Gender in the South African Economy:

A Computable General Equilibrium Analysis of Wage Subsidies and the Child Support Grant

by
MARISSA KIMSEY
Michael Rolleigh, Advisor

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Abstract

This project explores how policy interventions can influence women and men's time allocation decisions between market work and unpaid care labor. I extend a South African social accounting matrix by disaggregating labor by gender and households by gender of household head and incorporating nonmarket work. Using a static computable general equilibrium model that integrates market and nonmarket activities and distinguishes between female and male workers across skill levels and female- and male-headed households across area types, I compare the introduction wage subsidy for medium- and low-skilled labor and the universalization of the Child Support Grant.

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1 Introduction

Historically a gender perspective has been absent in economic policy decision-making across developing countries. Policymakers have tended to assume that economic policy is gender neutral, implying that gender-specific impacts are not consequential. Or they have held the male breadwinner model as the norm, assuming men dominate the market sphere and overlooking the dynamic ways women are economic agents as well (Kabeer 2008, 323).

In contrast, I delve into gendered facets of economic policy by incorporating a gender perspective into a computable general equilibrium (CGE) analysis of South Africa. I compare the welfare and labor supply effects of the introduction of a wage subsidy targeted at medium- and low-skilled labor and the universalization the Child Support Grant.

Underlying my project is the premise that gender is a significant category of economic analysis. Unpacking gender inequalities is both an aim in itself and instrumental in other development aims. Although women are not always poorer than men, across contexts women tend to be more vulnerable, and once poor tend to have fewer options due to the weaker basis of their entitlements (Reeves and Baden 2004, UNDP 1995: 4; UN 1996: 6; UNIFEM 1995: 4; ADB 2000: 16, cited in Chant 2003). Women and men both face different risks, and experience the same risks differently (Luttrell and Moser 2004).

A CGE model is a representation of an economy or a set of economies where in equilibrium all markets clear and consumers maximize utility. The model is calibrated so that the baseline equilibrium replicates real-world data. CGE models are powerful tools to analyze the linkages between poverty and impacts of social transfers. Effects of policy interventions reverberate throughout both market and nonmarket sectors, and CGE models are ideal to analyze the complex interplay between different markets and sectors in order to reach a more informed policy debate (Fontana and van der Meulen Rodgers 2005).

Yet because my model is static, I cannot readily address dynamic processes. One hypothesis might be that for poor households the marginal benefit of nonmarket may be greater than the marginal benefit of market work because in the home additional nonmarket work might greatly increase human capital investment, and the in the

market jobs might be so low-paying and precarious as to not offset the tradeoff. However, CGE models have difficulty addressing these intrahousehold dynamics. This project will also not address the scope of design and implementation modalities that wage subsidies and social grant programs entail, such as targeting and ease of administration.

While there has been a considerable increase in the use of CGE models in economy-wide policy analysis in South Africa since the early 1990s (McDonald and Rodgers 2005), gender analysis with CGE models is a relatively new subfield. Arndt and Tarp (2000) and Fontana and Wood (2000) are the first examples of CGE models that incorporate gender features (Fontana and Rodgers 2005).

I know of four examples of CGE models of South Africa that include gender analysis. Kinyondo and Mabugu (2009) study the effects of productivity increases on gender and the economy, and Kinyondo (2007) studies the effects of globalization on gender and the economy. Both analyses extend the International Food Policy Research Institute (IFPRI) SAM for the year 2000 by disaggregating labor by gender. Cockburn et al. (2007) study the effects of trade liberalization on income distribution, and Mitik and Decaluwe (2009) study how economic policies influence parents' decisions about their children's education, household work, and leisure. Both analyses use a SAM for the year 2000 created by Cockburn et al. (2005) that disaggregates labor by gender of individuals, households by gender of heads of household, and incorporates nonmarket activities based on a National Satellite Account of Production (Mitik and Decaluwe 2009).

To my knowledge, no CGE model has evaluated wage subsidies or social grants within a gender framework that considers differential impacts on women and men and incorporates a valuation of nonmarket work. This project aims to fill that gap.

2 Existing literature

2.1 Income inequality

South Africa is a particularly compelling case study. On the one hand, it is "very much Africa's superpower" (BBC 2010). South Africa is the continent's biggest economy (BBC 2010), an upper middle-income country with a gross domestic product per capita of US$10,700, and abundant natural resources, modern infrastructure, and well-developed financial, legal, communication, energy, and transport sectors (CIA 2010).

However, South Africa faces formidable challenges as well. From 1948 to 1994 the government maintained an apartheid system of racial segregation that favored the white minority at the expense of the black majority, and now 17 years later, South Africa continues to deal with equity and efficiency legacies. South Africa is among the most unequal countries in the world. The Gini coefficient rose from 56 in 1995 to 57 in 2000 to 65 in 2005, whereas in the Gini coefficient in the US was 45 in 2007 (CIA 2010). The trend suggests that the country's income distribution is not only highly unequal, but also worsening over time.

