Bargaining to work: the effect of female autonomy on female labour supply

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Abstract

Female labour supply is an important outcome for measuring gender equality across various economic settings, and has therefore been set up as one of the key indicators for women's empowerment. The literature so far only examines this link between increased female autonomy as a result of increasing economic empowerment, as women's share in the labour force increases. We argue in this paper that the relation between female labour force participation and empowerment is highly endogenous, and the previous literature that focused only on the unidirectional link between the two ignores the interdependence between the two outcomes. Using the South African Child Grants we thereby depict how female labour force participation is influenced by a rise in female autonomy. Our results show that becoming a primary decision maker leads to a 62% increase in female labour force participation.

Keywords: Female labour force participation, SASSA cards, female autonomy, non-cooperative household bargaining model

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1. Introduction

The household is not always a single economic unit and recent literature shows how not only does gender play a role, but also intergenerational factors are key in economic decision making. There is a great heterogeneity in household economic outcomes, and these are largely affected by the intra household bargaining. One of the largest strands of feminist literature talks discusses the spousal balance and how this might affect the efficiency of economic outcomes (Luke and Munshi 2011). The specific outcome of interest in this case is the female's labour force participation, which is related to the wife's bargaining power in the household economic model.

Female labour supply is an important outcome for measuring gender equality across various economic settings (Amoateng, Lucas, & Kalule-Sabiti, 2004). Female labour supply has found to be linked to overall economic productivity (Bloom, Canning, Fink, & Finlay, 2009), marriage and fertility decisions (Heath & Mobarak, 2015; Jensen, 2012) as well as women's bargaining power within a household (Anderson & Eswaran, 2009; Atkin, 2009). One of the most common result from several empirical analyses of women's bargaining power is that resources such as income and assets empower women (Agarwal (1994), Kabeer (1999), Quisumbing (2003)). However, all these studies focus on the effect that female labour supply has on female autonomy, without questioning the reverse causality in this relation, i.e. the nature of this autonomy in the first place might define the overall decision to participate in the labour market. This study finds that the relationship operates in the opposite direction as well.

Using the exogenous shock to autonomy caused by the roll out of South African Social Security Agency (SASSA) bankcards we use an instrumental variable (IV) approach to identify the local average treatment effect (LATE) of autonomy on labour force participation (LFP). The results are further investigated using marginal treatment effect (MTE) methods. These methods were developed by Björklund and Moffitt (1987) and Heckman and Vytlacil (1999) and extended on by Heckman (2010) and Kowalski (2016). The early methods could only be applied to questions with continuous instruments but recent extensions have made it possible to identify the MTE in situations with discrete and binary instruments (Kowalski, 2016). As such this implies an increase in the financial autonomy and overall empowerment of women, which is tested in our results. The results

suggest that through providing child support grant (CSG) recipients with bankcards women gain greater control over their income thereby increasing the benefits to working. Using this as our exogenous shock to the autonomy of women, we then examine the impact of changes in decision making on the labour force participation of women.

This next section will discuss the literature revolving around women's autonomy and female labour force participation, and the impact that cash grants in general have been found to have in the South African context. This sets up the stage for the methodology and the analysis, which are respectively the next two sections. Finally, we will discuss the implication of the results before concluding.

2. Empirical and theoretical background

Empirical background

The feminization of the labour force internationally in both developed and developing countries over the past five decades has been well-documented (Mehra & Gammage, 1999; Ozler, 2000; Standing, 1989). In South Africa an increase in female labour supply can be seen in the data from as early as 1960. Standing, Sender and Weeks (1996) find that women accounted for only 23 percent of the labour force in 1960 but that this proportion increased to 36 percent by 1985 and to 41 percent by 1991. Their results are confirmed by those of Posel and Todes (1995). Since 1991 the increase in female labour supply has continued (Casale & Posel, 2002; Klasen, Woolard, & Woolard, 2000) with most recent data indicating that in 2014 women made up 45 percent of the labour force (own calculations using national income dynamics study (NIDS) wave 4).

The literature concerning the determinants of female labour supply has centred around three main topics: cultural norms (Fernández, Fogli, & Olivetti, 2004), the demand for female labour (Jensen, 2012) and the opportunity costs to working faced by women (Connelly, 1992). In particular, a large literature exists on the relationship between fertility and female labour supply (Bloom et al., 2009; Goldin & Katz, 2002).

Casale and Posel (2002) consider the possible causes of the feminization of the South African labour market. They find that women are being "forced" into the labour market mainly due to loss of male financial support (Casale & Posel, 2002, p. 18). While there is

evidence that male financial support to women has decreased over the same period that female labour supply increased, they fail to isolate this as the causal channel by failing to consider other possible reasons. Decreasing fertility (Goldin & Katz, 2002), changing social norms (Fernández, Fogli, & Olivetti, 2004) and increased female autonomy (Heath & Tan, 2016) could all be confounding factors.

