earlier impact evaluation of the TSA before the increase in generosity.

Strengthening the work incentives of social assistance programs is most likely to be successful if accompanied by measures that assist people in finding work and reduce the costs of working. This could include incentives to complete higher levels of education or job-specific training, but also for example incentives for individuals to become more geographically mobile, so that they can move to locations where jobs are available. Incentives on the side of employers can also help, as can policy measures that counter normative systems that keep especially women out of work. Policies that facilitate, or reduce the cost of, high-quality childcare, can go a long way. In addition to formal childcare services, preschool, for children aged 3-5, and after-school activities for school-aged children could also help women keep a job while taking care of their children. Yet, as the empirical evidence from these programs indicate, early education has to be high-quality (Cascio 2015). Results also point to the potential role of supplemental measures that more directly link benefit receipt with job search, take-up of active labor market programs and education or training. Where appropriate, this could include an obligation to actively look for work while receiving the TSA benefit. Balancing policy design with the institutional demands necessary to successfully implement these policies is necessary. In cases where finding a job is unlikely, education or training requirements, or participation in active labor market programs, could be used instead. For women with young children, requirements need to be adapted depending on whether or not there are childcare options at a sensible distance.

There are several open questions for which additional research would be useful. One area for future research is to better understand the impact of TSA and other public transfers on private, informal transfers, to measure the extent to which there is crowding out. If there is in fact crowding out, then public transfers aimed at helping the poor will be less effective than initially thought and the gains from such programs would actually be shared with better-off households who are the ones who usually give the transfers. In other words, if there is crowding out, government transfers will have a limited distributional effect, in addition to possibly having pervasive effects on the already existing informal risk-sharing arrangements. In the context of Georgia, a next steps is to aim at measuring the impact of TSA in total household income. Further research could focus on collecting larger samples of those groups of women that were found here to be most likely to face disincentives to work as a result of the TSA program. This would allow for a more granular understanding of the drivers of potential work disincentives. Moreover, the research agenda could further focus on better understanding how different modalities linking social assistance with productive employment and search impact labor force participation decisions.

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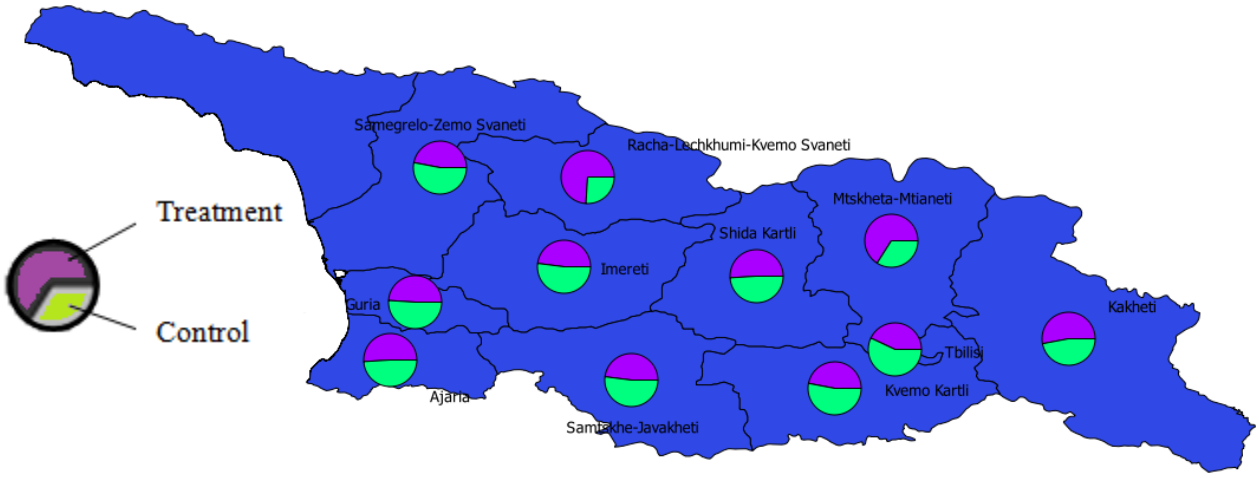
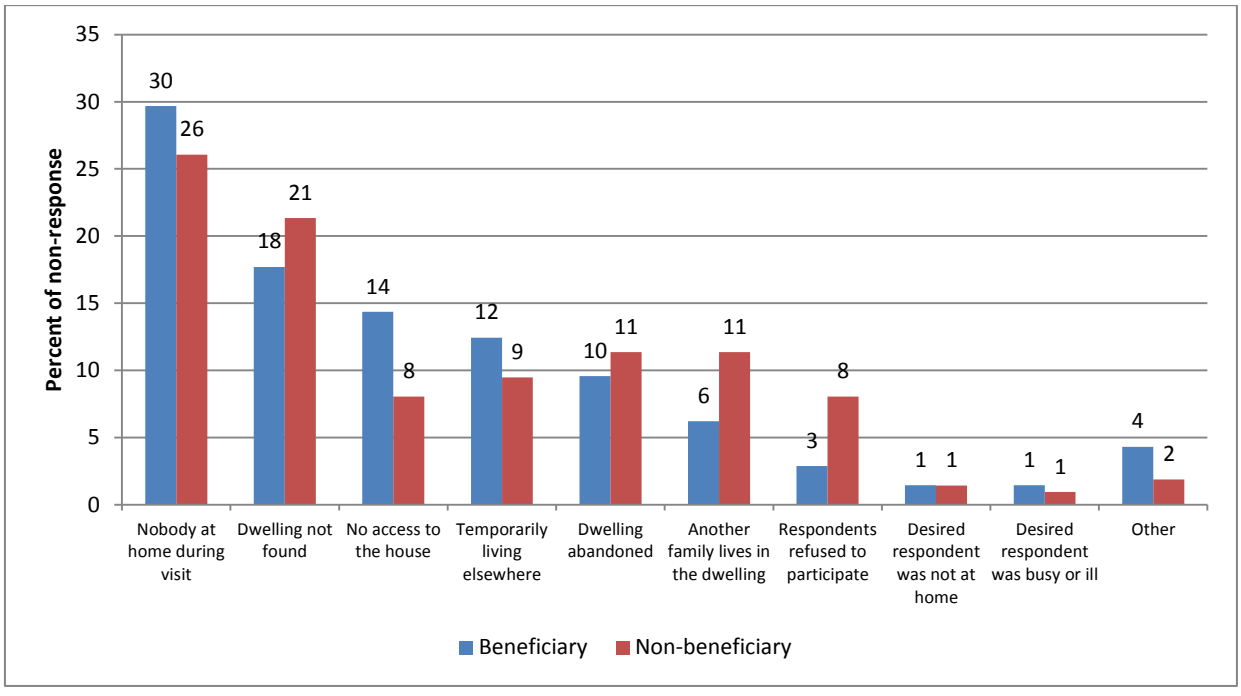
ANNEX 1: REGIONAL SAMPLE COMPOSITION



