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Impact Assessment of South Africa's Child Support Grant on Employment Outcomes

Marika Aleksieieva

moal@williams.edu

Dr. Michael Samson, Advisor

Dr. David Zimmerman, Advisor

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For Mom and Dad

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Abstract

This paper evaluates the impact of South Africa's Child Support Grant (CSG) on labor supply in the households that are beneficiaries of the grant. The Child Support Grant is the largest cash transfer program in South Africa, designed to provide basic financial assistance to the caregivers of children living in extreme poverty and to prevent the perpetuation of poverty in South Africa. Previous research has demonstrated that the CSG promotes developmental outcomes in South Africa by improving the education, nutrition, and health of the impoverished children. An examination of the effect of receipt of the CSG on employment helps to address the concern often raised about social welfare programs. Specifically, I will consider the CSG's potential contribution to the development of a culture of dependency and a distortion of incentives to participate in the labor market.

I investigate the effect of CSG receipt on total, formal and informal employment in the recipient households over the period 2008-2010. I employ a fixed effect model, which enables me to control for both observable and time-invariant unobservable characteristics, and thus reduce potential omitted variable bias characteristic of non-experimental study designs. I use Statistics of South Africa's General Household Surveys from 2008 and 2010 to create a sample of households that receive at least one Child Support Grant in both years and thus substantially reduce the problem of reverse causality. I find that household labor force participation is not statistically significantly related to CSG receipt, both in terms of total, formal and informal employment outcomes, and in terms of each of these outcomes disaggregated by age groups, gender, relationship to the household head, and relationship to the household head separately for both genders. This result is robust to various changes to the specification used and the sample employed. These findings suggest that concerns about decreased labor supply are likely to be exaggerated.

1. Introduction

Nineteen years after the end of apartheid, South Africa remains one of the most unequal societies in the world. Though today it is one of the richest African countries, 16 million of South Africans live on less than 2 US dollars a day (Children's Institute, 2011). This disparity is a relic of apartheid's policies, including the imposition of a racialized spatial regime, social marginalization, and economic segregation. These policies relegated the majority of the country's native Africans to the economic periphery. As part of an attempt to combat this legacy, the South African government has enacted a series of fundamental policy changes endeavoring to help members of historically vulnerable and marginalized groups lift themselves out of poverty. One of its largest-scale intervention projects has been a development by the South African government of what has become the most comprehensive, generous and efficient social welfare system in Africa, currently covering over 15.5 million South Africans, or more than one fourth of the country's population (SASSA, 2012). Nevertheless, job market opportunities remain exclusionary toward the uneducated and poorest groups – groups that were disempowered by the previous regime, causing stark and persisting differences in income across different racial groups and regions of South Africa.

Children bear a significant burden of income poverty in South Africa, as they are disproportionately represented in households located in poor areas in which employment opportunities are limited. Of the 18.5 million children that live in South Africa, 12 million live in poverty,¹ and 6 million children live in households where no adult is employed (Children's Institute, 2011). The South African government has tackled child

¹ Using the lower poverty line of R575 (US\$65) per person per month in 2010. This number includes added income from social grants.

poverty through three social grants that specifically target vulnerable children. Of these, the Child Support Grant (CSG) has evolved to encompass the most widespread coverage of South African social grants. Today, this unconditional monthly cash transfer reaches over 11 million children.

Since first introducing the CSG into the social welfare system in 1998, the South African government has progressively devoted greater resources to expand the reach and impact of the CSG. Hence, robust and convincing evidence of the grant's positive impact on children and their households is needed now more than ever.

A number of studies have found that the CSG has significant positive effects on children, specifically in terms of its contribution to their health, nutrition, and schooling outcomes. These positive results prove the CSG to be largely successful in terms of accomplishing the grant's immediate goals to empower vulnerable and impoverished children. However, serious concerns have been voiced by policymakers regarding the potential side effects of the CSG on labor supply. Studies by Samson et al (2004) and Williams (2007) investigated the effects of the CSG on labor supply in the early stages of the program (the latest study, by Williams, used data from a survey conducted in 2005). In light of significant changes in the program's design, including decreased barriers to access, increasingly inclusive eligibility criteria, rising benefit amount, and an increase in the average number of CSGs recipients per household, a new inquiry into the question is necessary.

Therefore, in this paper I aim to examine the effectiveness of the Child Support Grant in South Africa in terms of the grant's impact on changes in labor supply among grant recipients. The analysis presented here is also an attempt to provide insight into the

debate of whether the potential negative impacts of social assistance programs, such as the creation of a dependency climate and the distortion of incentives to join the labor force, should continue to concern policymakers. I employ a fixed effect model and a Statistics of South Africa's *General Household Survey 2008/2010* panel to investigate the effect of the CSG on total, formal and informal employment. I find that household labor supply for each of these three outcomes is not related to receipt of the CSG in a statistically significant way. Additionally, I examine the strength of this relationship for total, formal and informal employment 1) separately for each gender, 2) for five different age groups, 3) for household heads versus non-heads, and 4) for household heads versus non-heads by gender. Again, I find no evidence in support of the dependency argument, and most specifications show no statistically significant relationship between changes in CSG receipt and changes in employment.

This paper is organized as follows. Section 2 provides a brief overview of South African history, with special attention paid to the South African social welfare system. Section 3 describes the history of the Child Support Grant and details the changes in its coverage and its eligibility criteria over time. Section 4 offers a literature review of research relevant to evaluation of structural poverty in South Africa and of the studies done on the Child Support Grant, including on its effect on labor supply. Section 5 is a discussion of the limitations of the current study as well as of potential biases that I attempt to maximally account for with the specifications of my model and sample employed. I detail these model and sample specifications in Section 6. Section 7 describes results of my analysis of how changes in the CSG relate to changes in total, formal and informal employment at the household level. The current study's main

findings are summarized in Section 8, which also discusses limitations and policy implications of this evaluation. Following references, which can be found in Section 9, Section 10 presents a detailed description of my analysis of the relationship between the CSG and labor supply for each employment type by gender, age, relationship to the household head, and relationship to the household head by gender.

2. South Africa's Social Welfare System

An understanding of the socio-political and historic context in which social protection grants are designed and implemented is an essential prerequisite for any evaluation of the impact of social grants. This is particularly important in South Africa, where the majority of the population, until the end of apartheid in 1994, had been estranged from equal employment, education, and other opportunities, causing high levels of income inequality to perpetuate to the present day. Hence, in this section, I provide a brief overview of the history of the country's social protection system from the time of apartheid until today, as well as discuss the role of the South African government in addressing the climate of poverty in post-apartheid South Africa.

South Africa's current social security system was inherited from the pre-apartheid regime. It was first devised according to the European welfare system model in the 1920s, but its coverage was limited only to the formally employed white elite (Devereux, 2010). This meant that it did not reach the overwhelming majority of informally employed or unemployed people that required governmental support. The system of social protection in South Africa remained racially discriminatory until the end of apartheid. In 1913, the Children's Act instituted grants for impoverished white children, with further extensions to Indians and coloreds made by the middle of the century. As of 1990, however, the program still covered less than a one percent of Black Africans who constituted more than three quarters of South Africa's population (Neves et al., 2009). Another prominent category of social grants, the Old Age Pensions Act for the elderly, was passed in 1928, and was designed to benefit only whites and

coloreds. In 1944, its eligibility was extended to Africans and Indians (Neves et al., 2009). By the 1970s, the demand for black workers increased, hence contributing to the system becoming slightly more inclusive. Budget-wise, this was possible through decreases in the benefits for the whites (Neves et al., 2009).

After the end of apartheid, the country entered a period of all-encompassing transition to democracy, with the South African government setting a goal to extend social protection to the historically marginalized part of the population. Hence, in 1994, under President Mandela's leadership, the post-apartheid government introduced the Reconstruction and Development Program (RDP) with the goals of offering assistance to meet basic needs, foster human capital development, and establish an inclusive social welfare system (BTI, 2012). Such a strong political commitment to making South Africa an equal society has led to significant progress, although the deep roots of the socially and economically divided and segregated society remain a legacy of centuries of discrimination and the apartheid politics (BTI, 2012). The regime that caused an estrangement of the majority of the native population from social security coverage, along with land dispossession policies, racial discrimination in the job market, and limited education opportunities, resulted in the creation of a large underclass, constituted by the poorest 40 percent of the population (Neves et.al., 2009).

As noted in the *African Peer Review Mechanism Report 2010-2011*, the country still faces tremendous challenges, with high levels of poverty and inequality (Gini 63.1 in 2009, according to The World Bank, 2013), ongoing racial and gender discrimination, social segregation, corruption, and unemployment, which remain to be key challenges that profoundly impact people's life chances. For instance, income

poverty in 2011 was at 64% for the African population, which is 79% of the overall population (this figure is significantly higher in rural areas). Urban poverty numbers have also been growing, along with divergence among different demographic groups due to the increased integration of the South African economy into the global economy, which began in 1994. Consequently, the demand for unskilled labor relative to skilled labor has been decreasing, leading to further increases in unemployment among the historically disadvantaged majority of South Africa's population (ODI 2011).

In the context of significant historically conditioned hurdles, unfavorable economic conditions post-apartheid, a politically bumpy transition to democracy, and the challenges of globalization and integration into a world economy (made even more problematic by the recent financial crisis), social assistance has become a particularly important part of South Africa's inclusive growth prospects. Hence, the designs of social protection programs have serious implications for how state resources are being distributed among social classes and what new patterns for social and economic integration or exclusion are being generated as a result. Lund argues that since 1994, the African National Congress has been actively using social policy platform to achieve the openly political goal of decreasing social inequalities and injustices (Lund, 2008). The political will for a progressive social welfare system has resulted in designs of new categories of social protection programs, as well as redesigns of the pre-apartheid ones to make them more inclusive by raising their eligibility criteria and benefit amounts (Devereux, 2010).

Since 1994, a strong and steady political commitment by post-apartheid governments has led South Africa to have the largest and most comprehensive social security systems in Africa (ODI 2011), with the amount of grant coverage increasing

each year, covering over 15.5 million as of the end of March 2012– more than a quarter of South Africa’s population - and beneficial to millions of others in the receiving households (SASSA 2012). For many households, these social grant payments are the only regular source of income, and enable people who for permanent or temporary reasons are unable to work to have a safety net. Thus, for the time that work-capable individuals are unemployed, the safety net is designed as a temporary support while they seek employment. For the elderly, social assistance is designed to provide income security in old age. Finally, it is designed to provide basic financial security to families that are facing life shocks such as disability and death.

According to the Budget Review 2011 released by the National Treasury, over the medium term, real growth in government transfers to households is expected to average 3.2 percent per annum. In 2013/14, social assistance is expected to contribute R114, 409 billion to household income, thus being a substantial input into poverty alleviation. Three grants that target children are the Child Support Grant (CSG), the Foster Child Grant (FCG), and the Care Dependency Grant (CDG). There are also four grants that target adults: the Old Age Grant (OAG), the War Veteran’s Grant (WVG), the Disability Grant (DG), and the Grant in Aid (GIA). In terms of coverage, the largest is the CSG, which as of 2011 reached more than 10 million children. Almost 2.6 million of the elderly receive pension, and almost 450 thousand caregivers receive the Care Dependency and Foster Child grants. Furthermore, 7.1 million children are exempt from school fees, more than 400 thousand of children are subsidized in early childhood development centers, 8.1 million children benefit from the school feeding program, and all children are eligible for

comprehensive health services, with primary health care available free of charge for all residents (Budget Review 2011).

Table 1 shows the number of households that receive at least one social grant by quintile, with quintile 5 being the top quintile and quintile 1 the bottom quintile. The table demonstrates that more than half of all households in the bottom two quintiles receive at least one child grant. The incidence of social grants decreases drastically for households in the top two quintiles, showing the pro-poor nature of social grants. (McEwen et. al., 2009).