A recent study by Heath and Tan (2016) found a strong link between autonomy and labour supply for women in India. Using the Hindu Succession Act as a source of external variation in income they find that increased income to women increased their bargaining power within the household. The authors use a non-cooperative household model that predicts that increased autonomy raises a woman's effective wage thereby increasing the probability of a woman seeking work. Their empirical findings corroborate this prediction.

We adopt a similar approach to Heath and Tan (2016). Within the non-cooperative household female autonomy is measure of how much control a woman has over her own income. We use the roll out of the South African Social Security Agency (SASSA) bankcards as an exogenous shock to the control women have over their income.

South Africa allocated R155.3 billion for the 2015/16 fiscal year on account of social grants: Child support grants, old age pensions, disability grants etc. There are around 16.4 million beneficiaries for these grants (more than 10 million for child grants alone). The impact of the grants has been proven in several studies which find that it has led to declining poverty and inequality over time (Leibbrandt & Levinsohn, 2011; Bhorat & Westhuizen, 2012; Woolard & Leibbrandt, 2010). Woolard and Leibbrandt (2011, 2013) examine the impact of cash grants on household poverty and other long run effects and find that there is a positive impact of these grant on all of the measure they have examined, especially over the longer term. These effects relate to lower levels of poverty, improved child health outcomes, better enrolment and schooling etc. Leibbrandt et al. (2013) also examine the impact of cash grants on labour supply and mostly on the female labour force participation. They find ambiguous results, wherein depending on the income level the decision to work was affected by the receipt of grants as the woman then decided to stay at home rather than supplement the low household income. Woolard et al (2010) on the other hand finds that there exists a positive relation between grant income and labour supply. The same result is found in the case of health and education as well. Agüero, et al.

(2007) also examine the unconditional Child Support Grant (CSG) and its impact on child nutrition and like before, find improvements in child nutrition via the extra grant income given at early life especially.

All of these studies, except for a few seems to correspond to the success story of each of these well targeted cash grants in South Africa. Moreover, there is a flurry of literature on the positive impact of cash grants on indicators of wellbeing around the world (Barientos and DeJong 2004; 2006) summarize this literature to a great extent and talk about the various improvements in child poverty via the several in kind and cash transfer programmes, conditional and otherwise, that exist around the world.

In March 2012, SASSA introduced their bankcards and enrolment of beneficiaries completed in December 2012. The child grant SASSA card was linked to a bank account, where the successful applicant will then receive the grant money every month. The main aim of the new system was to decrease fraudulent benefactors (Ministry of Social Development, 2012). Under the new system each grant recipient receives a bankcard linked to a bank account with Grindrod Bank. The card gives recipients access to conventional banking services, such as ATM's and EFTs, and are also an accepted method of payment for POS transactions (Cash Paymaster Services (Pty) Limited, 2012).

This meant that all the recipients, a large majority of those being women were then not only receiving a cash transfer, but also a bank card that ensured that this additional income was not part of the overall pool of household resources. As a result, many more women then were able to be included within the financial system, owning a bank account, and becoming capable of financial decisions and transactions simultaneously. We believe that this is a significant positive shock to the autonomy of many females and forms the fundamental channel we exploit in our study.

Before the introduction of the SASSA bankcard individuals would receive their grants in cash. Research shows that this income was often pooled with other household income (Case & Deaton, 1998). We hypothesize that compared to the situation where individuals bring cash into the household, where other household members may make claims on the cash, the bankcards increase the control individuals have over their grant income[4].

[4] To withdraw cash at a SASSA pay point or a participating store (Pick n Pay, Boxer, Shoprite, USAVE and SPAR) individuals need to verify their identity using their fingerprints. When withdrawing cash at an ATM or non-participating merchant individuals need to enter a pin code. Only the grant recipient may use the bankcard and they may not authorize other individuals to use their card (Cash Paymaster Services (Pty) Limited, 2012).

Theoretical framework

Gary Becker initiated the literature on household bargaining models where he proposed three 'unitary' household models, which incorporate preference heterogeneity and the bargaining process that exist in households. Economists were content with the Beckerian model of unitary household with a benevolent patriarch who considers the preferences of all members when making allocation decisions, for a long time. It was much later, in the 80's, that Manser and Brown (1980) and McElroy and Horney (1981) introduced the cooperative bargaining models, which were then closely followed by the non-cooperative bargaining models literature (Woolley, 1988; Lundberg and Pollak, 1993). These models introduced members of the households who have collective or individual utility functions, respectively, that are affected by particular resource constraints. These were able to thereby elaborate the substantial differences in the welfare levels of the individuals of the same household, as a result of the difference in the amount of power an individual wields within the household (Behrman, 1988; Thomas, 1990; Kanbur and Haddad, 1994; Pitt, Rosenzweig et al., 1990).