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Pie-charts reflect proportions of sampled individuals by region. Proportions are not adjusted for the complex sampling design, but reflect the actual ratios of sampled households.

ANNEX 2: REASONS FOR NON-RESPONSE



Source: Authors' calculations, based on SAHI Survey, 2012-2013.
Notes: Percentages reflect the reasons for non-response among 21 percent originally sampled but not interviewed.

ANNEX 3: DESCRIPTIVE STATISTICS

Household Level Characteristics

	Beneficiary	Nonbeneficiary	Difference [B]	T-value	N
% Urban	36	43	7***	3.12	2002
	(1)	(1)			
Household Size	3.24	3.34	.10	1.10	2002
	(0.06)	(0.06)			
% HH has Pensioners	50	47	-3	1.38	2002
	(2)	(2)			
% has Internet	2	7	5***	5.21	2002
	(1)	(1)			
% has Computer	4	8	4***	4.24	2002
	(1)	(1)			
% has Phone	63	70	8***	3.54	2002
	(2)	(2)			
Asset Indices (range: 0-100): Sample Average					
Radio & TV assets [C]	25	27	2***	3.16	2002
	(1)	(1)			
Housing assets [D]	12	15	3***	4.45	2002
	(1)	(1)			
Luxury assets [E]	1	2	1***	3.85	2002
	(0)	(0)			
Transport assets [F]	0	1	1***	3.13	2002
	(0)	(0)			
Financial products [G]	32	24	-8***	8.95	2002
	(1)	(1)			

Source: Authors' calculations, based on SAHI Survey, 2012-2013.

Notes: *** p<.01, ** p<.05, * p<.1 [A] Additional household-level covariates for which the difference in means was analyzed include: regions, household composition in terms of age groups (no. of youth aged 15-24, no. of prime aged workers aged 25-49, no. of older workers aged 50-64, and no. of children aged 0-18). For all of these additional indicators, results were either not significant, or if they were, the difference in means was very small. In particular, in the regions of Mtskheta-Mtianeti and Racha-Leckhumi, qvemo Svneti, the treatment group represented a significantly larger share of the sample than the control group, whereas in Tbilisi, the opposite was the case. [B] A positive number in these columns indicates that the non-recipient group (the control group) has a higher average than the recipient group (the treatment group). A negative number indicates the reverse. [C] The 'Radio and TV Goods' index includes: Radio set, Satellite Antenna, TV set: flatscreen, TV set: non-flatscreen (Range: 0-4). [D] The 'Housing Assets' index includes: Air Conditioner, Dishwasher, Gas stove / Electric stove, Heater, Oven, Refrigerator, Vacuum cleaner, Washing machine (Range: 0-8, converted to 0-100). [E] The 'Luxury Goods' index includes: A second dwelling, Camera, DVD player, Musical Player, Piano or Grand-Piano, Record-player, Video Camera (Range: 0-7, converted to 0-100). [F] The 'Transport Goods' index includes: Bicycle, Car, Microbus or truck, Mini-tractor or motor-block, Motorcycle/quadrocycle, Tractor (Range: 0-6, converted to 0-100). [G] The 'Financial Products' index includes: Any savings (cash, savings in the bank or other valuables like gold), a bank account, a debit card, a credit card (Range: 0-4, converted to 0-100).