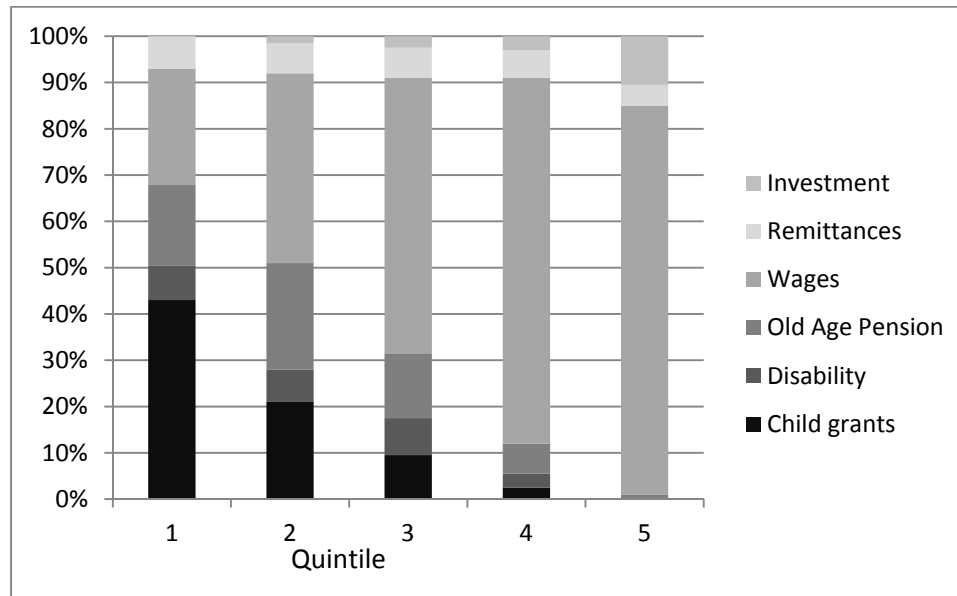
Table 1: Distribution of the reported household income from social grants by quintile, South Africa

Quintile	% reporting any income from Child Grants	% reporting any income from Disability Grant	% reporting any income from OAP
1	55.8%	5.7%	9.8%
2	57.9%	10.9%	27.1%
3	45.4%	14.7%	23.5%
4	26.5%	9.9%	17.7%
5	9.0%	2.8%	5.0%
All	33.6%	8.2%	15.3%

Source: Reproduced directly from McEwen et.al. (2009: 20)

As is evident from the Figure 1, income of the families in the bottom quintiles comes largely from social assistance grants, with a significant amount coming from the child grants (combination of CSG, FCC, and CD) particularly for the bottom two quintiles (Leibbrandt et al, 2010, p. 62).

Figure 1. Household income sources by income quintile, 2008



Source: Reproduced directly from Leibbrandt et al.(2010, p.62)

Such striking statistics demonstrate the important role of social grants in providing basic subsistence income to the impoverished households. According to Leibbrandt et.al. (2010), due to the country’s continuously rising inequality levels within the labor market, social assistance grants (mainly the CSG, DG, and OAP), although altering the levels of inequality only marginally, have been crucial in reducing poverty among the poorest and most vulnerable households.

3. History of South Africa's Child Support Grant

If you are a South African citizen or a permanent resident, earn below a set income threshold, and are a primary caregiver (parent, grandparent, or child above 16 heading a family) of a child who resides with you in South Africa, you qualify for the Child Support Grant. In 2012-2013, this means that your earnings cannot exceed R33600 (USD 3817)² per year if you are single, or a combined spousal income of R67000 (USD 7612) per year if you are married, as well as if your child is below 18 years of age. According to South Africa Government Services, if you are eligible for the grant, you must submit the required paperwork, which includes your and the child's identity documents, your earnings, and a few other certificates regarding your marriage status and the child's school and health reports (if applicable), to the South African Social Security Agency (SASSA) office nearest to where you live. The decision on the success of your application will be mailed to you once your case is reviewed (there is an appellate process available as well). If you are approved, you will receive a R280 (USD 31.8) per month per eligible child in the form of cash or electronic deposit transferred directly into your bank account.

In 2012, the Child Support Grant is the country's largest social cash transfer program, reaching 11,227,832 million South African children each month (SASSA Fact Sheet Issue no 7 of 2012) – a more than tenfold increase since its first introduction in 1998. Its primary objective is to provide basic financial assistance to the caregivers of children living in extreme poverty in the form of a cash transfer “to supplement, rather than replace, household income” (Delany et. al., 2008:1). Prior to 1998, the South

² Calculated according to exchange rate as of 2012.12.04

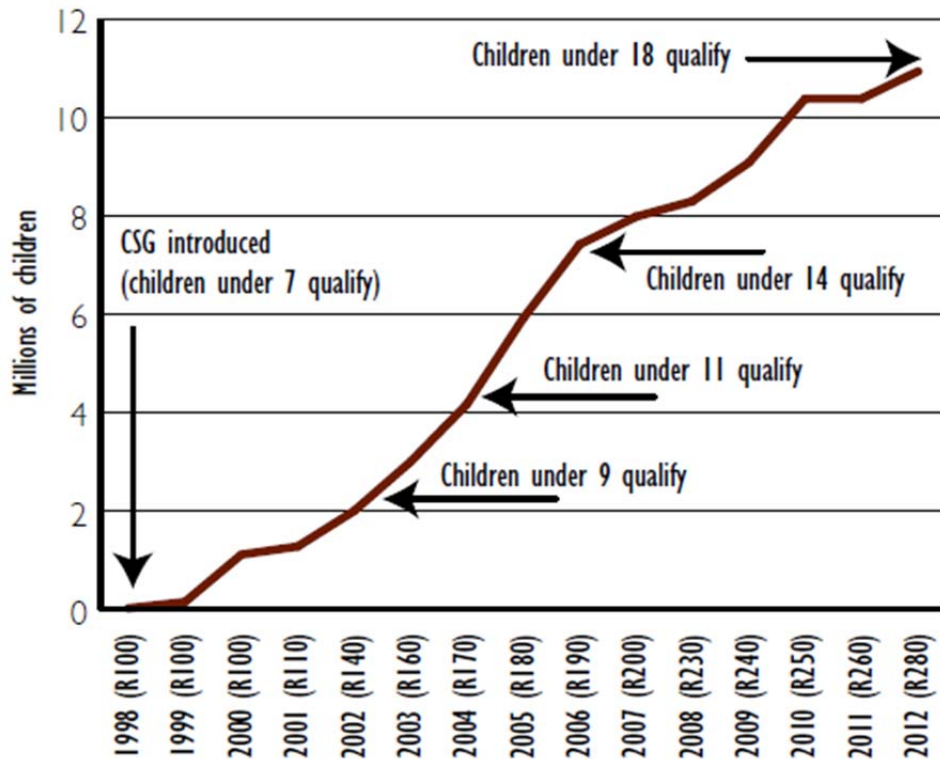
African government provided a State Maintenance Grant (SMG). It was very limited and, upon its evaluation via household survey in 1990, turned out that only 0.2% of African children were actually receiving the grant – with the most disadvantaged social groups through Apartheid showing the lowest number of receipts of all, due primarily to a number of obstacles in access to the grant (SASSA, 2012). As the Lund Committee that was established by the Government of South Africa recommended broader SMG coverage in 1995, the CSG replaced the SMG in 1998 (McEwen et.al, 2009), with further modifications (such as making application requirements less burdensome) in 1999, leading to an eventual increase in the grant take-up in the poor areas in the following years (Heinrich et.al., 2012). The means test was also altered such that means test eligibility was based on caregiver and spouse's income rather than household income (Heinrich et.al, 2012). The means test that defined eligibility for the grant from 1999 until 2008, in nominal terms, was R800 per month per primary caregiver for families living in rural areas and R 1,100 for families living in urban areas (Delany et.al., 2008) While the monetary value of the CSG was continuously adjusted for inflation, the fact that the means test had not been adjusted for almost ten years meant that it was increasingly difficult for the caregivers to qualify over time (Delany et.al., 2008). In other words, applicants that would be means eligible in 1998 could no longer be eligible in the future. Based on the research presented by the Economic Policy Research Institute in 2008, the Department of Social Development adjusted the eligibility threshold of the means test to be ten times the value of the grant. Since then, the means threshold has increased in a stepwise fashion (Heinrich et.al, 2012).

Since 1998, the age eligibility for the Child Support Grant has also increased. In 1998, only children under 7 years old were eligible for the grant. In April 2003, the age

limit was increased to include children under 9. In April 2004, age eligibility was extended to children under 11, a year later to children under 14, and in April 2008 to children under 15. In 2010, 15-year-olds were eligible for the grant. Finally, starting in April 2011 children under 18 qualify for the grant.

As shown in Figure 2, in the past fourteen years, South Africa has been able to make child assistance much more inclusive. However, as SASSA’s May 2012 report indicates, exclusion of the poorest and most vulnerable children in South Africa remains a major challenge. As suggested by the SASSA, this motivates “serious consideration of universal provision of the Child Support Grant” (2012, p.3)

Figure 2. Child Support coverage, 1998-2012



Source: Reproduced directly from SASSA, 2012, p.3

With an increasing amount of resources devoted to the development and execution of such a large-scale government intervention, it is essential to have rigorous and convincing evidence regarding the impact of the program on promoting human development outcomes to maintain the Child Support Grant program. The following section will revisit a number of previous studies that have looked at the program's impact on a number of important outcomes, including its impact on labor supply.

4. *Literature Review*

Until recently, material accounts of poverty had been prevalent in conceptions of poverty that had formed the foundation of much economic analysis. Such narrow understandings of poverty, such as that in terms of lack of income, under-consumption, or under-expenditure, led to frequent misunderstandings of the benefits of social protection programs. This is because poverty is a multi-dimensional phenomenon, which is marked by a series of interlinked deprivations that are targeted by social grants but overlooked by standard poverty accounts. Sen (1995) has an unconventional view of poverty as a lack of a broad array of capacities, from civic freedoms to availability of healthcare, proper nutrition or education. As described in the World Bank's World Development Report 2000/2001, the key issues in addressing poverty can thus be viewed as the need to provide opportunity, security, and empowerment to poor people trapped in poverty due to various social, geographic, and economic disadvantages and discrimination imposed on them.

Such a broad and multilayered conceptualization of structural poverty is particularly important for understanding the role of social protection in the South-African context. South Africa is a middle-income country that is highly unequal due to long-rooted historical patterns of dispossession and impoverishment, and to the modern day exhibits the legacy of the colonial and apartheid-eras. As argued by Seekings and Nattrass (2005), accumulated disadvantages have created a massive "underclass." Neves and Samson (2009) argue that, even though racial discrimination was abolished with South Africa's political transition in the early 1990s, the social divide it created forces the poor to remain in a poverty trap. The authors claim that, in fact, South African economic development

today causes further marginalization of historically disadvantaged and relatively unskilled workers by estranging them from employment opportunities.

Advocates for social protection have performed many studies that illustrate multiple types of positive effects of social grant receipt at individual, household, communal, and even national levels. For instance, Samson et al. (2004) provides evidence that cash transfers reduced South Africa's poverty gap by 49 percent and decreased the value of the Gini inequality measure by seven percentage points, illustrating powerful impacts of social grants on faster development and poverty reduction. Gertler and Boyce (2001) are among the multiple scholars that provide robust evidence that social transfers are connected with better nutrition and lower morbidity among recipients. The loss of productivity associated with the absence of proper nutrition has been documented with a case study of Zimbabwe: Hoddinott and Kensey (2001) have computed that children affected by drought and thus deprived of proper nutrition and schooling would experience a seven percent loss in lifetime earnings. Neves and Samson (2009) bring South African data to evidence that public cash transfers facilitate the accumulation of human capital through investments in health and education. They single out three main mechanisms through which economic effects of social grants operate: households are better equipped to face risk and insecurity; social grants encourage savings and investment; and social grants support the development of local markets. They also argue that social transfers can have long-term positive implications for the economic security and political stability of the country through a number of localized micro-processes that benefit grant-recipients, their households and communities. Studies by Lund (2002) and Burns et al. (2004) show that cash transfers support investments in

productive assets and activities that facilitate engagement in the labor market and contribute to the development of local markets. Samson (2009) also suggests that social transfers can help households to weather livelihood shocks better, thus providing the impoverished people with basic insurance against risk. A number of positive implications of the grants' potential effects on the labor force follow from that evidence. Schoer and Leibbrandt (2006) argue that social grants may help the poor households to make high-return investments as the grant enables them to be less cash constrained. Posel et al. (2006) also argues that grants help households finance migration.

Critiques of social protection, however, have expressed important concerns about the potential negative impacts of social grants. Some of the popular conservative arguments are that social grants elevate fertility among teenagers who want to receive extra grant income, increase cases of corruption and clientalism in relation to the state, or potentially displace private transfers (Cox et.al. 1999). South African President, Jacob Zuma (2009-present), previously raised an issue that young women might be abusing the social welfare system by becoming pregnant, leaving their children with older family members, and using the grant money for personal entertainment. However, evidence from two detailed surveys analyzed by Richter (2009), as well as from a study done by a Human Sciences Research Council (HSRC), which all investigated the relationship between teenage pregnancies and CSG receipt (Richter 2009), did not support Zuma's concern.

Analyses of the effects of social assistance programs on labor supply have theorized that social grant receipt can discourage recipients from participation in the labor force. The concern is that as households receive extra income from a social transfer they

may respond by choosing to work less or not to work at all. As Figure 1 shows, almost 70 percent of income of the households in the bottom income quintile comes from social grants, and most of this income comes from child grants (a sum of Child Support Grant, Foster Care Grant, and Care Dependency Grant - with the Child Support Grant being the largest of these). Further, 50 percent of income of households in the second lowest quintile comes from social grants.

Presence of such a substantial additional income source makes the possibility of such a reduction in labor supply a valid concern for policy makers in South Africa. In addition, it is possible that the substitution effect could change the incentive structure among grant recipients, especially among households that receive means tested grants such as the CSG. It is possible that families that receive the CSG might have less incentive to seek employment as employment means increase in income and they are afraid that would cause them to fall out of eligibility status.