The literature itself is vast and provides many outcomes that affect the women's autonomy, a lot of them touching upon her labour force participation and the consequent income and earnings shock in this model. In some studies, the women's absolute level of earnings has no impact on the bargaining power at all, while a lower gender wage gap in the local labour market does appear to significantly lower women's unpaid work load (MacPhail and Dong, 2007) and reduces domestic violence (Aizer (2007)). In itself the standard collective model predicts that an increase in female autonomy decreases female labour supply (McElroy & Horney, 1981), whereas the non-cooperative model, predicts that an increase in female autonomy increases female labour supply.

There are also several studies that examine the changes in women's bargaining power based on her access to resources. Positive shocks in income and assets (Agarwal, 1994; Kabeer, 1999; Quisumbing, 2003), increased ownership of land and house jointly with men, in comparison to all male property rights (Datta, 2006; Panda and Agarwal, 2005) and women's wage earning and education have a positive impact on her bargaining power (Koolwal (2005), Orrefice and Bercea (2007). However, there are many studies where the women's absolute level of earnings has no impact on bargaining power at all, while a lower gender wage gap in the local labor market does appear to significantly lower women's unpaid work load (MacPhail and Dong (2007)) and reduces domestic violence (Aizer (2007)). These studies served to show that individual access to and control over resources

and household level variables has a big impact on bargaining power of women. Other external community level variables like market wage and opportunity of employment also affect women's bargaining position. Simultaneously, there are number of other papers which find that women's work, assets, earnings and education have no significant impact on their decision-making power and well-being in households. And, at times the effect is even negative. This exposition serves as the proof of the extent of literature that has analysed the unidirectional nature of the household bargaining model.

We find only one study that looks at the relation in reverse, that is to say that women's autonomy is a key factor that might affect her decision to enter the job market in the first place.

Model 1: The Collective Household Model

Under the collective model household members maximize the weighted sum of member's utility. In a two adult household the optimization problem is:

$$\max \quad a_A u_A + (1 - a_A) u_B \tag{1}$$

where the weight assigned to her utility, a_i, is a measure of member i's autonomy.

Member i's utility is given by:

$$u_i(x_i, z, l_i) = \beta_i \ln x_i + \gamma_i ln z + \delta_i ln l_i \tag{2}$$

where x_i is her consumption,

z is the household public good and

l_i is her leisure.

Members have 1 unit of time, which they must divide between work e_i and leisure l_i so that $e_i + l_i = 1$. Both members contribute some of their income to the public good z; $z = y_A + y_B$ (McElroy & Horney, 1981).

The optimization problem then becomes:

$$\max_{x_A, x_B, w_A, w_B, z} a_A(\beta_A \ln x_A + \gamma_A ln z + \delta_A ln(1 - e_A)) + (1 - a_A)(\beta_B \ln x_B + \gamma_B ln z + \delta_B \ln(1 - e_B)) \tag{3}$$

$$\text{subject to:} \quad z + p_A x_A + p_B x_B \leq w_A e_A + R_A + w_B e_B + R_B \tag{4}$$

where p_i is the price of member i's private good,

w_i is the wage rate for her work and

R_i is her unearned income.

Suppose the woman is member A, as her autonomy increases her utility becomes more important in the optimization problem. This results in the woman being able to work less and consume more. Therefore under the collective model a woman is less likely to work as her autonomy increases (Heath & Tan, 2016; McElroy & Horney, 1981).

Model 2: The Non-cooperative Household Model

Under the non-cooperative model we suppose that household allocation of resources happens in two stages. In the first stage income is shared between all members. In the second stage each member maximizes her own utility function subject to her income share. Member i's optimization problem is:

$$\max_{x_i, y_i, e_i} u_i(x_i, z, e_i) = \max_{x_i, y_i, e_i} \beta_i \ln x_i + \gamma_i lnz + \delta_i ln(1 - e_i) \qquad (5)$$

where member A's maximization is subject to:

$$y_A + p_A x_A \leq a_A(w_A e_A + R_A) \qquad (6)$$

and member B's maximization is subject to:

$$y_B + p_B x_B \leq w_B e_B + R_B + (1 - a_A)(w_A e_A + R_A) \qquad (7)$$

Therefore a_A is the fraction of member A's income that she has control over. Member B controls the rest of her income, $(1 - a_A)(w_A e_A + R_A)$. Suppose again the woman is member A. An increase in her autonomy, through increasing her effective wage $a_A w_A$, causes an increase in her inclination to work[5] (Heath & Tan, 2016).