Individual Level Characteristics

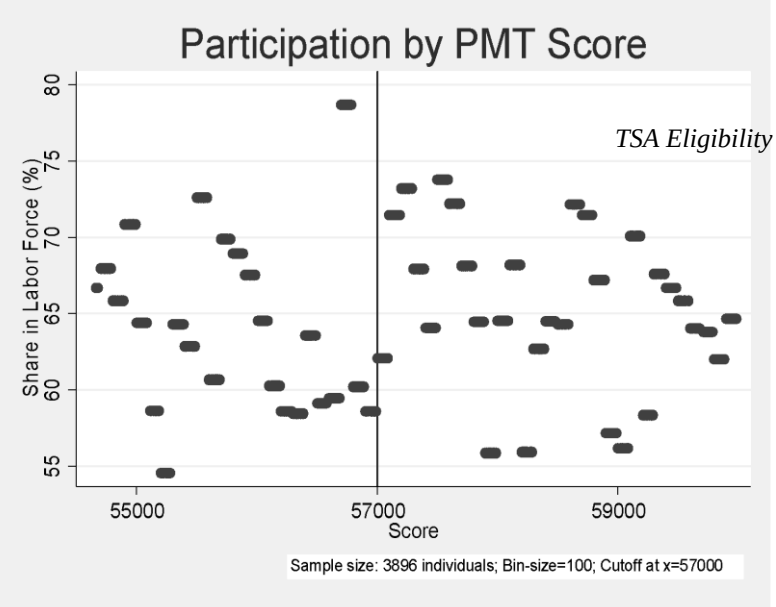
	Benefi-ciary	Nonbenefi-ciary	Difference [A]	T-value	N
% Female	54	54	0	.15	6575
	(1)	(1)			
Age	40.30	39.40	-.90	1.25	6572
	(.54)	(.52)			
% Youth (15-24)	13	14	1	1.41	6575
	(1)	(1)			
% Working age [E]	61	64	3**	2.38	6575
	(1)	(1)			
% Working age (Georgian) [E]	58	61	3**	2.27	6575
	(1)	(1)			
% Older workers (50-64)	18	18	1	.80	6575
	(1)	(1)			
% Married	45	45	0	.36	6575
	(1)	(1)			
% Ethnic Maj.	93	92	0	.34	6575
	(1)	(1)			
% IDP Status	3	7	4	3.96	6575
	(1)	(1)			
% Receives pension	19	17	-1	1.24	6575
	(1)	(1)			
% can read & write [B]	99	100	1**	2.04	4067
	(0)	(0)			
% Educ.: None / Inc. Prim. [B,C]	1	1	0	1.08	4056
	(0)	(0)			
% Educ.: Prim. [B,C]	23	18	-5***	3.23	4056
	(1)	(1)			
% Educ.: Sec. [B,C]	68	69	1	.65	4056
	(1)	(1)			
% Educ.: Ter. [B,C]	8	12	4***	3.54	4056
	(1)	(1)			
No. of years formal educ. [B]	11.16	11.58	.42***	4.75	4017
	(.07)	(.07)			
No. of years work exp. [D]	14.90	14.83	-.08	.17	2619
	(.36)	(.34)			

Source: Authors' calculations, based on SAHI Survey, 2012-2013.

Notes: *** p<.01, ** p<.05, * p<.1 [A] A positive number in these columns indicates that the non-recipient group (the control group) has a higher average than the recipient group (the treatment group). A negative number indicates the reverse. [B] Sample restricted to subjects aged 16-65, and not enrolled in grades 1-9. [C] Education levels were split up as follows: None or Incomplete Primary, Primary, Secondary (incl. basic/vocational), Tertiary. [D] Sample restricted to subjects aged 15-64. [E] 'Working Age' refers to individuals aged 15-64. 'Working Age (Georgian)' refers to men aged 15-64 and women aged 15-59. [F] Additional covariates for which the difference in means was analyzed include: 5-year age cohorts, and (among those of working age who are without jobs) the month and year in which the respondent had last worked. For all of these additional indicators, results were either not significant (which was the case in the MIP sample), or if they were, the difference in means was very small. In particular, the TSA treatment group had a slightly higher share of individuals aged 70-74, as well as a slightly higher share of individuals aged 80-84 (both had a one percentage point difference). Short-term joblessness (having last worked 1-2 years ago) was slightly less prevalent in the TSA treatment group as compared to the TSA control group (3 percent vs. 6 percent of jobless subjects in the control group).