Such fear among the CSG recipients is not ungrounded. For instance, Case et al. (2005) finds that children whose mothers are unemployed are 14 percent more likely to be recipients of a CSG, compared to children whose mothers work full-time, because the latter are less likely to pass the means threshold for the grant. Similarly, Case et al (2005) find that families in which fathers do not have a job are much more likely to be receiving the grant than are families with fathers that are employed. Finally, they find that families where parents did not complete high school are more likely to receive the grant, other things being equal. (Case et al. 2005) While these studies might suggest that households remain poor because of their dependency on the grant, they might be merely documenting the fact that the CSG is indeed reaching the poorest households.

The effects of the social assistance programs on employment in South Africa remain controversial. For instance, Bertrand et al (2003), in their study of South African pension-receiving households, found that male household members 15-30 years old were less likely to undertake work. Williams (2007), however, cites studies by Ardington and Lund (1995) and Cross and Luckin (1993) showing that pension was used by the recipient households to secure credit and use it to purchase equipment and other necessities for different parts of the agricultural production cycle. Finally, Muller (2007) finds that pension income in South Africa is associated with a decrease in employment rates, but argues that this is due to the increase in the number of non-working household members that join the household with hopes to benefit from relatives that receive the grant. Inconclusive results of these, among others, studies suggest that it is difficult to measure the effects of grant receipt on employment directly. As Surender et al. (2010) explains in their study, the value placed on paid work, as well as attitudes to unemployment or social welfare schemes in South African society, can shape decision-making processes in ways that can affect the successes of the welfare programs in this particular context. Furthermore, they note that really little is known about the incentive structures and motivation of those at the margins of the labor market, and that, while the old pension grant has been studied more than the CSG, we cannot make direct inferences about the effects of the CSG from what we know about the effects of the old age grant.

While the Child Support Grant is a major grant in South Africa and was implemented fifteen years ago, few studies have investigated its effects on labor supply. Samson et al (2004) used 2000, 2001 and 2002 Labor Force Surveys and 2000 Income and Expenditure Survey to study the topic and found a positive and statistically

significant correlation between grant receipt and employment. However, these results could be biased by the fact that households had to be selected into the grant receipt and so cannot prove causality. It could be the case, for example, that households selected into the program differ in other relevant ways from non-recipient households and that these differences affected their subsequent employment. A later study by Williams (2007) uses General Household Surveys 2002, 2003, 2004 and 2005 and the Labour Force Surveys of 2004 and 2005 to assess the effects of the CSG on the labor market. In this study, Williams exploits South Africa's significant expansion of the child's age eligibility limit as a source of exogenous variation in grant take-up since 2002. In defining his employment outcomes, Williams adapts Nattrass (2002) framework and defines broad labor force participation as "willingness to accept a job if a suitable one was available," narrow as "active job search," and employment as "only the currently employed" (Williams 2007, p. 43). He finds that the CSG can increase broad labor force participation but does not statistically significantly affect narrow labor force or employment.

5. *Conceptual Framework*

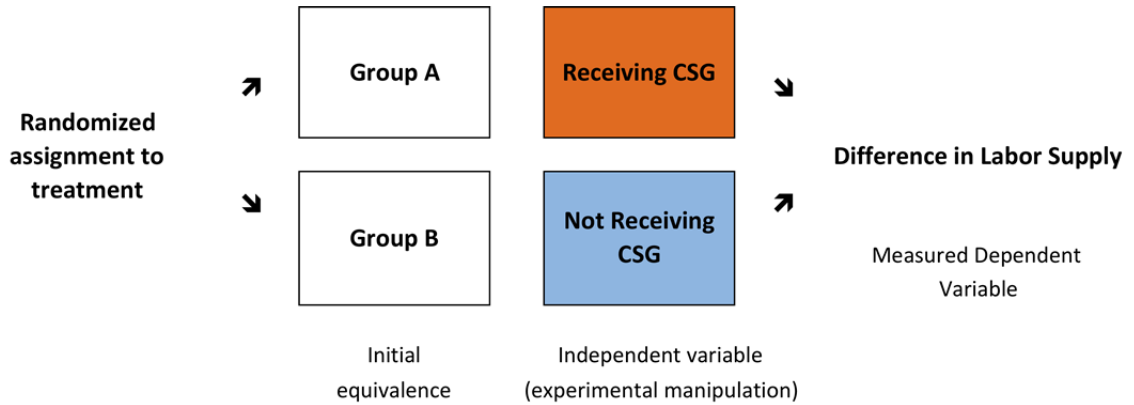
An increasing number of studies have shown that social cash transfers can be a powerful tool for tackling poverty and promoting capital development. In South Africa, where the majority of the population has been chronically disadvantaged, the South African government views social grants as a way to build human capital by providing the poor with basic income sources and, thus, helping them mitigate risk and encouraging their long-term income generating potential (Samson 2009). In regards to the Child Support Grant, the literature review shows that there have not been enough studies that investigate its effect on labor supply. Similarly, the debate about the channels of impact of social assistance programs on labor supply in general, as well as of South Africa's Child Support Grant in particular, is not settled.

This paper is therefore an attempt to further the existing analysis of the indirect impact of the Child Support Grant on employment of work capable individuals in the households that receive the grant. Hence, my research stands between the already existing evidence of the positive impact of social grants on employment, and the popular conservative argument that grants may cause dependency on the social welfare system and incentivize recipients to reduce labor force participation. In my study, I evaluate the effect of the CSG on total, formal and informal employment at the household level, as well as on these outcomes by age, gender and relationship to the household head.

An ideal approach to evaluating the effect of the CSG on employment would be to use a randomized controlled trial where some households would be randomly assigned to treatment receipt (as shown in Fig. 3). In this experiment, the treatment and the control

group would thus be initially equivalent, and the only difference in labor supply between the two would be attributed directly to the receipt of the CSG.

Figure 3. Ideal Approach: Experiment



However, receipt of the CSG is conditional on a household meeting eligibility criteria and being accepted into the program. In an observational study design such as this, a number of biases may arise due to the fact that my treatment and control groups may differ in ways other than grant receipt. As King (2010) emphasizes, the omitted variable bias is the biggest problem in such non-experimental studies. It is difficult to account for all potential observable or unobservable confounders or ensure that treatment and control groups do not differ in ways such as family structure, motivation, bureaucratic connections, choice to participate, and the like. Indeed, these factors not only are likely to affect the family’s CSG status, but can also affect its labor supply outcomes. Further, failing to control for factors that can cause family’s labor supply to increase, and that can cause a household to lose eligibility for CSG, can result in a reverse causality problem. This too may create a bias in the estimated effect of CSG on labor supply.

Below I investigate the sources of inclusion and exclusion error. These shed light on how different eligible recipients are from eligible and not eligible non-recipients, and improve our understanding of the sources of variation in the grant receipt in the surveyed population.

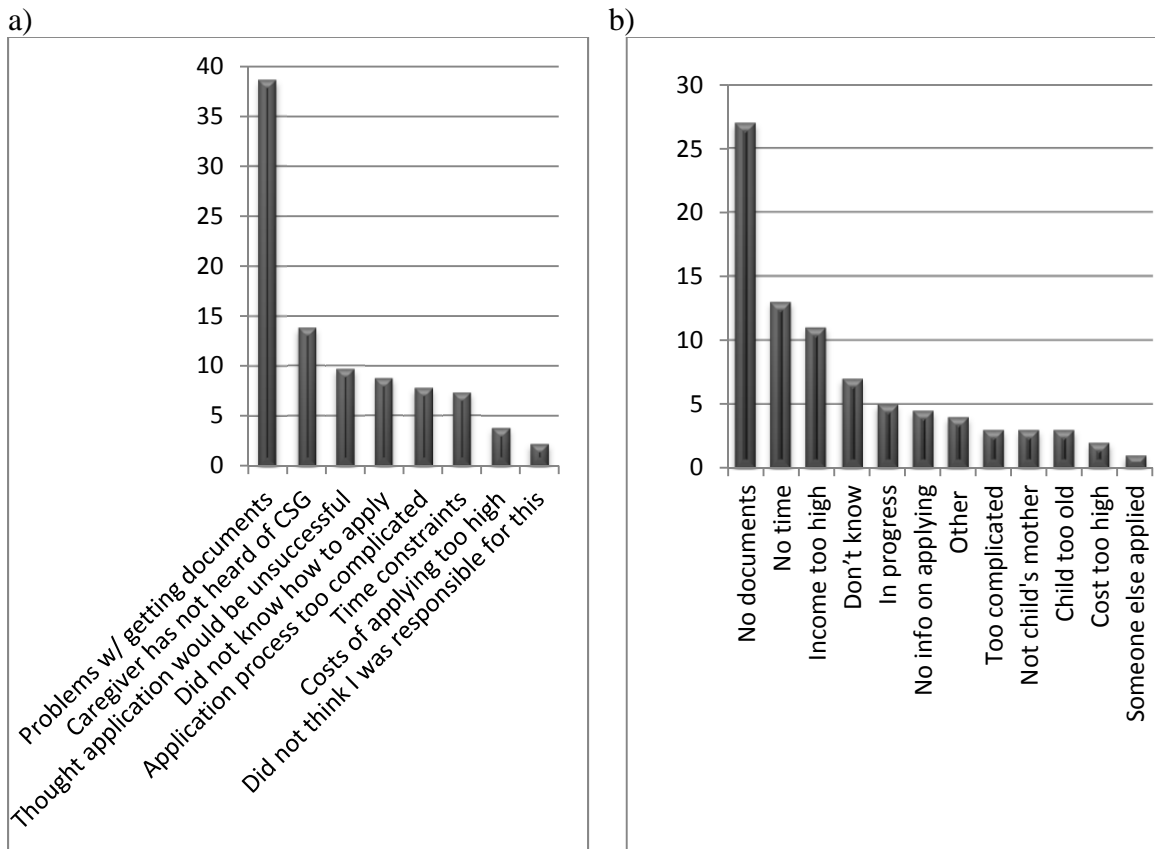
Sources of Exclusion Error

Studies have shown that 3.8 million children who qualify for the CSG are not receiving it, and that 2.6 million of these children live below the lower poverty line (EPRI, 2012). This means that recipient and non-recipient households must differ in ways other than eligibility for the grant. It is thus very important to know what this variation in the CSG receipt is due to and how exogenous it is among the grant recipients, as this information enables me to design the best suited model and sample specifications to have accurate estimates of the grant's impact.

As the SASSA 2012 report also indicates, 97 per cent of initial applications by respondents to the National Income Dynamics Survey (NIDS) study were approved. Thus, there is strong evidence to believe that the problem for exclusion of eligible households from the grant is not that they are rejected when they apply. Rather, as NIDS analysis further shows, 70% of caregivers in eligible households simply never applied for the grant (EPRI 2012). A SASSA official stated that applicants would come to the SASSA office without necessary documentation, would be asked to return with documents, and would not come back, and so their attempt to get a grant would not be recorded in the administrative data system (SASSA 2012:27). As the survey demonstrated, more than one fourth of would-be recipients cited missing documents as the reason for not applying for the program (see Figure 4a). The survey indicated that other main barriers to access to the grant among the eligible

are: awareness problems, such as lack of information on the application process or unawareness of eligibility criteria (for instance, Figure 4a shows that 11% of caregivers did not apply because they thought their income was too high when in fact they were eligible); popular perception of its complexity and time consuming nature (13% respondents answered they had no time to apply); and its perceived costliness. Similar distribution was seen in responses for reasons caregivers delayed their application for the CSG, with problems with getting documents cited as the reason for delaying their application by almost 40%.

Figure 4. Reasons caregivers of poor children eligible for receipt (a) do not apply or (b) delayed application for the CSG (principal reasons).



Source: SASSA 2012, p.27

The EPRI 2012 study further stresses that the poorest households (bottom quintile) tended to be most affected by barriers to access. They cite barriers such as the application process being too complicated, high costs (such as transportation or photocopying costs as well as time constraints for caregivers with young children), misinformation about the required documentation, or simply not having the required documents.

Additionally, the study indicates that the means test is an important source of exclusion error. For instance, it is often a barrier to entry for poor children in large households. This is because the means test does not take into account household size when determining eligibility and so children in these families might be equally poor as children in small households with lower household incomes, but can be denied access (EPRI, 2012). Furthermore, the means test income criterion for single caregivers is half that for married caregivers, resulting in many single caregivers being ineligible for the receipt. The means test is problematic in many other ways. For instance, households can be means ineligible but be still vulnerable and requiring financial assistance. Furthermore, it incentivizes corruption and leads to an inclusion of ineligible but bureaucratically connected individuals into the grant.

It is important to mention that the means test is one of the key determinants of households' eligibility for the receipt of the CSG only when households that receive no CSG grants apply for their first grant, rather than when households that already receive at least one CSG grant apply for additional CSG grants. According to Dr. Michael Samson, Director of Research at the Economic Policy Research Institute (EPRI), in practice, "not a single household lost the grant because income increased" after the household starts receiving its first CSG. Rather, according to EPRI's fieldwork experience, in almost all cases households are properly means tested only at the time of their initial application for the grant.