Our identification comes from the introduction of the SASSA bankcards in 2012. The introduction of bankcards caused an exogenous increase in autonomy for grant recipients by giving women more financial control than they previously had when grants were paid out in cash. We believe that this increase in financial autonomy is what would be relevant increase that we notice in women's bargaining power, that eventually leads to changes in the economic outcomes, specifically labour force participation in this case.

Figure 1 shows the probability of having a bank account over time for CSG grant recipients (green) and non-recipients (yellow). We limit our analysis to all women older

[5] The direction of the predicted effect on labour supply depends on exactly which further assumptions are made. Under a common set of assumptions an increase in autonomy will cause a woman's labour supply to either stay constant or increase. Under alternative assumptions the direction of the effect on labour supply is ambiguous. See Heath and Tan (2016) for details.

than 15. The treatment group are women who reported receiving a CSG[6], while the control group is made up of women in the poorest 30 percent of households[7] who reside with a 'child' just beyond the grant eligible age (18-25 years old).

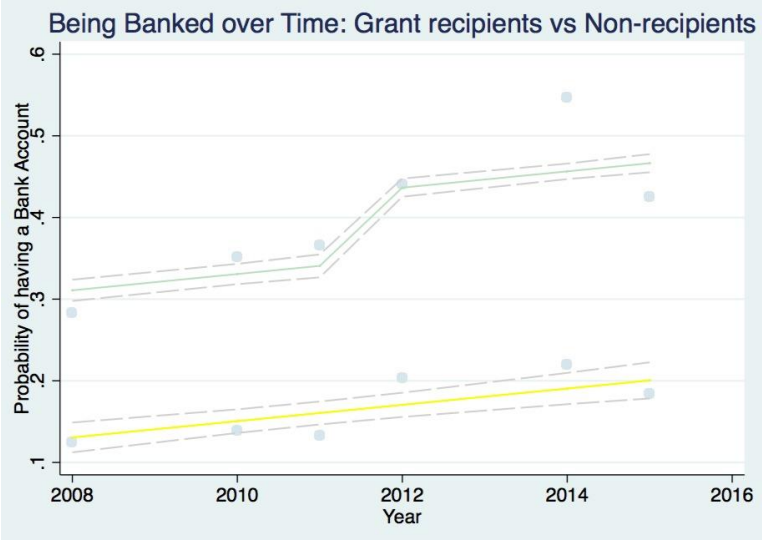

Figure 1

In ***Figure 1*** a discontinuity in the trend can be seen in 2012 for grant recipients. After controlling for a range of covariates this discontinuity remained statistically significant confirming that the introduction of the SASSA bank card significantly increased the probability of having a bank account for grant recipients[8].

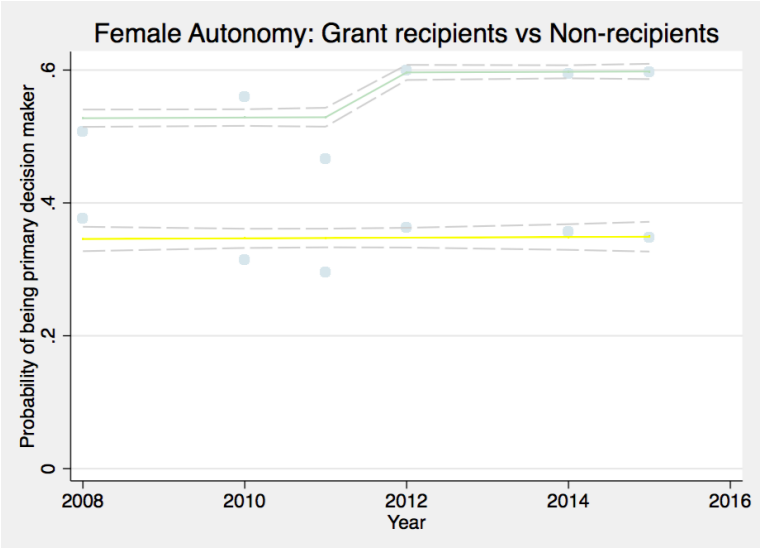

Figure 2

[6] CSG recipients will generally be referred to as grant recipients - this group does not include individuals receiving other government grants.
[7] Based on log per capita household income.
[8] See table A in Appendix for regression output.