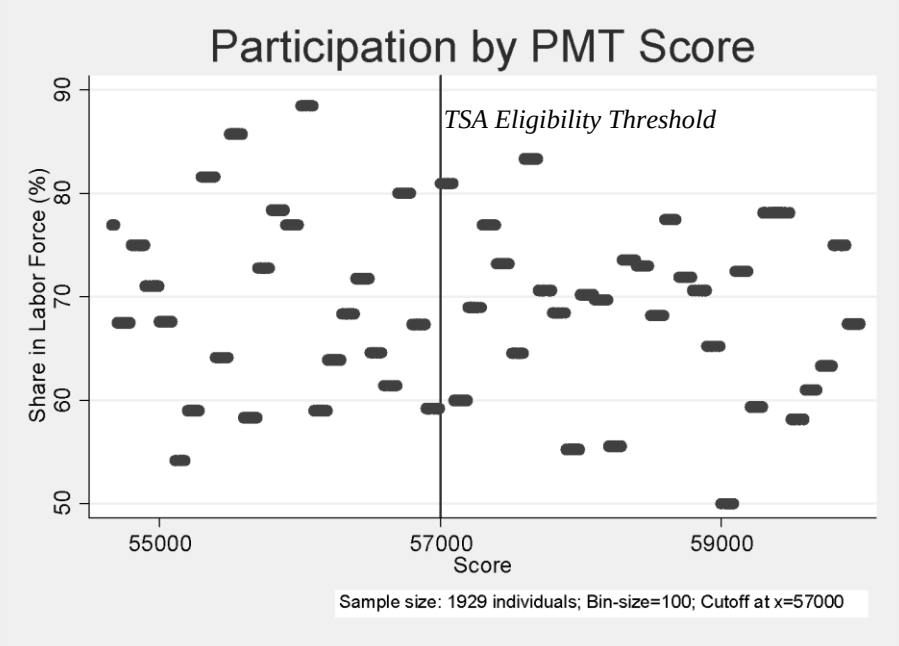
ANNEX 4: LABOR FORCE PARTICIPATION BY SCORE GROUP

Aggregate:

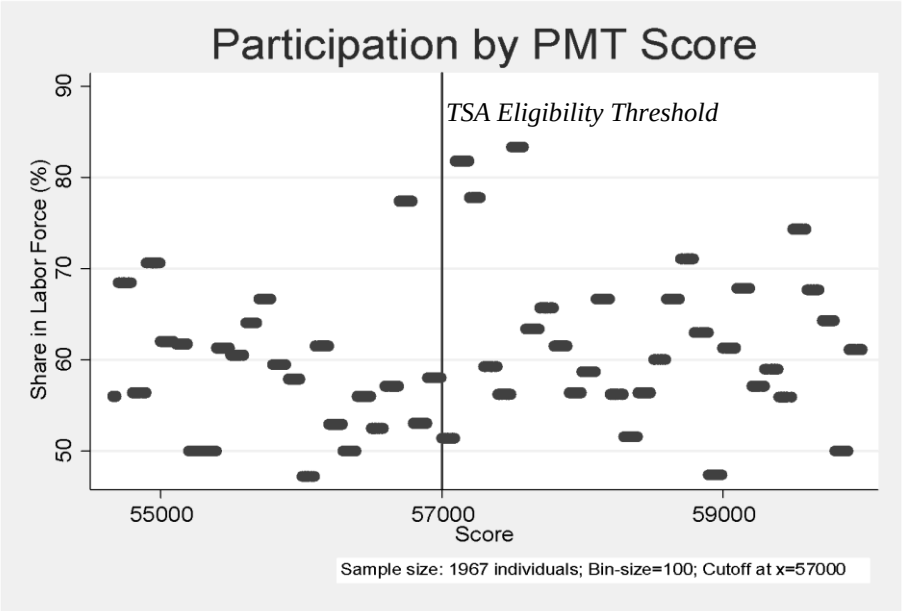


Source: Authors' calculations, based on SAHI Survey, 2012-2013.

Men:



Women:



Source: Authors' calculations, based on SAHI Survey, 2012-2013.