6. *Empirical Framework*

Using panel 2008/2010 data from South Africa's *General Household Survey* (GHS) and a fixed effect model, I evaluate the relationship between the CSG receipt and employment. Section 6.1 describes the fixed effect model used to produce regression analysis estimates of the effect of CSG on household-level total, formal and informal employment. Section 6.2 provides description of the data used for this study.

6.1 *Fixed Effect Model*

Since the Child Support Grant is not universal but rather requires individuals to apply for the grant, it could be that the differences in treatment status and in predicted labor outcomes could be influenced by the differences in the households' observable and unobservable characteristics. Failure to control for these factors results in a model that suffers from omitted variable bias, making program impact estimates inaccurate. Chapter 5 showed that there are both observable and unobservable factors that affect changes in treatment receipt. Firstly, these can be changes in observable characteristics that directly affect family's eligibility for the grant, such as changes in family structure or income level. Secondly, presence of variation in treatment receipt even among the eligible households can be due to a number of barriers to access that eventually separate beneficiaries from equally eligible non-beneficiaries, and that these barriers are mostly due to household-fixed exogenous unobservable factors. Finally, the likelihood of grant receipt can vary for both eligible *and* not eligible households due to the household-fixed unobservable factors such as presence of bureaucratic ties. Failure to control for any of these may

result in incorrect CSG impact estimates. Hence, it is thus crucial to reduce the omitted variable bias in my model.

The availability of panel data with cross-sections for two different years allows me to employ a fixed effect model. This enables me to control for:

1. Observable factors changing over time that may be correlated with CSG receipt and might affect labor supply;
2. Time-invariant unobservable characteristics (through the model's fixed effect component);
3. Factors that change over time similarly for households (e.g., changes in the macro economy).

In its general form, the Fixed Effect model is derived in three steps:

Year 2010:

$$(1) Y_{it} = \lambda_i + \lambda_t + \beta_1 T_{it} + \beta_2 X_{it} + \beta_3 Z_i + \varepsilon_{it} ;$$

Year 2008:

$$(2) Y_{it-2} = \lambda_i + \lambda_{t-2} + \beta_1 T_{it-2} + \beta_2 X_{it-2} + \beta_3 Z_i + \varepsilon_{it-2} ;$$

Year 2010 - Year 2008:

$$(3) Y_{it} - Y_{it-2} = \beta_0 + \beta_1 \Delta T_{it} + \beta_2 \Delta X_{it} + \phi Z_i + \Delta \varepsilon_{it} .$$

In these models, Y_{it} and Y_{it-2} are the dependent variables that represent number of household members age 15 or older working per household in *total*, *formal* and *informal* employment in 2010 and 2008 years respectively.

Treatment in this model is denoted as T_{it} for 2010 and T_{it-2} for 2008 and represents number of Child Support Grants received per household in each year. λ_i stands for the time-invariant household-fixed effects, whereas λ_t and λ_{t-2} are time fixed effect variables for year 2010 and 2008 respectively, and β_0 is the difference between the two. I then add X_{it} and X_{it-2} that are vectors of covariates that stand for observable household characteristics in 2010 and 2008 which may be correlated with treatment receipt and that may affect household labor supply outcomes. Finally, Z_i are vectors of covariates that stand for base-year controls, namely: province dummy variables to control for time fixed effects for each of the nine provinces, dummies for year 2008 expenditure categories, and age of oldest eligible child in 2008. Finally, differencing as shown in equation (3) enables me to see the effect of change in CSG receipt between 2008 and 2010 on change in household-level labor supply, with time-invariant fixed effects getting cancelled out as a result.

My formal employment outcome is a household level variable that represents a sum of responses of household members aged 15 or older to the question: “In the last seven days, did ... do any work for a wage, salary, commission or any payment in kind (including paid domestic work).” Each individual response is coded as 1 if the individual’s answer is “Yes,” and 0 if the answer is “No”; responses are then summed up to represent the number of individuals working in formal employment in a given household. In the GHS survey, only if individuals answer “No” to the question about the formal employment they are then asked: “During the last calendar week, did ... run or do any kind of business, big or small, for

yourself or with one or more partners, even if it was for only one hour?” The household-level sum of individual responses to this question is denoted as informal employment outcome in my study. I define total employment as the sum of informal and formal employment. In equation (3), differencing enables me to find the differences in each of these employment types between 2008 and 2010. In other words, it tells me how many more or less individuals were working in particular employment type in 2008 versus in 2010.³ For instance, if there were one individual in formal employment in a household in 2008 and three individuals from the same household in 2010, the change in total number of formally employed would equal two. Similarly, if there were two individuals in a household that were informally employed in year 2008 and only one in 2010, the change in total number of individuals employed in informal employment would equal negative one. Finally, change in total employment would equal the sum of the changes in formal and informal and so and would equal to one after differencing.

Besides studying the relationship between the change in CSG receipt and change in total, formal and informal employment outcomes in the aggregate, I additionally investigate the effect on each employment type by gender, by age groups, by relationship to the household head, and by gender among household heads and among non-heads.

6.2 Data

Description of the General Household Survey

The GHS is an annual household survey that has been executed by Statistics South Africa since 2002. The main purpose of the GHS is to measure regularly the

³ Certainly, measurement of employment outcomes in terms of the number of household members employed in the household could be well complemented by such outcomes as number of hours that individual household members work. However, this information is not provided in the GHS survey data.

level of development and performance of the South African government's programs and projects through the provision of national indicators on six broad areas: education, health and social development, housing, household access to services and facilities, food security, and agriculture. The method of data collection is face-to-face interviews. The targeted population consists of private households in all nine provinces of South Africa and residents in workers' hostels (Stats SA, 2010).

The scope of the GHS survey is approximately 25,000 households per year, and includes household information such as living conditions (dwelling type, home ownership, access to water and sanitation facilities and services, agricultural production, household assets and expenditure), as well as individual characteristics, such as demographic information (name, sex, age, population group, etc.) biographical information (relationships to household head, marital status, education, income, health), information on social grant receipt, and employment behavior of individual household members. The fact that the GHS has cross sections for two years enables me to utilize the survey data to track the changes in the observable characteristics of households over time and then to compare the changes in employment for households with varying changes in the number of CSGs received.

In the GHS dataset, each individual and household record located in different data files and spread across time periods was identified by referring to a unique household identifier assigned to each household and a unique individual identifier assigned to individuals within a given household. There are four data files created on the bases of the GHS surveys, and they are the "House," "Person," "Tourism," and

“Worker” data files. For the purposes of my study, I use the unique individual identifiers to link the “Person” and “Worker” files, and a unique household identifier to merge the created file with the “Household” file.

Descriptive Analysis of the General Household Survey 2008-2010 Sample

The sample used in my study was created in several steps. After I merge the “Person” and “Worker” data files with the “Household” file and clean the data, my dataset contains 20,163 observations. Out of these, 6,603 or 32.75% are recipients of other grants (such as Old Pension Grant, Disability Grant, Care Dependency Grant, Foster Care Grant, and Grant in Aid) as of 2008 (a number that increased to 6,574 as of 2010). Since the CSG is several times smaller in magnitude than most grants (for instance, in 2010/11 CSG equals R250 per month and Old Pension equals R1080 per month), it is possible that including into my analysis households that receive CSG and any other social grants would have a biasing influence on the outcomes of my interest. Hence, to isolate impact of CSG on change in employment, I first remove households that received other grants from my sample.

Next, I exclude from my sample households that were not CSG recipients in either 2008 or in 2010. As I mention above, the means test that determines households’ eligibility for the grant only screens households that do not receive any CSG grants and are applying for their first grant, rather than when households that are already receiving at least one CSG are applying for more grants. Based on this information, it appears that reverse causality problem (which arises from a failure to control for factors that can lead to an increased labor supply and so cause households

to drop out of eligibility status) would be most serious precisely when households go from no CSG receipt to receipt, rather than when a household is already receiving at least one CSG. Hence, by restricting my working sample to households that all receive at least one CSG per household in both years, I greatly reduce the reverse causality problem. This decreases my sample to 5,539 households.

While in the previous step I restrict my sample to households in which at least one child is eligible for the grant in both 2008 and 2010, I then additionally exclude from my sample families that are most well off and are definitely ineligible for the grant. (By doing so, I also am decreasing the number of ineligible but bureaucratically connected households from my sample, which are likely to differ from the poor households in terms of labor force participation as well and so also bias my impact estimates.) The process of excluding income ineligible households from the sample is complicated by the fact that income is poorly reported by households in the sample. Hence, I exclude the richest households indirectly. First, I restrict my sample to families where family heads have high school education or less, assuming that higher education is correlated with earnings. Second, I use household expenditure information to exclude households that spend above the income threshold. Since the income threshold as of July 2008 was ZAR 2,450 for single caregiver and ZAR 4,800 for married caregiver and spouse per month, I restrict my sample to households that earn below ZAR 5000 per month.

Imposition of these restrictions leaves me with 2,626 households in my sample. This is a sample with households that all receive at least one CSG in both

2008 and 2010, with families that are likely to be most well off excluded from the sample. Table 6.2.1 presents a brief descriptive analysis of the sample.

Table 6.2.1 Descriptive Analysis of GHS 2008-10 Sample

Household-level Characteristics	Mean	Std. Dev.	Min	Max
Number of CSG Grants per Household in 2010	2.30	1.28	1	10
Number of CSG Grants per Household in 2008	2.05	1.14	1	8
Household Demographics in 2010				
Household Size	5.27	2.16	1	21
Total Number of Children 0-3	0.60	0.77	0	6
Total Number of Children	2.84	1.52	1	13
Total Number of Adults	2.43	1.25	0	9
Household Head Completed High School	0.15	0.35	0	1
Household Head Age	42.75	10.56	0	84
Household Head is Male	0.42	0.49	0	1
Household Demographics in 2008				
Household Size	5.28	2.16	2	24
Total Number of Children 0-3	0.67	0.76	0	5
Oldest Eligible Child in 2008	9.01	3.39	1	13
Total Number of Children	2.85	1.51	1	14
Total Number of Adults	2.43	1.28	0	10
Household Head Completed High School	0.23	0.42	0	1
Household Head Age	41.80	10.03	0	79
Household Head is Male	0.43	0.49	0	1
Monthly Household Expenditure in 2008				
R 0 - R 399 (Level 1)	15%	0.36	0	1
R 400 - R 799 (Level 2)	35%	0.48	0	1
R 800 - R 1 199 (Level 3)	25%	0.43	0	1
R 1 200 - R 1 799 (Level 4)	13%	0.34	0	1
R 1 800 - R 2 499 (Level 5)	7%	0.25	0	1
R 2 500 - R 4 999 (Level 6)	5%	0.21	0	1
Distribution by Provinces in 2008				
Western Cape	5%	0.22	0	1
Eastern Cape	13%	0.33	0	1
Northern Cape	6%	0.24	0	1
Free State	10%	0.30	0	1
KwaZulu-Natal	15%	0.35	0	1
North West	9%	0.29	0	1
Gauteng	10%	0.30	0	1
Mpumalanga	14%	0.35	0	1
Limpopo	18%	0.39	0	1
TOTAL OBS.	2636			

As Table 6.2.1 illustrates, households in the resulting sample have on average 5.3 persons with 2.8 children, with each receiving on average 2.0 CSGs in 2008 and 2.3 CSGs in 2010. Distribution of household expenditure among the receiving households suggests that half of the sample consists of population that spends below R800 (US\$ 88)⁴ per household per month, or R160 (US\$17) per person in an average-sized hold in this sample. For 88% of the sample, spending is under R1799 (US\$198), which means R340 (US\$38) per person in an average-sized household. Distribution of grants by provinces roughly reflects distribution of wealth in South Africa, with Gauteng, Western Cape, Northern Cape and North West having the highest GDP per capita (Statistics South Africa, 2011) and the lowest number of CSG recipients.

In Table 6.2.2, I present results of single difference analysis of household-level changes in labor supply from year 2008 to year 2010, by employment type. The observed changes in employment are based on the descriptive analysis of the sample. The striking difference between the mean number of household members working in formal employment and informal employment (with mean informal employment being significantly lower) should be attributed to the restrictions that survey data imposes on the way I can define informal employment, resulting in a low number of informally employed. Specifically, while formal employment in the GHS questionnaire is defined as broadly as “work for a wage, salary, commission or any payment in kind (including paid domestic work), even for one hour [in the last week]” a household member only is able to answer a question about informal employment if s/he answers “No” to the question about formal employment. In addition to this, my definition of informal employment here is narrow and is limited to whether the person is engaged in any kind of business activities.⁵

⁴ All conversions are according to 03/01/2013 exchange rate.