Figure 2 compares female autonomy for grant recipients and non-recipients between 2008 and 2015. Generally, grant recipients are more likely to be the primary decision makers[9] within their households compared to non-recipients in all time periods. A discontinuity in the trend of grant recipients is observed in 2012 when the SASSA bank cards were introduced. This descriptive finding will be more robustly investigated in section 5. The figure is an illustration of the exogenous shock to female autonomy that will be used to identify the effect of autonomy on LFP.

Trends in female LFP over the period 2008-2015 are illustrated in ***Figure 3***. On average, grant recipients are more likely to participate in the labour force than non-recipients. A discontinuous increase in the probability of participating in the labour force is seen for grant recipients in 2012. Investigating whether this change can causally be attributed to the gain in autonomy experienced by women due to the introduction of the SASSA bankcards is the aim of the remainder of this paper.

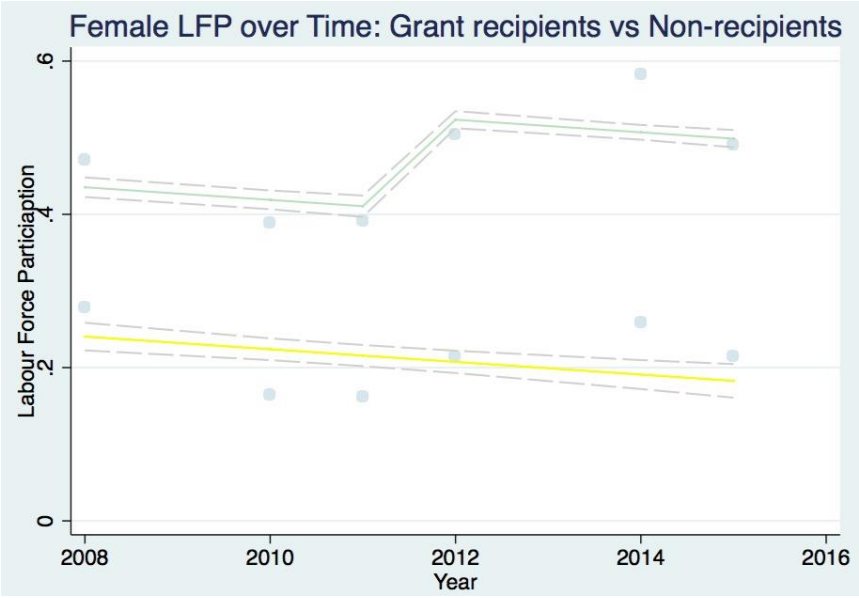

Figure 3

Using two stage least squares the following equation is estimated:

[9] Women were classified as the primary decision maker for large purchases if the majority of household members identified them as the primary decision maker in this category. While NIDS asks about decision making in 5 categories (schooling decisions, where the household should live, whom may reside within the household, day-to-day decision and large purchases) we chose to only use decision making on large purchases as this would be most closely linked to financial autonomy.

$$LFP_{ij} = \beta\widehat{PDM}_{ij} + \theta Income_{ij} + \gamma(Age_{ij}) + \delta Educ_{ij} + \alpha X_{ij} + \varepsilon_{ij} \quad (8)$$

Where $\widehat{PDM}_{ij}$ is predicted using:

$$PDM_{ij} = \rho Post_{ij} + \lambda Treat_{ij} + \varphi(Post_{ij} \times Treat_{ij}) + \alpha Y_{ij} + \tau_{ij} \quad (9)$$

where LFP_{ij} denotes whether person i at time j participated in the labour market

PDM_{ij} denotes whether person i at time j was the primary decision maker in their household

$Income_{ij}$ is the log household monthly income from labour market activities

$\gamma(Age_{ij})$ is a second degree polynomial for the age of individual i at time j

$Educ_{ij}$ is the number of years of education completed by individual i at time j

Further controls (X_{ij}) include the an indicator for whether or not of individual i receives a CSG at time j ($Treat_{ij}$), a variable indicating whether it is pre or post the introduction of the SASSA bankcard ($Post_{ij}$), the number of children residing in the household, which province individual i resides in, an indicator for whether individual i lives in an urban or rural area and a linear time trend from 2008 to 2015.

5. Results

Table 1 shows the results from estimating equation (8) and (9). Columns 1 and 2 show the results before any control variables have been included. The F-statistic in the first stage (column 1) is large indicating that the instrument is relevant. In the second stage (column 2) the coefficient on the variable of interest, being the primary decision maker, is large and highly significant. The results indicate that women who are the primary decision makers within their households are 160 percentage points more likely to participate in the labour force. This puzzlingly large effect decreases in magnitude with the inclusion of control variables (column 4).