ANNEX 5: MEAN VALUES OF COVARIATES – LABOR FORCE PARTICIPATION

Variable (Range of values in brackets)	Full Sample		Excl. Students & Disabled	
	Mean	St. Dev.	Mean	St. Dev.
TSA beneficiary	0.48	0.50	0.48	0.50
Score (54660-60000)	57241	1545	57247	1542
Score squared (2.99E+09-3.60E+09)	3.28E+09	2E+08	3.28E+09	1.77E+08
No. Of years having received TSA (0-7)	2.05	2.16	2.03	2.16
Household was rescored within 2 months [A]	0.08	0.27	0.07	0.26
Urban	0.38	0.49	0.37	0.48
Household size (1-11)	4.62	1.77	4.63	1.77
Region: Adjara	0.11	0.32	0.11	0.31
Region: Guria	0.04	0.19	0.04	0.20
Region: Imereti	0.20	0.40	0.20	0.40
Region: Kakheti	0.11	0.31	0.11	0.31
Region: Mtskheta-Mtianeti	0.03	0.18	0.04	0.19
Region: Racha-Leckhumi, qvemo Svneti	0.03	0.17	0.03	0.17
Region: Samegrelo, zemo Svaneti	0.11	0.32	0.11	0.32
Region: Samtskhe-Javakheti	0.02	0.15	0.02	0.14
Region: Tbilisi	0.15	0.36	0.15	0.35
Region: Kvemo Kartli	0.07	0.25	0.06	0.24
Region: Shida Kartli	0.13	0.33	0.13	0.33
Household has own business	0.60	0.49	0.61	0.49
Labor intensity in the household [B] (0-0.857; 0-0.8333)	0.26	0.23	0.26	0.23
Monthly per capita non-wage income, excl. TSA [C] (-32.6667-800)	36.53	55.81	34.63	52.67
Interviewer (1-44)	21	13	22	13
Male	0.50	0.50	0.49	0.50
Age 15-19	0.12	0.32	0.06	0.23
Age 20-24	0.12	0.32	0.12	0.32
Age 25-29	0.11	0.32	0.13	0.33
Age 30-34	0.11	0.31	0.12	0.32
Age 35-39	0.10	0.30	0.11	0.31
Age 40-44	0.09	0.29	0.10	0.29
Age 45-49	0.11	0.31	0.12	0.32
Age 50-54	0.10	0.31	0.11	0.31
Age 55-59	0.11	0.31	0.11	0.31
Age 60-64	0.04	0.20	0.04	0.19
Belongs to an ethnic minority	0.06	0.24	0.06	0.23
Education level: None or Incomplete Primary	0.01	0.08	0.00	0.05
Education level: Primary	0.23	0.42	0.20	0.40

Education level: Secondary (incl. basic/vocational)	0.67	0.47	0.69	0.46
Education level: Tertiary	0.10	0.30	0.10	0.31
Household has pensioners [D]	0.36	0.48	0.35	0.48
Family composition: Single/Div./Wid., no children	0.16	0.36	0.15	0.36
Family composition: Single/Div./Wid., young children	0.05	0.22	0.06	0.23
Family composition: Single/Div./Wid., older children	0.16	0.37	0.12	0.32
Family composition: Single/Div./Wid., both young and older children	0.04	0.19	0.03	0.18
Family composition: Married, no children	0.19	0.40	0.20	0.40
Family composition: Married, young children	0.16	0.36	0.17	0.38
Family composition: Married, older children	0.15	0.36	0.17	0.37
Family composition: Married, both young and older children	0.09	0.29	0.10	0.30
Subject is the head of the household	0.25	0.43	0.27	0.44
Subject is a student	0.08	0.27		
Subject is disabled	0.05	0.23		
Obs.	3904		3393	

Source: Authors' calculations, based on SAHI Survey, 2012-2013.

Notes: [A] Households were only categorized as 'rescored within 2 months' if their original score was not below the TSA cut-off score of 57000. [B] Labor intensity in the household was defined as the number of working household members, excluding the subject being analyzed, divided by the total household size. [C] 2.15 percent of all sampled households reported a TSA income that was higher than the reported overall household income. Hence, there are a number of overall income values in this variable which fall below zero. [D] 'Pensioners' are defined as individuals aged 65 and over for men, and aged 60 and over for women, reflecting the official retirement ages in Georgia.

ANNEX 6: LABOR FORCE PARTICIPATION RDD RESULTS

Basic models. Dependent variable: Dummy for Labor Force Participation. Sample: Men and Women, working age.