⁵ I found a number of discrepancies between the questionnaires in 2008 and in 2010. One of these is that individuals that answer “No” to the question about formal employment are then asked questions that

Table 6.2.2 Single Difference Analysis. Household-level Changes in the Number of Household members Age 15 or Older in Total, Formal and Informal Employment

Employment Type	Mean	Std Dev	Min	Max
Total Employment in 2010	0.79	0.85	0	8
Total Employment in 2008	0.68	0.78	0	5
Difference	0.11			
Formal Employment in 2010	0.64	0.80	0	8
Formal Employment in 2008	0.58	0.75	0	5
Difference	0.06			
Informal Employment in 2010	0.15	0.40	0	4
Informal Employment in 2008	0.10	0.32	0	3
Difference	0.05			

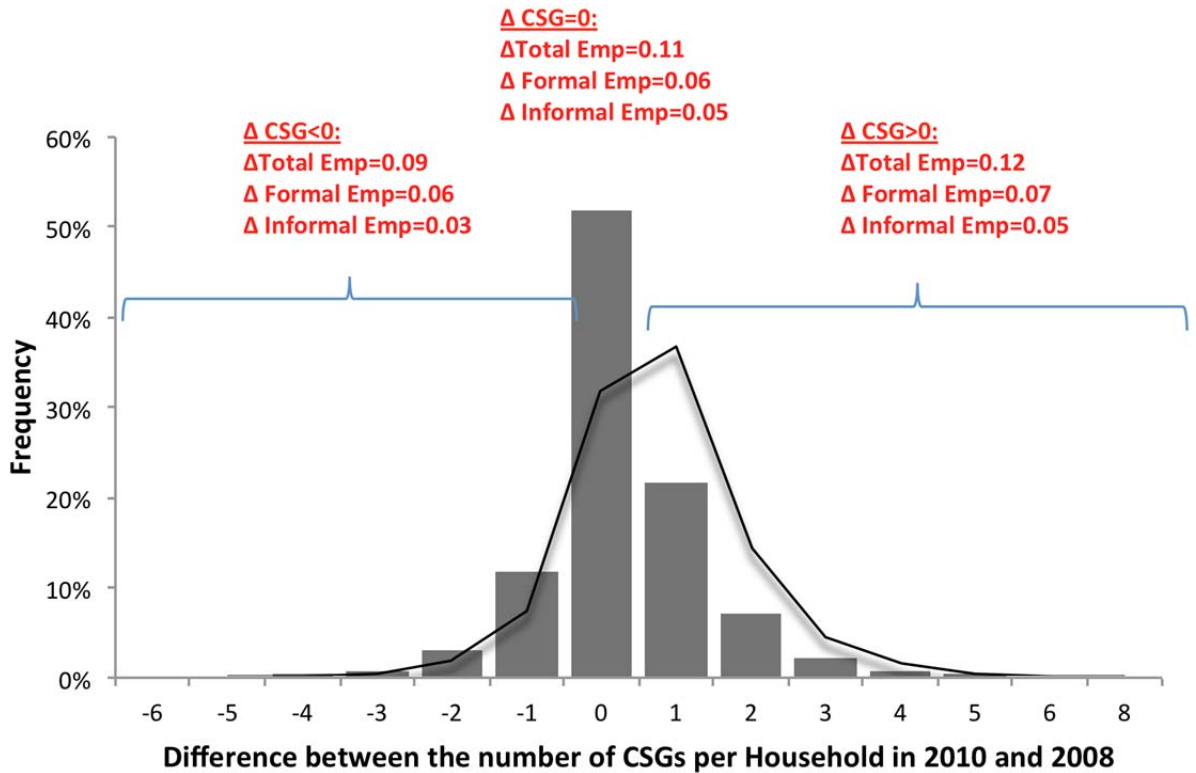
The first purpose of analysis presented in Figure 5 is to investigate the identification in my sample, and to examine the relationship between changes in the number of CSGs received and changes in the number of household members employed between 2008 and 2010. My findings come from descriptive statistics, before fixed effect model is used or controls introduced. As Figure 5 shows, in the majority of households (1,366 households or 52%), no change is observed in the number of CSGs received per household in 2008 and 2010, whereas for the rest of the households in the sample, number of grants received per household ranges from an addition of extra 8 CSGs to decrease by 6 CSGs in the two-year period.

As indicated by the black trend line, there was a net increase in the number of CSGs received per household from 2008 to 2010. This is also supported by the change in the mean number of CSG received from an average of 2.05 to 2.30 per household. The main reason explaining the fluctuation in the number of CSG grants is that children age in and age out of eligibility in the course of these two years (as mentioned above, households are almost never means tested in years subsequent to the initial approval for the CSG and so do not drop out of

changed between year 2008 and year 2010. “Business activities” is the only consistently defined survey question that deals with informal employment.

received because of changes in income in our sample). The reason a net increase is observed in the sample by year 2010 is due to the increase in age and income eligibility criteria in April 2008 right before July 2010 survey. Since there are frequent long delays throughout the application process, it is possible that while households that had, for instance, just one child, eligible according the older criteria that a child should be under 14, according to new criteria (eligible age being children under 15) are eligible and are reapplying for CSGs for that child or the child's newly eligible siblings, and are starting to get those extra grants with time.

Figure 5. Examination of relationship between changes in CSGs and changes in labor supply per household between 2008 and 2010



The second purpose of analysis presented in Figure 5 is to study the relationship between changes in number of CSGs received by a household and changes in a household's employment. As I divide the sample into three groups according to whether

number of CSGs received per household between 2008 and 2010 increased, stayed unchanged, or decreased. The group for which number of CSGs received did not change shows (in a sense, my control group) that there was a 0.11 average increase in the number of employed in Total Employment (which is a sum of 0.06 Formal Employment and 0.05 Informal Employment) when there is no change in the number CSGs received per household. This means that of out of approximately 10 people in a household, one person (age 15 or older) would get employment. Comparison of the subsample where there was no change in the number of CSGs received to the subsample with an increased number of CSGs and a subsample with decreased number of CSGs reveals no significant correlation between changes in the number of CSGs per household and changes in any type of employment.

7. *Results*

Using a fixed effect model and General Household Survey panel data for 2008 and 2010, I find no statistically significant relationship between household labor force participation and receipt of the Child Support Grant in a sample where all households receive at least one Child Support Grant in both years. This finding is consistent for a baseline model with no controls (first column for each outcome), as well as for a full model with controls introduced (second column for each outcome reported).

Without Control Variables

Estimates of the completed regression analysis, presented in Table 7.1.1, indicate that, with no controls introduced, an increase in the number of Child Support Grants by one extra grant per household between 2008 and 2010 is associated with a 0.011 increase in total employment, 0.002 increase in formal employment, and a 0.01 increase in informal employment in a household receiving the CSG. These increases are, however, not statistically significant. The absence of a strong correlation between changes in the number of grants received and changes in labor supply as observed in regression analysis without controls supports our findings captured in Figure 5 using descriptive statistics.

With Control Variables

I use the following set of covariates in my fixed effect model. First, I introduce household demographics controls that are likely to be correlated with treatment receipt and also affect labor supply as variables that capture change in household structure from 2008 to 2010. The first three of these are *Change in Total Number of Children 0-3* in a household, *Change in Total Number of Children* in a household, and *Change in Total Number of Adults* in a household. To create these variables, I first used individual-level

data for 2008 and 2010 separately in order to find the total number of individuals in a given category at a household level, and then created change variables calculated as the difference in the value for 2010 and 2008.

Further, I include characteristics of a household head such as head's gender, age and education level as poverty proxies. Indeed, a number of other studies have found that these indicators can be important predictors of a household's income, employment decisions and opportunities available to a household, and the way the CSG income is distributed and used by its members. *Change in Head is Male*, *Change in Head Completed High School*, and *Change in Head Age* attempt to capture how changes in these household characteristics from 2008 to 2010 affect labor supply.

Finally, I use three more controls for household characteristics as baseline year controls. 1) *Age of the Oldest Eligible Child in 2008* value enables me to control for the age of oldest eligible child in 2008 and thus prevent potential bias in interpreting the effect of treatment on the outcomes. For instance, when a child ages out of CSG by 2010, the child's household stops receiving the grant on his or her behalf. If the aged out child joins employment after that happens, increase in household employment would appear to be correlated with a decrease in number of CSGs. 2) since household expenditure is defined as a categorical variable in the questionnaire, I create six *2008 Household expenditure* dummies to represent each expenditure level, from the lowest Level 1 to the highest Level 6 (please refer to Table 6.2.2 for the values). I use a household expenditure variable as the closest proxy for household income, with the latter, due to the means-tested nature of the grant, being poorly reported in the survey data. In turn, it is highly important to control for household income level because it is one of the main

determinants of households' eligibility for the CSG. I keep the household expenditure dummies at baseline year because change over time in household expenditure is directly affected by changes in treatment and changes in labor supply (and so is endogenous). To prevent perfect collinearity in my set of household expenditure dummies, I exclude one of the dummies from my regression equation. I choose to omit the lowest expenditure category to ease the interpretation of the coefficients on the remaining expenditure dummies, which now tell me the effect of being in the corresponding household expenditure category relative to being in the lowest one. 3) Since my sample includes households from nine different South African provinces, I include *2008 Province Dummies* in my model to control for omitted variables that affect labor supply and may change differently over time in different provinces (for instance, macroeconomic conditions can be changing differently with time across provinces).

When I introduce all the described controls into the model, the relationship between treatment receipt and labor supply becomes slightly negative, but remains statistically insignificant.⁶ As one would expect, an increase by one child that is 0 to 3 years old appears to be negatively correlated with labor supply, as households with young children are likely to be more tied to home and too time-constrained to afford a stable employment. This may help explain a decrease in both total and formal employment at a 1% significance level observed in recipient households where a young child is added to the family between 2008 and 2010. Changes in the values for the control for total number of children, however, has a lower in magnitude positive coefficient that is statistically significant at a 5% level of significance. Since it captures some of the negative effects of

⁶ Considering the 95% confidence interval for the coefficient on total employment suggests upper and lower bounds of -.061 and .019. Even the left tail of this interval rules out a large negative effect.

having young children in the household, if this variable represented change in total number of children of 4 years or older it would have a stronger positive correlation with formal and, thus, total labor supply. This finding makes sense since older children do not require constant supervision to the extent that the newborns do, and so adults are both pressured to seek employment to feed a larger household, and have more time on their hands to do that.

Addition of an adult in a household that receives CSG is associated with a 0.162 increase in this household's total employment, primarily driven by a 0.159 increase in its formal employment (both $p < 0.01$). This means that one adult out of approximately every six households where the number of adults increases by one, becomes fully employed. Further, treated households where males become household heads experience a 0.268 increase in total employment ($p < 0.01$). This is likely to be recognizing the fact that on average, there are more income earners in male-headed household where there is an economically active male household head. To contrast, if females become household heads, in traditional societies such as in South Africa it is most likely to happen only if males are for some reason absent from the household, such as if they become migrant workers, leave the household, get ill or die. In this case, the number of working individuals in a household decreases, and households are much more likely to suffer from income deprivation.

Since I have omitted the lowest expenditure category (2008 Household Expenditure Level 1), the coefficients on the included 2008 expenditure dummies show the effect of being in that category relative to being in the omitted category. The coefficient stays negative for all five dummies, at the high to the highest levels of statistical significance. It also clearly increases in magnitude from lower to higher

expenditure category – a finding that suggests that households that consume more in the base year do not increase their formal employment as much as households in the lowest income category, and that this inverse relationship between baseline year earnings and increases in employment becomes increasingly prominent for households that in 2008 were in the highest expenditure categories. Since households' expenditure levels are correlated with their income levels, it is possible that in households that are more financially secure in 2008 most adults are already employed, as compared to households in the lowest income category that are less financially secure and have highest preferences for jobs.

One can observe that there are almost no controls that would be statistically significant in the column two for the informal employment outcome. This is due to the fact that only a small portion of the sample could reply to the question about whether they were informally employed (for instance, in 2008, 241 households had at least one household member who indicated that s/he was informally employed, versus 1,167 households where at least one household member was formally employed in the same year). These differences in the number of formally and informally employed in the studied sample are caused by the way the questionnaire is structured: individuals were asked whether they were informally employed only if they answered negatively the question about whether they were in formal employment, which is a broadly defined outcome in the survey.

Finally, I further investigate the relationship between changes in CSG receipt and total, formal and informal employment disaggregated by age groups, gender, relationship to the household head, and relationship to the household head separately for both

genders. Results of such analysis are also statistically insignificant across specifications and are discussed in detail in the appendix.