Table 1: IV Regression

	(1) First stage	(2)	(3) First stage	(4)
VARIABLES	Primary Decision	LFP	Primary Decision	LFP
Primary Decision		1.548***		1.169*
		(0.546)		(0.638)
Post	0.0155	-0.021	0.047***	0.017

	(0.015)	(0.033)	(0.014)	(0.048)
Treatment	0.188***	-0.081	0.078***	-0.039
	(0.011)	(0.117)	(0.009)	(0.060)
Post × Treatment	0.053***		0.032**	
	(0.017)		(0.013)	
Age			0.055***	-0.030
			(0.001)	(0.035)
Age^2			-0.000	0.000
			(0.001)	(0.000)
Educ			-0.004***	0.026***
			(0.001)	(0.003)
Children			-0.038***	0.033
			(0.001)	(0.024)
LogIncome			-0.008***	0.042***
			(0.001)	(0.005)
Time			-0.001	-0.011***
			(0.002)	(0.003)
Constant	0.340***	-0.311*	-0.719***	0.272
	(0.009)	(0.177)	(0.027)	(0.467)
Controls for Prov & Urban	N	N	Y	Y
Observations	21,135	21,135	21,105	21,105
F-statistic	279.62		792.95	
R-squared	0.038		0.404	

Standard errors in parentheses

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

While no obvious sources of endogeneity exist in the above specification there is always the danger that unobserved individual level characteristics may be bias our estimates. The fixed effects specification offers an improvement to the previous identification strategy, since it allows us to control for individual level time invariant characteristics.

Table 2: FE IV Regression Results

	(1)	(2)
	First Stage	
VARIABLES	Primary Decision	LFP
Primary Decision		0.624***
		(0.055)
Post	0.161***	
	(0.007)	
Children	-0.049***	0.010**
	(0.003)	(0.005)
LogIncome	-0.006***	0.039***
	(0.001)	(0.002)
F-statistic	580.69	

Observations	13,503	13,503
Number of pid	4,475	4,475

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The FE-model produces more reasonable effects. The coefficient on being the primary decision maker is significant at the one percent level and indicates that becoming the primary decision maker within a household increases a women's probability of participating in the labour force by 62 percentage points.

As a robustness check the estimation was repeated for men and for women who already had a bank account. The effect of the SASSA card roll out on autonomy was insignificant for both groups (appendix table B and C).

6. Marginal Treatment Effects

The LATE estimated in section 5 is the treatment effect (TE) for the group of compliers. Given that TE heterogeneity may be present, gaining understanding of how the TE varies across different groups will help us understand how autonomy affects labour force participation more generally. Applying MTE methods allows us to estimate TE for various groups, such as always-takers, never-takers and a randomized intervention sample (Heckman, 2010)[10].

Understanding how TE's differ for individuals based on observable characteristics is helpful in understanding the large effects seen for in section 5. By imposing additive separability between observables and unobservables, as commonly done in the literature, general MTE functions can be estimated (Kowalski, 2016). How TE's differ for individuals with different observable characteristics can be estimated with these functions.

Using the approach developed by Kowalski (2016), the extent to which observables account for differences in TE heterogeneity can be measured. The sample marginal treatment effect (SMTE) shows how the TE varies after all observable covariates have been taken into account. The SMTE therefore shows how TE's vary with unobserved

[10] See Appendix table D for the treated outcome, untreated outcome and treatment effect for various groups

heterogeneity. To understand how the TE varies with observed heterogeneity we calculate the MTE with the largest observable component, $maxMTE(x,p)$, and compare this with the MTE with the smallest observable component, $minMTE(x,p)$. The difference in the two functions gives the maximum amount of variation in the TE that can be explained by observed heterogeneity (Kowalski, 2016).