	(1)	(2)	(3)	(4)	(5)
	No controls	**All controls**	**Restricted sample: 2/3 of scores [B]**	**Restricted sample: ½ of scores [B]**	**Restricted sample: No students and disabled**
TSA Beneficiary	-.052	-.062*	-.092*	-.112**	-.048
	(.034)	(.038)	(.049)	(.057)	(.034)
Score	-.000	-.000	-.001	.001	-.000
	(.000)	(.001)	(.001)	(.003)	(.000)
Score squared		.000	.000	-.000	.000
		(.000)	(.000)	(.000)	(.000)
Household has been rescored		-.011	.015	-.001	-.003
within 2 months		(.026)	(.032)	(.035)	(.022)
Male		.119***	.125***	.122***	.104***
		(.019)	(.023)	(.026)	(.016)
Age		.056***	.061***	.063***	.046***
		(.005)	(.006)	(.006)	(.004)
Age squared		-.001***	-.001***	-.001***	-.001***
		(.000)	(.000)	(.000)	(.000)
Primary education		.235**	.181	.215	.146
		(.107)	(.123)	(.149)	(.122)
Secondary education (incl.		.272*	.162	.218	.164
basic/vocational)		(.144)	(.152)	(.190)	(.182)
Tertiary education		.280***	.226**	.236**	.188**
		(.070)	(.091)	(.111)	(.084)
Unmarried, with children		-.004	-.031	-.051	-.010
		(.037)	(.047)	(.055)	(.034)
Married, no children		-.069**	-.114***	-.087*	-.066**
		(.035)	(.040)	(.047)	(.031)
Married, with children		-.057	-.104**	-.099*	-.055*
		(.036)	(.045)	(.050)	(.031)
Head of the household		.110***	.121***	.120***	.097***
		(.024)	(.028)	(.031)	(.020)
Student		-.373***	-.395***	-.357***	
		(.047)	(.061)	(.069)	
Disabled		-.674***	-.683***	-.671***	
		(.018)	(.023)	(.008)	
Urban		.089***	.046	.043	.072***
		(.032)	(.038)	(.040)	(.028)
Household size		.003	.003	.005	.001
		(.008)	(.010)	(.011)	(.007)
Own business		.333***	.327***	.321***	.327***
		(.030)	(.036)	(.037)	(.029)
Monthly per capita non-wage		.001***	.001***	.001***	.001***
income, minus TSA [C]		(.000)	(.000)	(.000)	(.000)
Additional control variables [E]	No	Yes	Yes	Yes	Yes
Observations	3,904	3,894	2,533	1,994	3,383

Source: Authors' calculations, based on SAHI survey, 2012-2013.

Basic models. Dependent variable: Dummy for Labor Force Participation. Sample: Women, working age.

	(1)	(2)	(3)	(4)	(5)
	No controls	**All controls**	**Restricted sample: 2/3 of scores [B]**	**Restricted sample: ½ of scores [B]**	**Restricted sample: No students and disabled**
TSA Beneficiary	-.073*	-.108**	-.112	-.132	-.090*
	(.044)	(.053)	(.070)	(.081)	(.050)
Score	-.000	-.000	.002	.008**	-.000
	(.000)	(.001)	(.002)	(.004)	(.001)
Score squared		.000	-.000	-.000**	.000
		(.000)	(.000)	(.000)	(.000)
Household has been rescored		-.020	.044	.025	-.030
within 2 months		(.035)	(.042)	(.047)	(.032)
Age		.061***	.062***	.060***	.053***
		(.008)	(.010)	(.010)	(.007)
Age squared		-.001***	-.001***	-.001***	-.001***
		(.000)	(.000)	(.000)	(.000)
Primary education		.124	.198	.191	-.049
		(.142)	(.164)	(.160)	(.238)
Secondary education (incl.		.164	.194	.208	-.029
basic/vocational)		(.156)	(.194)	(.183)	(.222)
Tertiary education		.231**	.261**	.247*	.076
		(.114)	(.132)	(.130)	(.203)
Unmarried, with children		-.008	-.051	-.067	-.011
		(.053)	(.067)	(.079)	(.052)
Married, no children		-.120**	-.142**	-.110	-.111**
		(.052)	(.064)	(.074)	(.051)
Married, with children		-.101*	-.153**	-.150**	-.096*
		(.053)	(.065)	(.076)	(.050)
Head of the household		.089**	.097**	.093*	.092***
		(.040)	(.046)	(.052)	(.035)
Student		-.316***	-.361***	-.381***	
		(.068)	(.085)	(.092)	
Disabled		-.629***	-.647***	-.636	
		(.023)	(.030)	(.)	
Urban		.121***	.052	.061	.109***
		(.044)	(.052)	(.058)	(.040)
Household size		-.013	-.009	-.010	-.012
		(.011)	(.013)	(.014)	(.010)
Own business		.375***	.370***	.370***	.384***
		(.040)	(.047)	(.050)	(.039)
Monthly per capita non-wage		.001**	.001***	.001***	.001***
income, minus TSA [C]		(.000)	(.000)	(.000)	(.000)
Additional control variables [E]	No	Yes	Yes	Yes	Yes
Observations	1,970	1,964	1,281	1,024	1,724

Source: Authors' calculations, based on SAHI survey, 2012-2013.