Table 7.1.1 Regression Analysis Estimates: Effect of Change in the number of Child Support Grants Received between 2008 and 2010 on Change in Employment by Type

VARIABLES	TOTAL	TOTAL	FORMAL	FORMAL	INFORMAL	INFORMAL
Change in Number of CSGs per Household	0.011 (0.017)	-0.021 (0.021)	0.002 (0.015)	-0.027 (0.019)	0.010 (0.008)	0.006 (0.011)
Change in Total Number of Children 0-3		-0.083*** (0.025)		-0.086*** (0.024)		0.004 (0.011)
Change in Total Number of Children		0.041** (0.021)		0.043** (0.019)		-0.001 (0.010)
Age of the Oldest Eligible Child in 2008		0.008 (0.005)		0.007 (0.005)		0.000 (0.003)
Change in Total Number of Adults		0.162*** (0.020)		0.159*** (0.020)		0.002 (0.008)
Change in Head Completed High School		0.098** (0.042)		0.078* (0.040)		0.020 (0.022)
2008 Household Expenditure Level 2		-0.113** (0.047)		-0.105** (0.045)		-0.007 (0.026)
2008 Household Expenditure Level 3		-0.145*** (0.053)		-0.124** (0.050)		-0.020 (0.028)
2008 Household Expenditure Level 4		-0.189*** (0.063)		-0.210*** (0.062)		0.027 (0.033)
2008 Household Expenditure Level 5		-0.539*** (0.087)		-0.464*** (0.086)		-0.075* (0.040)
2008 Household Expenditure Level 6		-0.479*** (0.105)		-0.495*** (0.104)		0.025 (0.055)
Change in Head is Male		0.268*** (0.043)		0.249*** (0.042)		0.020 (0.022)
Change in Head Age		0.029*** (0.007)		0.017*** (0.006)		0.011*** (0.004)
Change in Head Age_sq		-0.029*** (0.009)		-0.019** (0.009)		-0.011** (0.005)
Western Cape		-0.081 (0.104)		-0.127 (0.102)		0.045 (0.046)
Eastern Cape		-0.299*** (0.081)		-0.282*** (0.076)		-0.017 (0.032)
Free State		-0.051 (0.087)		-0.084 (0.083)		0.036 (0.034)
KwaZulu-Natal		-0.146* (0.084)		-0.164** (0.079)		0.018 (0.029)
North West		-0.128 (0.089)		-0.155* (0.087)		0.035 (0.034)
Gauteng		-0.070 (0.093)		-0.144 (0.089)		0.073** (0.037)
Mpumalanga		-0.073 (0.085)		-0.116 (0.080)		0.043 (0.035)
Limpopo		-0.183** (0.077)		-0.236*** (0.073)		0.054* (0.032)
Constant	0.108*** (0.018)	0.343*** (0.088)	0.063*** (0.017)	0.321*** (0.084)	0.047*** (0.009)	0.020 (0.037)
Observations	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.118	0.000	0.111	0.001	0.013

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

8. *Conclusion*

Using a specification that is designed to control for both observable and time-invariant unobservable characteristics and panel data for 2008/2010, this study finds that household-level labor force participation is not statistically significantly related to CSG receipt. This result is consistent for household-level total, formal, and informal employment, and remains statistically insignificant for each of these employment outcomes disaggregated by age groups, gender, relationship to the household head, and relationship to the household head separately for both genders. (Results for disaggregated outcomes included in the Appendix.) This study therefore suggests that policymakers' concerns about decreased labor supply are likely to be exaggerated.

In this analysis, I employ a fixed effect model using South Africa's *General Household Survey*'s 2008/2010 panel data. I measure the strength of association between the changes in the number of CSGs received per household between 2008 and 2010 and the changes in the number of employed household members of age 15 or older in households that receive at least one CSG grant in both 2008 and 2010. Two model designs are used in this study. The first one measures the relationship between the changes in grant receipt and changes in the labor supply without controlling for changes in observable characteristics that are likely to be correlated with grant receipt and affect labor supply outcomes. The second model design introduces these controls.

Analysis of reasons for variation in program participation shows that the list of differences between recipients and non-recipients of the grant is not exhausted by the differences in eligibility for the grant. A number of factors beyond eligibility criteria, both observable and not observable to the researcher, can influence and sometimes even

determine the chances of grant receipt, as well as the time frame within which a caregiver of an eligible child would learn about the program or would be approved for the grant. These factors affect grant receipt status and labor supply outcomes between equally eligible or equally ineligible households.

The fixed effect model enables me to control for these differences and hence reduce the omitted variable bias in three important ways: 1) can control for the observable factors changing over time that may be correlated with CSG receipt and affect labor supply, such as household demographic structure and income; 2) can control for time-invariant unobservable characteristics (through the model's fixed component), such as for differences in bureaucratic connections or motivation across households; and 3) can control for factors that change over time similarly for households, such as changes in the macro economy. The sample design employed here enables me to address the reverse causality problem, which arises from a failure to control for factors that can cause labor supply to increase and result in the household losing eligibility for CSG. Since the means test is typically only applied the first time a household applied for CSG, households are most likely to be screened out when the move from no receipt to receipt of the first CSG in the household. Hence, I am able to greatly reduce the reverse causality problem by limiting my sample to households that receive at least one CSG in each year. Hence, the model and sample specifications employed in this analysis are successful at targeting major potential biases that are characteristic to non-experimental studies.

The findings of an insignificant effect of CSG on aggregate employment are also similar to the findings from the last study that analyzed the program's effect on labor supply. Namely, a study by Williams (2007) that used 2002-2005 data shows that the

CSG does not have an identifiable effect on households' job searching behavior or employment status – a finding that confirms my regression analysis of the effect of changes in CSG on changes in households' employment and business activities.

There are, however, important limitations to my study. First, since the reverse causality problem is the strongest when non-recipients first apply for the grant, this study does not evaluate the strength of association between the change from not receiving the CSG to receiving the CSG at the household level, and the change in labor supply. Instead, it focuses only on households that all have at least one grant recipient, and investigates the relationship between the change in the number of CSG recipients and the changes in the households' labor force participation. Second, while the fixed effect model enables me to control for time-invariant household-fixed characteristics, such model design still does not control for the time-variant household unobservable factors. Third, defining employment outcomes in terms of the number of working household members may not be a comprehensive estimate of household's employment. Certainly, looking at the changes in the number of hours each person worked, or number of employment opportunities that each work capable person pursued, could provide me with a more complete picture of the changes in labor supply. However, the General Household Survey 2008/2010 neither collected information on the hours worked, nor on the number of jobs a single household member had at a given time.

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10. Appendix

Below I present results of regression analysis estimates of the CSG's effect on a number of additional outcomes. In Section 10.1, I look at differential treatment effects by gender for all three types of employment outcomes. In Section 10.2 I investigate treatment effects for five age groups: 15-17 years, 18-24 years, 25-39 years, 40-59 years, and 60 years or older. My findings from a regression analysis of the effect of the change in CSG on changes in employment for household heads and non-head members of the household are presented in Section 10.3. Finally, in Section 10.4, I compare employment outcomes for female versus male household heads and non-heads. For all these regressions, I use the same sample and employ the same fixed effect model as in my evaluation of the effect of household-level changes in the number of CSGs on aggregate total, formal and informal employment outcomes. In this analysis, just as before, I investigate the strength of CSG's impact without controls (first column for each outcome reported) and with controls (second column for each outcome reported).

While I find that treatment effect on labor supply is not statistically significant in almost all these specifications, I also analyze the association between changes in particular covariates and labor supply, as it can help understand how the changes in the household composition or what other household dynamics are correlated with the treatment status and are affecting households' employment behavior.

10.1 Comparing outcomes for females versus males

Findings both in Table 10.1.1 and 10.1.2 suggest that changes in the CSG receipt from 2008 to 2010 did not have a particularly different effect on females versus males, with results that were statistically insignificant for both genders. However, changes in particular covariates show a different strength of association with the changes in labor supply across the genders. For instance, the addition of one more child less than 3 years of age in the family is associated with a slightly more significant decrease in formal labor supply among females, than among males - as one would predict to be the case in traditional households. An increase in the total number of children in a household, on the other hand, is associated with an increase in labor supply among females at a 10% significance level, whereas almost no change in male employment is observed. An interesting difference is observed in the association between the change to a household head that is male and the decrease in female labor supply, versus between the change to a head that is male and the increase of high magnitude and highest statistical significance in male labor supply. Among other reasons, it is possible that female labor supply decreases due to men taking charge of earnings, meeting traditional family set up in many parts of the developing world. A further investigation into the changes in female labor supply by age groups would help answer this question more fully.

Table 10.1.1 Effect of Change in the Number of CSGs received on Changes in Total, Formal and Informal Employment Among Females

VARIABLES	TOTAL	TOTAL	FORMAL	FORMAL	INFORMAL	INFORMAL
Change in Number of CSGs per Household	0.007 (0.012)	-0.008 (0.015)	0.001 (0.010)	-0.010 (0.013)	0.007 (0.007)	0.003 (0.009)
Change in Total Number of Children 0-3		-0.048** (0.020)		-0.051*** (0.018)		0.004 (0.010)
Change in Total Number of Children		0.028* (0.016)		0.025* (0.014)		0.003 (0.009)
Age of the Oldest Eligible Child in 2008		0.006 (0.004)		0.006* (0.004)		0.001 (0.002)
Change in Total Number of Adults		0.063*** (0.015)		0.067*** (0.014)		-0.004 (0.007)
Change in Head Completed High School		0.065** (0.031)		0.027 (0.028)		0.037** (0.017)
2008 Household Expenditure Level 2		-0.058 (0.035)		-0.055* (0.031)		-0.003 (0.020)
2008 Household Expenditure Level 3		-0.072* (0.039)		-0.066* (0.035)		-0.006 (0.023)
2008 Household Expenditure Level 4		-0.056 (0.047)		-0.072 (0.044)		0.018 (0.025)
2008 Household Expenditure Level 5		-0.298*** (0.064)		-0.234*** (0.060)		-0.063* (0.033)
2008 Household Expenditure Level 6		-0.186** (0.090)		-0.194** (0.082)		0.008 (0.040)
Change in Head is Male		-0.126*** (0.033)		-0.093*** (0.031)		-0.031* (0.016)
Change in Head Age		0.018*** (0.006)		0.009 (0.006)		0.009*** (0.003)
Change in Head Age_sq		-0.017** (0.008)		-0.008 (0.007)		-0.009** (0.004)
2008 Province dummies		Yes		Yes		Yes
Constant	0.111*** (0.013)	0.249*** (0.064)	0.092*** (0.012)	0.216*** (0.060)	0.020*** (0.007)	0.032 (0.030)
Observations	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.043	0.000	0.036	0.000	0.015

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.1.2 Effect of changes in the Number of CSGs on Change in Total, Formal and Informal Employment Among Males

VARIABLES	TOTAL	TOTAL	FORMAL	FORMAL	INFORMAL	INFORMAL
Change in Number of CSGs per Household	0.004 (0.011)	-0.013 (0.014)	0.002 (0.011)	-0.017 (0.014)	0.003 (0.004)	0.003 (0.005)
Change in Total Number of Children 0-3		-0.034** (0.017)		-0.035** (0.017)		0.000 (0.006)
Change in Total Number of Children		0.014 (0.015)		0.018 (0.014)		-0.004 (0.005)
Age of the Oldest Eligible Child in 2008		0.001 (0.003)		0.002 (0.003)		-0.000 (0.002)
Change in Total Number of Adults		0.099*** (0.015)		0.093*** (0.015)		0.007 (0.004)
Change in Head Completed High School		0.033 (0.029)		0.051* (0.029)		-0.017 (0.012)
2008 Household Expenditure Level 2		-0.055* (0.031)		-0.050 (0.032)		-0.004 (0.016)
2008 Household Expenditure Level 3		-0.073** (0.035)		-0.058* (0.035)		-0.015 (0.017)
2008 Household Expenditure Level 4		-0.133*** (0.042)		-0.138*** (0.043)		0.009 (0.019)
2008 Household Expenditure Level 5		-0.242*** (0.058)		-0.229*** (0.059)		-0.011 (0.022)
2008 Household Expenditure Level 6		-0.293*** (0.068)		-0.301*** (0.073)		0.017 (0.033)
Change in Head is Male		0.394*** (0.032)		0.342*** (0.031)		0.052*** (0.013)
Change in Head Age		0.011** (0.005)		0.009* (0.005)		0.002 (0.002)
Change in Head Age_sq		-0.012* (0.006)		-0.010 (0.006)		-0.002 (0.003)
2008 Province dummies		Yes		Yes		Yes
Constant	-0.003 (0.012)	0.094 (0.063)	-0.029** (0.012)	0.105* (0.063)	0.027*** (0.005)	-0.012 (0.022)
Observations	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.160	0.000	0.136	0.000	0.017

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

10.2 Comparing outcomes across age groups

Individuals of different age groups normally engage in labor force differently within the same household. The absence of statistically significant results from my evaluation of the effect of changes in CSG on changes in aggregate employment outcomes might mean that the positive effect of CSG on one age group simply overlaps with the negative effects of CSG on another age group or groups, causing the overall effect to be statistically insignificant. To test this possibility, I evaluate the association between the changes in the CSG receipt and changes in total, formal, and informal employment separately for five different age groups. Results of this assessment are captured in Tables 10.2.1 through 10.2.3. I find no statistically significant correlation between changes in the CSG and labor supply across age groups, except for a low in magnitude decrease in total employment for individuals 60 and older at a 10% significance level.