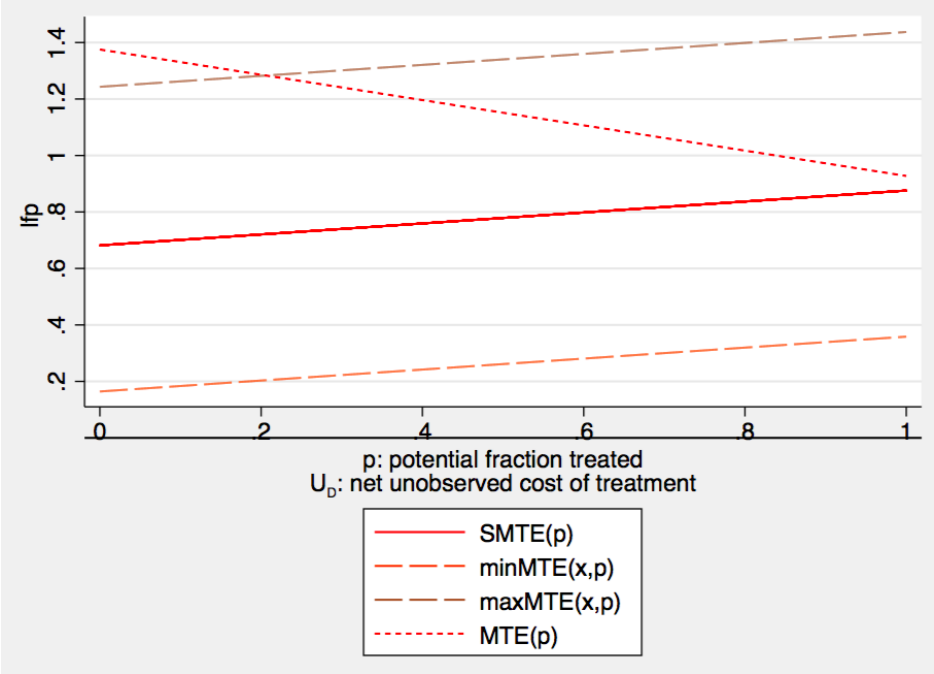

Figure 4

Figure 4 shows the TE on LFP on the y-axis and the potential fraction treated which is equal to the unobserved cost of treatment on the x-axis. The downward sloping MTE function indicates that individuals with the highest TE select into treatment first. In the current context that means that women whom have the greatest probability of entering the labour market with increased household bargaining power chose to use the increase in autonomy given to them by the SASSA bank card to become the primary household decision maker.

Covariates play a role in explaining why the TE varies with the proportion of the sample that selects into treatment as can be seen by the fact that the SMTE is less steep than the MTE. The SMTE has a very flat slope indicating that very little unobserved heterogeneity is left unexplained. The largest source of TE heterogeneity is differences in observed covariates. This can be seen by the large difference in the $maxMTE$ and the $minMTE$

compared to the small difference experienced within each group with a change in the cost of treatment.

The MTE functions aid our understanding of the large effects seen in section 5 by illustrating how the TE's vary with observable characteristics. Only women with a certain characteristics experience the large effects seen in table 2 while others experience more moderate gains.

While some groups of women gain more than others from being treated the TE's are positive across all values of p and any covariate vector x. This result indicates that increased autonomy is beneficial for all women. The lowest expected effect is an 18-percentage point increase in the probability of participating in the labour force, still a substantial increase.

7. Conclusion

This paper investigated the effect of autonomy on labour supply for women. Theoretical predictions of the relationship vary based on the model chosen. We discussed the standard collective model, which predicts that an increase in female autonomy decreases female labour supply, and the non-cooperative model, which predicts that an increase in female autonomy increases female labour supply. In our own analysis, we find an increase in female autonomy causes a large and significant increase in the probability of participating in the labour force. Our results therefore provide support against the standard collective model.

The data exploits the exogenous financial autonomy that was presented to women after the roll out of the SASSA card being linked to the bank accounts. This is an example of a government action, that we find lead to an increase in the overall autonomy that women experienced. The second stage of our analysis then uses the exogenous increase in autonomy as the independent variable that determines that changes in female labour force participation. This goes along the lines of previous studies that depict the strong relation between norms, culture and other such institutions that have been shown to be detrimental towards female agency. It is this exact setup that leads one to think that the decision of women to participate in the labour market in itself is a function of her autonomy in the household, given the resource constraints of the households bargaining model.

Our analysis set out to examine this relationship, where we estimate the local average

treatment effect of becoming the primary household decision maker on the probability of participating in the labour force to be 62 percentage points. Marginal treatment effect methods are used to find a range of treatment effects based on observed and unobserved individual characteristics. The effect of female autonomy on labour force participation is estimated to be large and significant for all groups. Policies aimed at increasing female autonomy can therefore expect to yield significant increase in female labour supply.

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9. Appendix

Table A: Probability of having a bank account

VARIABLES	(1)	(2)
Post	0.066***	0.049***
	(0.015)	(0.017)
Treatment	0.191***	0.095***
	(0.011)	(0.011)
Post × Treatment	0.062***	0.036**
	(0.016)	(0.016)
Age	-	0.025***
		(0.001)
Age^2		-0.000
		(0.000)
Educ		0.036***
		(0.001)
Children		-0.003*
		(0.002)
Time		0.005**
		(0.002)
Constant		-0.651***
	0.132***	(0.032)
Controls for Province and Urban	(0.009)	Y
Observations	19,480	19,471
R-squared	0.059	0.162

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table B: Regression results for Men