Interaction models. Dependent variable: Dummy for Labor Force Participation. Sample: Men and women, working age

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Score	**Score^2**	**Gender**	**TSA History**	**Age**	**Educa-tion**	**Urban**	**All**
P beneficiary terms	0.239	0.363	0.090	0.076	0.014	0.477	0.341	0.134
TSA Beneficiary	-1.0***	-1.0***	-.069**	-.077**	-.16***	-.052	-.053	-1.000
	(.000)	(.004)	(.035)	(.037)	(.055)	(.349)	(.037)	(.000)
Score	-.002	-.002	-.000	-.000	-.000	-.000	-.000	-.003
	(.002)	(.002)	(.000)	(.000)	(.000)	(.000)	(.000)	(.002)
Score squared	.000	.000	.000	.000	.000	.000	.000	.000
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Household rescored	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.003	-0.003
within 2 months	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.021)
Male	.104***	.104***	.083***	.105***	.104***	.104***	.104***	.085***
	(.018)	(.017)	(.023)	(.017)	(.016)	(.016)	(.017)	(.024)
Age	.046***	.046***	.046***	.046***	.045***	.046***	.046***	.044***
	(.005)	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)	(.006)
Age squared	-.001***	-.001***	-.001***	-.001***	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Primary education	.149	.149	.146	.150	.149	.136	.145	.158
	(.121)	(.120)	(.121)	(.120)	(.124)	(.235)	(.122)	(.222)
Secondary	.169	.169	.165	.171	.170	.163	.163	.203
education	(.181)	(.181)	(.180)	(.182)	(.187)	(.339)	(.181)	(.346)
Tertiary education	.191**	.191**	.189**	.192**	.191**	.195	.188**	.211
	(.083)	(.081)	(.082)	(.081)	(.084)	(.149)	(.084)	(.134)
Unmarried, with	-.009	-.009	-.009	-.008	-.011	-.010	-.010	-.009
children	(.034)	(.034)	(.034)	(.034)	(.034)	(.034)	(.034)	(.034)
Married, no	-.066**	-.066**	-.066**	-.066**	-.064**	-.067**	-.066**	-.064**
children	(.032)	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)
Married, with	-.056*	-.056*	-.054*	-.055*	-.054*	-.055*	-.056*	-.052*
children	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)	(.032)
Head of the	.097***	.097***	.097***	.098***	.098***	.097***	.097***	.098***
household	(.021)	(.020)	(.020)	(.020)	(.020)	(.020)	(.020)	(.022)
Urban	.072**	.072***	.072***	.072***	.072***	.071**	.067**	.061*
	(.028)	(.028)	(.028)	(.028)	(.028)	(.028)	(.033)	(.033)
Household size	.001	.001	.001	.001	.001	.001	.001	.001
	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)
Household has own	.329***	.329***	.327***	.329***	.327***	.327***	.327***	.333***
business	(.033)	(.029)	(.029)	(.029)	(.029)	(.029)	(.029)	(.035)
Monthly income,	.001***	.001***	.001***	.001***	.001***	.001***	.001***	.001***
minus TSA [C]	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
No. of years having	-.002	-.002	-.003	-.012	-.002	-.003	-.003	-.012
received TSA	(.005)	(.005)	(.005)	(.008)	(.005)	(.005)	(.005)	(.008)
Beneficiary * Score	.000							.003
	(.000)							(.004)
Beneficiary * Score		.000						-.000
squared		(.000)						(.000)
Beneficiary * Male			.044					.039
			(.030)					(.030)
Beneficiary * No. of years received TSA				.016				.016
				(.010)				(.010)
Beneficiary * Age					.003***			.003***
					(.001)			(.001)

Beneficiary *						.023		.003
Primary education						(.334)		(.348)
Beneficiary *						.002		-.024
Secondary educ.						(.348)		(.356)
Beneficiary *						-.039		-.066
Tertiary education						(.378)		(.396)
Beneficiary *							.011	.023
Urban							(.035)	(.035)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,383	3,383	3,383	3,383	3,383	3,383	3,383	3,383

Source: Authors' calculations, based on SAHI survey, 2012-2013.

Interaction models. Dependent variable: Dummy for Labor Force Participation. Sample: Women, working age.