I find some highly statistically significant correlations between changes in particular covariates and labor supply for certain age groups. Table 10.2.1 evidences that, while an increase in the number of adults in a household is associated with an increase in total labor supply for ages 18-39 at a 1% significance level, it is also associated with a decrease in labor supply for 60 and older, also at the highest level of significance. Second, the same table shows that, while an increase in total number of children 0-3 in a household is associated with a decrease in labor supply for age groups 25-59 (most likely to be parents or young grandparents of the newly born children), an increase in labor supply is seen among individuals 60 or older in the household. First and second points suggest that, when a younger generation in the household is able to

engage in employment more, the older generation tends to stay at home more often. However, when the younger individuals in the household are unable to work as much as they need to take care of their newly born children, older household members seek employment.

Additionally, there is a slight statistically insignificant negative correlation between grant receipt and total employment across all age groups, except for the age range 25-39, with the increase in total labor supply for this group being driven by an increase in informal employment. Age 25-39 is often considered to be highly productive for employment and career building since individuals are at their prime working capacity, yet it is also recognized as a particularly challenging one since at this stage in life individuals often start a family and have young children, hence limiting their availability for full time employment. A possible explanation for the fact that for individuals 25-39 an increase in household CSG receipt is associated with a slight increase in labor supply could be that the grant income enables these households to hire day care for their children and decrease their time constraints that way, hence giving them more time to engage in the only type of employment they can possibly engage given their time constraints.

The findings discussed here taken altogether (although, for the most part, statistically insignificant) show that it is possible that a higher dosage of the CSG per household can decrease time-constraints of young parents in the age 25-39, enabling them to send their little children to day care more frequently and thus be able to participate more actively in informal employment themselves. Since the labor supply of this age group slightly increases, elderly people in the household can stay at home and work less.

Table 10.2.1 Effect of Change in CSG on Change in Total Employment, By Age of Household Members

VARIABLES	AGE 15-17	AGE 18-24	AGE 25-39	AGE 40-59	AGE 60+
Change in Number of CSGs per Household	-0.002 (0.002)	-0.007 (0.009)	0.002 (0.013)	-0.008 (0.013)	-0.006* (0.004)
Change in Total Number of Children 0-3	0.000 (0.003)	-0.020 (0.012)	-0.029* (0.017)	-0.041*** (0.016)	0.007** (0.004)
Change in Total Number of Children	0.003 (0.002)	-0.001 (0.010)	0.016 (0.013)	0.021 (0.014)	0.002 (0.003)
Age of the Oldest Eligible Child in 2008	-0.000 (0.000)	0.003 (0.002)	-0.003 (0.004)	0.007** (0.003)	0.000 (0.001)
Change in Total Number of Adults	-0.001 (0.001)	0.057*** (0.011)	0.104*** (0.012)	0.010 (0.012)	-0.008*** (0.003)
Change in Head Completed High School	-0.003 (0.003)	0.010 (0.016)	0.074** (0.032)	0.017 (0.026)	0.001 (0.006)
2008 Household Expenditure Level 2	0.001 (0.002)	-0.014 (0.020)	-0.027 (0.029)	-0.079** (0.034)	0.006 (0.007)
2008 Household Expenditure Level 3	-0.002 (0.002)	-0.023 (0.023)	-0.009 (0.034)	-0.119*** (0.037)	0.008 (0.008)
2008 Household Expenditure Level 4	0.002 (0.005)	-0.009 (0.026)	-0.058 (0.044)	-0.129*** (0.043)	0.006 (0.011)
2008 Household Expenditure Level 5	-0.001 (0.008)	-0.080** (0.040)	-0.267*** (0.056)	-0.197*** (0.057)	0.005 (0.013)
2008 Household Expenditure Level 6	-0.008 (0.008)	-0.103** (0.047)	-0.120* (0.072)	-0.259*** (0.067)	0.012 (0.016)
Change in Head is Male	-0.001 (0.002)	-0.004 (0.020)	0.138*** (0.032)	0.121*** (0.030)	0.014* (0.007)
Change in Head Age	-0.001 (0.001)	-0.005** (0.002)	0.021*** (0.005)	0.023*** (0.005)	-0.010*** (0.003)
Change in Head Age_sq	0.001 (0.001)	0.003 (0.003)	-0.033*** (0.006)	-0.018** (0.007)	0.018*** (0.004)
2008 Province Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.002 (0.004)	-0.004 (0.042)	0.195*** (0.057)	0.162*** (0.058)	-0.013 (0.010)
Observations	2,636	2,636	2,636	2,636	2,636
R-squared	0.010	0.040	0.077	0.061	0.088

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.2.2 Effect of Change in CSG on Change in Formal Employment, By Age of Household Members

VARIABLES	AGE 15-17	AGE 18-24	AGE 25-39	AGE 40-59	AGE 60+
Change in Number of CSGs per Household	-0.003 (0.002)	-0.010 (0.009)	-0.002 (0.013)	-0.007 (0.012)	-0.004 (0.003)
Change in Total Number of Children 0-3	-0.000 (0.003)	-0.018 (0.012)	-0.028* (0.016)	-0.045*** (0.014)	0.006* (0.003)
Change in Total Number of Children	0.004* (0.002)	0.001 (0.010)	0.019 (0.012)	0.017 (0.013)	0.002 (0.003)
Age of the Oldest Eligible Child in 2008	-0.000 (0.000)	0.003 (0.002)	-0.001 (0.003)	0.006* (0.003)	0.000 (0.001)
Change in Total Number of Adults	-0.001 (0.001)	0.053*** (0.011)	0.100*** (0.012)	0.014 (0.011)	-0.007** (0.003)
Change in Head Completed High School	-0.002 (0.003)	0.008 (0.015)	0.061** (0.031)	0.014 (0.024)	-0.002 (0.006)
2008 Household Expenditure Level 2	0.001 (0.001)	-0.011 (0.019)	-0.025 (0.028)	-0.073** (0.030)	0.001 (0.007)
2008 Household Expenditure Level 3	-0.002 (0.002)	-0.028 (0.022)	-0.003 (0.032)	-0.098*** (0.033)	0.007 (0.007)
2008 Household Expenditure Level 4	0.002 (0.005)	-0.014 (0.025)	-0.079* (0.043)	-0.123*** (0.040)	0.004 (0.011)
2008 Household Expenditure Level 5	-0.001 (0.008)	-0.073* (0.040)	-0.219*** (0.055)	-0.170*** (0.054)	-0.001 (0.014)
2008 Household Expenditure Level 6	-0.000 (0.001)	-0.110** (0.046)	-0.128* (0.072)	-0.260*** (0.065)	0.003 (0.018)
Change in Head is Male	-0.001 (0.002)	-0.005 (0.019)	0.130*** (0.030)	0.112*** (0.029)	0.013* (0.007)
Change in Head Age	-0.001 (0.001)	-0.006** (0.002)	0.017*** (0.005)	0.015*** (0.004)	-0.007*** (0.003)
Change in Head Age_sq	0.001 (0.001)	0.005 (0.003)	-0.027*** (0.006)	-0.010* (0.006)	0.013*** (0.004)
2008 Province Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.002 (0.003)	0.000 (0.041)	0.177*** (0.053)	0.151*** (0.053)	-0.009 (0.010)
Observations	2,636	2,636	2,636	2,636	2,636
R-squared	0.009	0.038	0.075	0.053	0.060

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.2.3 Effects of Change in CSG on Change in Informal Employment, by Age of Household Members

VARIABLES	AGE 15-17	AGE 18-24	AGE 25-39	AGE 40-59	AGE 60+
Change in Number of CSGs per Household	0.001 (0.001)	0.003 (0.003)	0.005 (0.005)	-0.001 (0.008)	-0.002 (0.002)
Change in Total Number of Children 0-3	0.001 (0.000)	-0.001 (0.003)	-0.001 (0.007)	0.003 (0.009)	0.001 (0.002)
Change in Total Number of Children	-0.001 (0.001)	-0.002 (0.003)	-0.003 (0.005)	0.004 (0.008)	0.001 (0.001)
Age of the Oldest Eligible Child in 2008	0.000 (0.000)	0.001 (0.001)	-0.002 (0.002)	0.001 (0.002)	0.000 (0.000)
Change in Total Number of Adults	-0.000 (0.001)	0.003* (0.002)	0.004 (0.005)	-0.004 (0.007)	-0.001 (0.001)
Change in Head Completed High School	-0.000 (0.000)	0.002 (0.004)	0.013 (0.015)	0.003 (0.015)	0.003** (0.001)
2008 Household Expenditure Level 2	-0.001 (0.001)	-0.003 (0.006)	-0.001 (0.017)	-0.007 (0.020)	0.005** (0.002)
2008 Household Expenditure Level 3	-0.000 (0.000)	0.004 (0.007)	-0.005 (0.018)	-0.021 (0.022)	0.001 (0.002)
2008 Household Expenditure Level 4	0.000 (0.000)	0.007 (0.009)	0.024 (0.020)	-0.006 (0.025)	0.003 (0.003)
2008 Household Expenditure Level 5	-0.000 (0.000)	-0.008 (0.007)	-0.046* (0.025)	-0.027 (0.031)	0.006 (0.006)
2008 Household Expenditure Level 6	-0.008 (0.008)	0.006 (0.010)	0.017 (0.034)	0.000 (0.038)	0.010 (0.008)
Change in Head is Male	0.000 (0.000)	0.002 (0.006)	0.008 (0.013)	0.010 (0.015)	0.001 (0.002)
Change in Head Age	0.000 (0.000)	0.001 (0.001)	0.004** (0.002)	0.009*** (0.003)	-0.003** (0.001)
Change in Head Age_sq	-0.000 (0.000)	-0.002* (0.001)	-0.006** (0.003)	-0.008* (0.004)	0.004*** (0.002)
2008 Province Dummies	Yes	Yes	Yes	Yes	Yes
Constant	-0.000 (0.002)	-0.005 (0.007)	0.019 (0.024)	0.012 (0.027)	-0.004 (0.003)
Observations	2,636	2,636	2,636	2,636	2,636
R-squared	0.010	0.007	0.009	0.009	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

10.3 Comparing outcomes by relationship to household head status

According to Statistics South Africa that fielded the General Household Survey, the head of the household is “the person identified by the household as the head of that household and must be that household’s member” (Stats SA, 2008, p.58). In South Africa, household head means that the household should own accommodation of the household or be responsible for rent, and make most decisions in the household. In the General Household Survey, each member of the household is asked to determine their relationship to the head of the household. The respondent is asked to give information on how each member of the household is related to the head. Responses to this question are then crosschecked, especially with regard to the head (or acting head) of the household. In case of more than one person having a claim to be household head, the eldest of them is denoted as head for this study. Individuals identified in this process as not household heads can be relatives of the head, but can also be not related to the head that reside in the household no less than four nights per week (Stats SA, 2008). To determine the correlation between changes in the receipt of the CSG in a household and changes in employment among heads, I create an employment change variable that shows whether there was a positive, negative or no change (possible values: -1, 0 or 1) in the employment status of the household head by differencing an employment status value for the head in 2008 from the 2010 value. Since there can be a number of non-household heads, my employment outcomes for

them represent the sum of non-household heads' answers about their employment status at the household level.

When looking at the correlation between changes in the number of Child Support Grants received by a household and changes in labor supply among individual household members that are household heads versus not heads, I find no statistically significant results. Without introducing control variables into the model, I find a statistically insignificant decrease in total and formal employment in households that see an increase in the number of CSGs in the household, and a statistically insignificant increase in non-head employment. These coefficients on treatment are all small in magnitude. Once I introduce controls into the model, however, receipt of more CSGs becomes associated with a decrease in formal and, hence, total employment.

Observation of the relationship between particular covariates and employment shows that 1) an increase in the number of little children in a household is associated with a decrease in formal employment among non heads at a 1% significance level; and that 2) being in groups of higher to highest household expenditure (and, hence, income) seems to have an income effect on both heads and non heads.