	(1) First Stage	(2)	(3) First Stage	(4)
VARIABLES	Primary Decision	LFP	Primary Decision	LFP
Primary Decision		0.396		-5.333
		(0.600)		(42.75)
Post	-0.00201	0.0817**	0.0992**	0.700
	(0.0315)	(0.0337)	(0.0442)	(4.274)
Treatment	0.481***	-0.239	0.208***	0.983
	(0.0927)	(0.212)	(0.0731)	(9.237)
Post × Treatment	-0.193*		0.0111	
	(0.109)		(0.0856)	
Age			0.0449***	0.281
			(0.00389)	(1.920)
Age^2			-0.000318***	-0.00220
			(4.57e-05)	(0.0136)
Educ			-0.00583	-0.0244
			(0.00428)	(0.251)
Children			-0.0279***	-0.150
			(0.00563)	(1.195)
LogIncome			0.00123	0.0393
			(0.00330)	(0.0566)
Time			-0.0170*	-0.118
			(0.00917)	(0.726)
Constant	0.381***	0.381	-0.590***	-3.468
	(0.0241)	(0.236)	(0.103)	(25.24)
Controls for Province and Urban	N	N	Y	Y
Observations	1,076	1,076	1,076	1,076
R-squared	0.046		0.436	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table C: Regression results for women who have bank accounts

	(1)	(2)	(2)	(4)
	First Stage		First Stage	
VARIABLES	Primary Decision	LFP	Primary Decision	LFP
Primary Decision		1.496		4.976
		(0.973)		(16.76)
Post	0.00329	-0.0325	0.0469	-0.205
	(0.0375)	(0.0694)	(0.0350)	(0.938)
Treatment	0.0874***	0.0244	0.0754***	-0.376
	(0.0290)	(0.127)	(0.0247)	(1.354)
Post × Treatment	0.0724*		0.00997	
	(0.0398)		(0.0333)	
Age			0.0578***	-0.255
			(0.00209)	(0.970)
Age^2			-0.000499***	0.00207
			(2.45e-05)	(0.00837)
Educ			-0.00864***	0.0544
			(0.00180)	(0.145)
Children			-0.0561***	0.270
			(0.00260)	(0.941)
LogIncome			-0.00904***	0.0865
			(0.00134)	(0.152)
Time			0.00107	-0.0104
			(0.00385)	(0.0265)
Constant	0.491***	-0.290	-0.592***	2.718
	(0.0268)	(0.447)	(0.0575)	(10.02)
Controls for Province and Urban	N	N	Y	Y
Observations	6,840	6,840	6,836	6,836
R-squared	0.012		0.315	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Marginal Treatment Effects

Applying MTE methods allows us to estimate TE for various groups, such as always takers, never takers and a randomized intervention sample (Heckman, 2010). Under the same assumptions needed to identify LATE, TE heterogeneity and selection can be separated. Understanding of selection is gained from the differences in the average untreated outcomes of never takers and compliers. If a difference is observed in the average treated outcomes of always takers and compliers this provides evidence of selection, TE heterogeneity or both (Heckman, 2010).

Table A shows the treated outcome, untreated outcome and treatment effect for various groups. After removing the selection effects always-takers[11] experience the largest TE. Such women experience a 109 percentage point increase in the probability of participating in the labour force when becoming the primary decision makers within their households. It is intuitive that the group whom have the most to gain from treatment always select into treatment.

Never takers experience the smallest TE; 61 percentage point increase in the probability of being the primary decision maker when becoming the primary decision maker. Never takers are women who with or without a SASSA bank card would not be the primary decision makers within their households. Similarly to before, it is intuitive that the group who have the least to gain from treatment never select into treatment.

[11] Always-takers are women whom would have been the primary decision makers within their households in the absence of receiving a SASSA bank card

Table D: Treated Outcomes, Untreated Outcomes, and Treatment Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Group	Baseline Treated (Always Takers)	Baseline Untreated (Never Takers and Untreated Compliers)	Interventoin Treated (Always Takers and Treatmed Compliers)	Intervention Untreated (Never Takers)	Randomized Intervention Sample Treated	Randomized Intervention Sample Untreated	Local Average (Treated and Untreated Compliers)	Average
	BT	BU	IT	IU	RIST	RISU	LA	A
Treated Outcome TO	0.636	1.326	0.749	1.398	0.705	1.359	1.241	1.023
Untreated Outcome UO	-0.057	0.401	0.093	0.544	0.035	0.467	0.457	0.244
Treatment Effect TE = TO - UO	0.693	0.925	0.656	0.854	0.670	0.893	0.784	0.779
Selection UO/TO	-0.090	0.302	0.125	0.389	0.049	0.343	0.368	0.239
Treatment Effect TE/TO	1.090	0.698	0.875	0.611	0.951	0.657	0.632	0.761