	(1)	(2)	(4)	(5)	(6)	(7)	(8)
	Score	**Score^2**	**TSA History**	**Age**	**Educa-tion**	**Urban**	**All**
P beneficiary terms	0.043	0.092	0.036	0.006	0.455	0.191	0.000
TSA Beneficiary	-1.0***	-1.0***	-.137**	-.273***	-.991	-.085	1.0
	(.000)	(.000)	(.056)	(.084)	(.744)	(.056)	(.000)
Score	-.005*	-.005*	-.000	-.000	-.000	-.000	-.004
	(.003)	(.003)	(.001)	(.001)	(.001)	(.001)	(.004)
Score squared	.000	.000*	.000	.000	.000	.000	.000
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Household rescored	-.031	-.031	-.031	-.029	-.030	-.030	-.030
within 2 months	(.032)	(.032)	(.032)	(.032)	(.032)	(.032)	(.033)
Age	.053***	.053***	.052***	.050***	.052***	.053***	.050***
	(.008)	(.007)	(.007)	(.007)	(.008)	(.007)	(.018)
Age squared	-.001***	-.001***	-.001***	-.001***	-.001***	-.001***	-.001***
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Primary education	-.027	-.027	-.043	-.049	-.913	-.048	-.918
	(.223)	(.223)	(.235)	(.244)	(1.495)	(.239)	(11.209)
Secondary	-.007	-.007	-.023	-.026	-.790	-.028	-.799
education	(.215)	(.215)	(.221)	(.228)	(4.666)	(.222)	(35.924)
Tertiary education	.099	.099	.082	.077	-.866	.076	-.871
	(.186)	(.186)	(.199)	(.208)	(1.580)	(.204)	(12.010)
Unmarried, with	-.011	-.011	-.007	-.011	-.011	-.011	-.007
children	(.053)	(.053)	(.052)	(.053)	(.052)	(.053)	(.052)
Married, no	-.113**	-.113**	-.108**	-.102**	-.111**	-.111**	-.103*
children	(.051)	(.051)	(.051)	(.051)	(.051)	(.051)	(.056)
Married, with	-.096*	-.096*	-.092*	-.090*	-.095*	-.095*	-.086
children	(.050)	(.050)	(.050)	(.050)	(.050)	(.050)	(.056)
Head of the	.091**	.091**	.096***	.097***	.092***	.092***	.099*
household	(.036)	(.035)	(.035)	(.035)	(.035)	(.035)	(.053)
Urban	.110***	.109***	.109***	.110***	.108***	.115**	.109*
	(.040)	(.040)	(.040)	(.040)	(.040)	(.045)	(.058)
Household size	-.013	-.013	-.013	-.013	-.012	-.012	-.013
	(.010)	(.010)	(.010)	(.010)	(.010)	(.010)	(.011)
Household has own	.387***	.387***	.386***	.387***	.382***	.384***	.389***
business	(.040)	(.039)	(.038)	(.038)	(.040)	(.038)	(.102)
Monthly income,	.001***	.001***	.001***	.001***	.001***	.001***	.001*
minus TSA [C]	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.001)
No. of years having	.004	.004	-.013	.004	.003	.003	-.012
received TSA	(.008)	(.008)	(.011)	(.008)	(.008)	(.008)	(.011)
Beneficiary * Score	.000*						-.001
	(.000)						(.005)
Beneficiary * Score		.000*					.000
squared		(.000)					(.000)
Beneficiary * No. of years received TSA			.027* (.015)				.026 (.017)
Beneficiary * Age				.005***			.005**
				(.002)			(.002)
Beneficiary *					.462		.468
Primary education					(1.911)		(15.111)
Beneficiary *					.892		.905
Secondary educ.					(3.552)		(25.589)

Beneficiary *					.378		.380
Tertiary education					(1.014)		(8.018)
Beneficiary *						-.012	-.001
Urban						(.051)	(.053)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,724	1,724	1,724	1,724	1,724	1,724	1,724

Source: Authors' calculations, based on SAHI survey, 2012-2013.

Notes for basic models:

[A] Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. [B] In model 3, 2/3 of the total score range was used (55440-59000). In model (4), ½ of the total score range was used (55830-58500). [C] 2.15 percent of all sampled households reported a TSA income that was higher than the reported overall household income. For these households, income was set to zero. [D] Reference categories: Education level: None / incomplete primary; Family type: Unmarried, no children. [E] Additional control variables include: the number of years during which the household has received TSA benefits in the past, the number of other individuals in the household that are employed as a share of total household size, regional fixed effects, whether the individual belongs to an ethnic minority, whether there are pensioners in the household, and interviewer fixed effects.

Notes for interaction models:

[A] Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. [B] In all models, students and individuals with a disability were excluded from the analysis. [C] Income refers to per capita, non-wage income. 2.15 percent of all sampled households reported a TSA income that was higher than the reported overall household income. For these households, income was set to zero. [D] Reference categories: Education level: None / incomplete primary; Family type: Unmarried, no children. [E] Additional control variables include: the number of other individuals in the household that are employed as a share of total household size, regional fixed effects, whether the individual belongs to an ethnic minority, whether there are pensioners in the household, and interviewer fixed effects.