**Table 10.3.1 Effect of Change in CSG on Change in Total Employment, by
Relationship to Household Head**

VARIABLES	HEAD	HEAD	NOT HEAD	NOT HEAD
Change in Number of CSGs per Household	-0.004 (0.011)	-0.014 (0.014)	0.015 (0.011)	-0.001 (0.014)
Change in Total Number of Children 0-3		-0.004 (0.016)		-0.024 (0.017)
Change in Total Number of Children		0.006 (0.014)		0.011 (0.014)
Age of the Oldest Eligible Child in 2008		0.003 (0.003)		0.005 (0.003)
Change in Total Number of Adults		-0.005 (0.011)		0.089*** (0.017)
Change in Head Completed High School		0.061** (0.029)		-0.037 (0.025)
2008 Household Expenditure Level 2		-0.037 (0.034)		-0.051** (0.023)
2008 Household Expenditure Level 3		-0.141*** (0.036)		-0.109*** (0.029)
2008 Household Expenditure Level 4		-0.150*** (0.044)		-0.196*** (0.036)
2008 Household Expenditure Level 5		-0.327*** (0.049)		-0.415*** (0.063)
2008 Household Expenditure Level 6		-0.264*** (0.062)		-0.501*** (0.080)
Change in Head is Male		0.197*** (0.031)		0.044 (0.030)
Change in Head Age		0.023*** (0.005)		0.001 (0.004)
Change in Head Age_sq		-0.023*** (0.007)		-0.003 (0.006)
2008 Province Dummies		Yes		Yes
Constant	0.057*** (0.012)	0.152** (0.060)	-0.209*** (0.011)	-0.095* (0.055)
Observations	2,636	2,636	2,636	2,636
R-squared	0.000	0.062	0.001	0.122

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.3.2 Effect of Change in CSG on Change in Formal Employment, by Relationship to Household Head

VARIABLES	HEAD	HEAD	NOT HEAD	NOT HEAD
Change in Number of CSGs per Household	-0.005 (0.010)	-0.015 (0.013)	0.007 (0.012)	-0.012 (0.015)
Change in Total Number of Children 0-3		-0.009 (0.015)		-0.076*** (0.019)
Change in Total Number of Children		0.011 (0.012)		0.032** (0.015)
Age of the Oldest Eligible Child in 2008		0.003 (0.003)		0.005 (0.004)
Change in Total Number of Adults		-0.003 (0.010)		0.162*** (0.018)
Change in Head Completed High School		0.063** (0.028)		0.015 (0.029)
2008 Household Expenditure Level 2		-0.035 (0.031)		-0.071** (0.032)
2008 Household Expenditure Level 3		-0.102*** (0.033)		-0.022 (0.037)
2008 Household Expenditure Level 4		-0.150*** (0.041)		-0.060 (0.046)
2008 Household Expenditure Level 5		-0.271*** (0.049)		-0.192*** (0.068)
2008 Household Expenditure Level 6		-0.261*** (0.064)		-0.234*** (0.082)
Change in Head is Male		0.219*** (0.031)		0.030 (0.034)
Change in Head Age		0.014*** (0.005)		0.003 (0.004)
Change in Head Age_sq		-0.014** (0.007)		-0.005 (0.006)
2008 Province Dummies		Yes		Yes
Constant	0.024** (0.011)	0.144*** (0.055)	0.039*** (0.012)	0.177*** (0.066)
Observations	2,636	2,636	2,636	2,636
R-squared	0.000	0.061	0.000	0.100

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.3.3 Effect of Change in CSG on Change in Informal Employment, by Relationship to Household Head

VARIABLES	HEAD	HEAD	NOT HEAD	NOT HEAD
			HEAD	
Change in Number of CSGs per Household	0.002 (0.006)	0.001 (0.008)	0.008 (0.005)	0.005 (0.006)
Change in Total Number of Children 0-3		0.005 (0.010)		-0.001 (0.006)
Change in Total Number of Children		-0.004 (0.008)		0.003 (0.006)
Age of the Oldest Eligible Child in 2008		0.000 (0.002)		0.000 (0.002)
Change in Total Number of Adults		-0.002 (0.006)		0.005 (0.005)
Change in Head Completed High School		-0.002 (0.017)		0.022* (0.013)
2008 Household Expenditure Level 2		-0.001 (0.022)		-0.006 (0.013)
2008 Household Expenditure Level 3		-0.039* (0.023)		0.019 (0.016)
2008 Household Expenditure Level 4		-0.000 (0.025)		0.027 (0.018)
2008 Household Expenditure Level 5		-0.055* (0.028)		-0.020 (0.029)
2008 Household Expenditure Level 6		-0.002 (0.038)		0.027 (0.039)
Change in Head is Male		-0.021 (0.017)		0.042*** (0.013)
Change in Head Age		0.009*** (0.003)		0.002 (0.002)
Change in Head Age_sq		-0.009** (0.004)		-0.002 (0.003)
2008 Province Dummies		Yes		Yes
Constant	0.033*** (0.007)	0.008 (0.031)	0.014** (0.005)	0.013 (0.021)
Observations	2,636	2,636	2,636	2,636
R-squared	0.000	0.010	0.001	0.016

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

10.4 Comparing outcomes by relationship to household head and gender

Finally, I compare how changes in CSG receipt are correlated with changes in total employment (Table 10.4.1), formal employment (Table 10.4.2) and informal employment (Table 10.4.3) for male heads versus female heads, and male non-heads versus female non-heads. Results of this study are not statistically significant and no significant differences are observed between male and female heads versus male non-head and female non-heads' labor supply. For informal employment, however, I find an increase in the number of CSGs received per household to be positively associated with male not head employment at a 10% significance level without controls, and at a 5% significance level with controls, even though the magnitude of the coefficient is low. Since, in addition to the coefficient's low magnitude, a low number of individuals in the sample could reply to questions about their informal employment (due to the questionnaire's design), this finding is not sufficient to be considered a strong evidence of the effect on male non-heads.

Table 10.4.1 Effect of Change in CSG on Change in Total Employment by Relationship to the Head and Gender

VARIABLES	MALE HEAD	MALE HEAD	FEMAL E HEAD	FEMAL E HEAD	MALE NOT HEAD	MALE NOT HEAD	FEMAL E NOT HEAD	FEMAL E NOT HEAD
Change in Number of CSGs per Household	0.000 (0.008)	-0.011 (0.009)	-0.004 (0.008)	-0.003 (0.010)	0.004 (0.006)	-0.006 (0.009)	0.012 (0.009)	0.005 (0.011)
Change in Total Number of Children 0-3		0.005 (0.011)		-0.009 (0.012)		-0.013 (0.011)		-0.010 (0.013)
Change in Total Number of Children Age of the Oldest Eligible Child in 2008		0.004 (0.009)		0.003 (0.011)		0.008 (0.010)		0.003 (0.010)
		0.000 (0.002)		0.002 (0.003)		0.002 (0.002)		0.003 (0.003)
Change in Total Number of Adults		0.002 (0.008)		-0.007 (0.008)		0.055*** (0.013)		0.034*** (0.010)
Change in Head Completed High School 2008 Household		0.035 (0.021)		0.026 (0.021)		-0.039*** (0.014)		0.002 (0.021)
Expenditure Level 2 2008 Household		-0.030 (0.022)		-0.006 (0.027)		-0.003 (0.016)		-0.049*** (0.017)
Expenditure Level 3 2008 Household		-0.067*** (0.024)		-0.075*** (0.028)		-0.029 (0.019)		-0.081*** (0.022)
Expenditure Level 4 2008 Household		-0.116*** (0.029)		-0.034 (0.033)		-0.044* (0.023)		-0.152*** (0.029)
Expenditure Level 5 2008 Household		-0.177*** (0.035)		-0.149*** (0.035)		-0.096** (0.040)		-0.319*** (0.046)
Expenditure Level 6 2008 Household		-0.146*** (0.045)		-0.117*** (0.044)		-0.242*** (0.051)		-0.258*** (0.059)
Change in Head is Male		0.537*** (0.024)		-0.339*** (0.023)		-0.080*** (0.020)		0.124*** (0.022)
Change in Head Age		0.013*** (0.003)		0.010** (0.004)		-0.003 (0.002)		0.004 (0.003)
Change in Head Age_sq		-0.015*** (0.005)		-0.008 (0.005)		0.003 (0.003)		-0.005 (0.004)
2008 Province s Dummie		Yes		Yes		Yes		Yes
Constant	-0.018** (0.009)	0.057 (0.042)	0.075*** (0.009)	0.095** (0.043)	-0.082*** (0.007)	-0.102** (0.040)	-0.128*** (0.009)	0.007 (0.037)
Observations	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.275	0.000	0.103	0.000	0.080	0.001	0.086

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.4.2 Effect of Change in CSG on Change in Formal Employment by Gender and Relationship to the Head

VARIABLES	MALE HEAD	MALE HEAD	FEMAL E HEAD	FEMALE HEAD	MALE NOT HEAD	MALE NOT HEAD	FEMAL E NOT HEAD	FEMALE NOT HEAD
Change in Number of CSGs per Household	0.001 (0.008)	-0.009 (0.009)	-0.006 (0.007)	-0.006 (0.009)	0.000 (0.008)	-0.008 (0.011)	0.007 (0.009)	-0.004 (0.010)
Change in Total Number of Children 0-3		0.005 (0.011)		-0.014 (0.011)		-0.040*** (0.013)		-0.037** (0.014)
Change in Total Number of Children		0.004 (0.009)		0.007 (0.009)		0.013 (0.012)		0.018* (0.010)
Age of the Oldest Eligible Child in 2008		0.000 (0.002)		0.002 (0.002)		0.001 (0.002)		0.004 (0.003)
Change in Total Number of Adults		-0.003 (0.008)		0.001 (0.007)		0.096*** (0.014)		0.066*** (0.012)
Change in Head Completed High School 2008 Household		0.047** (0.021)		0.016 (0.019)		0.004 (0.020)		0.011 (0.022)
Expenditure Level 2 2008 Household		-0.027 (0.022)		-0.007 (0.023)		-0.023 (0.022)		-0.048** (0.022)
Expenditure Level 3 2008 Household		-0.044* (0.023)		-0.059** (0.024)		-0.014 (0.025)		-0.008 (0.026)
Expenditure Level 4 2008 Household		-0.121*** (0.029)		-0.029 (0.029)		-0.018 (0.030)		-0.042 (0.033)
Expenditure Level 5 2008 Household		-0.163*** (0.036)		-0.108*** (0.033)		-0.066 (0.046)		-0.126** (0.050)
Expenditure Level 6 2008 Household		-0.159*** (0.050)		-0.103*** (0.040)		-0.142*** (0.051)		-0.092 (0.068)
Change in Head is Male		0.476*** (0.024)		-0.257*** (0.021)		-0.134*** (0.023)		0.164*** (0.026)
Change in Head Age		0.012*** (0.003)		0.003 (0.003)		-0.003 (0.004)		0.006 (0.005)
Change in Head Age_sq 2008 Province Dummies		-0.013*** Yes		-0.001 Yes		0.003 Yes		-0.007 Yes
Constant	-0.039*** (0.009)	0.066 (0.042)	0.063*** (0.008)	0.078** (0.036)	0.010 (0.008)	0.039 (0.049)	0.029*** (0.009)	0.138*** (0.048)
Observations	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.230	0.000	0.076	0.000	0.075	0.000	0.070

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10.4.3 Effect of CSG on Change in Informal Employment by Gender and Relationship to the Head

VARIABLES	MALE HEAD	MALE HEAD	FEMAL E HEAD	FEMALE HEAD	MALE NOT HEAD	MALE NOT HEAD	FEMAL E NOT HEAD	FEMA LE NOT HEAD
Change in Number of CSGs per Household	-0.001 (0.004)	-0.002 (0.005)	0.002 (0.005)	0.003 (0.007)	0.004* (0.002)	0.005** (0.003)	0.005 (0.005)	-0.000 (0.006)
Change in Total Number of Children 0-3		-0.001 (0.006)		0.006 (0.008)		0.001 (0.002)		-0.002 (0.006)
Change in Total Number of Children		0.000 (0.004)		-0.004 (0.006)		-0.004 (0.003)		0.007 (0.006)
Age of the Oldest Eligible Child in 2008		0.000 (0.001)		0.000 (0.002)		-0.000 (0.001)		0.001 (0.001)
Change in Total Number of Adults		0.005 (0.004)		-0.007 (0.005)		0.002 (0.002)		0.003 (0.004)
Change in Head Completed High School		-0.012 (0.011)		0.011 (0.013)		-0.005 (0.004)		0.027** (0.012)
2008 Household Expenditure Level 2		-0.002 (0.014)		0.001 (0.017)		-0.002 (0.008)		-0.004 (0.012)
2008 Household Expenditure Level 3		-0.023* (0.014)		-0.016 (0.018)		0.008 (0.009)		0.011 (0.014)
2008 Household Expenditure Level 4		0.004 (0.016)		-0.005 (0.019)		0.004 (0.009)		0.023 (0.017)
2008 Household Expenditure Level 5		-0.014 (0.019)		-0.041** (0.021)		0.002 (0.009)		-0.022 (0.028)
2008 Household Expenditure Level 6		0.013 (0.028)		-0.015 (0.025)		0.004 (0.016)		0.023 (0.031)
Change in Head is Male		0.061*** (0.012)		-0.082*** (0.013)		-0.009* (0.005)		0.051*** (0.012)
Change in Head Age		0.002 (0.002)		0.007*** (0.002)		0.000 (0.000)		0.002 (0.002)
Change in Head Age_sq		-0.002 (0.003)		-0.007** (0.003)		0.000 (0.001)		-0.002 (0.003)
2008 Province Dummies		Yes		Yes		Yes		Yes
Observations	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636
R-squared	0.000	0.021	0.000	0.028	0.001	0.011	0.000	0.017

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1