Moreover, the Gini coefficient is higher for Africans than for whites, and income equality within population groups also increased between 1990 and 1995 while income inequality between groups decreased, which may reflect the opportunities for highly skilled Africans (ILO 1999, cited in Cockburn et al. 2007). This project does not explicitly deal with racial dynamics because in policy circles discourse centers on targeting the poor rather than targeting Africans (Samson 2011).

2.2 Wage subsidies

Kingdon and Knight (2007: 814) suggest that the South African labor market is one of the most interesting in the world with its sharp segmentation, high rate of unemployment, and low rate of non-farm informal employment. In the first eight years of democracy, between 1995 and 2003, the narrow labor force grew by 4.6 million (4.2 percent per year) and the broad labor force grew by 6.3 million (4.8 percent per year). However, at the same time, unemployment grew by 2.6 million and broad unemployment grew by 4.3 million (both above 9 percent per year). The narrow unemployment rate rose from 17 to 28 percent and broad unemployment rate rose

from 29 to 42 percent. By either measure South Africa now has one of the highest unemployment rates in the world.

Although the dominant conception of unemployment in developing countries may be that much of it is voluntary (Harris and Todaro 1970; cited in Kingdon and Knight 2007, 829), Kingdon and Knight argue that unemployment is South Africa is largely involuntary, for example, citing evidence that people who are unemployed are also greatly worse off than people who are informally employed (829), and evidence that the reservation wages of workers are consistent with the wages that they are predicted to earn based on their observable characteristics (830). Labor market rigidities include market rigidities trade unions and employers' profit-maximizing interventions, for example following the efficiency wage model (816).

Burns, Edwards, and Pauw (2010: 1) highlight that support for a wage subsidy scheme in South Africa has been growing, with proposals spanning from Levinsohn (2008), Pollin et al. (2006), Lewis (2001), Heintz and Bowles (1996), South Africa's Department of Social Development (2004), and South Africa's National Treasury (2007). Most recently the National Treasury (2011) proposed a R5 billion youth employment subsidy to start April 1, 2012. The subsidy would run through the South African Revenue Service and target workers ages 18 to 29 whose wages fall below the personal income tax threshold, which for 2011 is R59,750.

Wage subsidies are either worker-side or firm-side schemes. In the real world worker-side programs grant workers a subsidy upon successfully obtaining employment, while firm-side subsidies grant firms a subsidy as incentive to employ more workers. Burns, Edwards, and Pauw (2010) suggest that firm-side subsidies are more appropriate in many developing countries, where unemployed individuals are simply unable to find employment given low labor demand, as opposed to not economically active individuals not seeking work due to low wages. Firm-side schemes are appropriate when labor is underutilized or unemployed, as in the case of South Africa.

The schemes lower firms' costs of employment without affecting workers' take-home pay, thereby allowing firms to raise employment and output. The level of the subsidy and the wage elasticity of substitution determine the direct employment effect. On the labor demand side the subsidy could compensate employers for hiring young employees and counterbalance the costs of training and risk incurred by employers. On

the labor supply side, the subsidy could encourage young adults to search for jobs more actively, and shift from nonmarket work to formal market work.

Heintz and Bowles (1996) suggest that the benefits of wage subsidies may spill over into the rest of the economy, for example when higher employment raises aggregate household income and when subsidies cause average unit production costs and thereby consumer prices to decline in competitive markets (cited in Burns, Edwards, and Pauw 2010). Wage subsidies therefore also increase demand, which in turn may lead to increases in labor demand of all labor types as firms increase production.

Given the growing policy interest, CGE models of South Africa have explored wage subsidies. Studies include in Burns, Edwards, and Pauw (2010), Go et al. (2009), Davies and Thurlow (2010), and Pauw (2003). However, none of these studies incorporate a gender perspective.

2.3 Child Support Grant

National and international policy machineries are becoming increasingly aware of the value of social transfers. Social transfers not only tackle income poverty, but also support broader development objectives surrounding education, health, and economic growth (Samson, van Niekerk, and Mac Quene 2006). The large scope of South Africa's social grant system is unique among developing countries. In 2001 9 percent of South Africans received social grants, and today more than a quarter do (National Treasury 2005; cited in Williams 2007). In his State of the Nation Address President Zuma proudly stated that approximately 15 million South Africans receive social assistance (Damon 2011), in a country of approximately 49 million (World Bank 2011). The five major social grants are the State Old Age Pension, the Child Support Grant, the Foster Child Grant, and the Care Dependency Grant (Samson 2006).

The Child Support Grant is the focus of this research. As a result of the Lund Commission in 1996, the South African government phased out the State Maintenance Grant for 400,000 beneficiaries, and introduced the Child Support Grant with the objectives to eradicate racial and gender inequality in the social safety net, to target poor children regardless of their household status, to improve nutrition in the early stages of childhood development, and to scale to a large number of beneficiaries (Lund 2008).

In the wake of the shift to the Child Support Grant, there was a public outcry, but to a much greater extent over changes in the Rand amount and age eligibility than over gender equality. Nonetheless Goldblatt (2005: 240) sees the change as "a major blow" to the feminist effort to recognize women's care labor, because while the State Maintenance Grant provided both a child allowance and parent allowance, the Child Support Grant only provides a child allowance.

In February 2010 the government announced that all children under the age of 18 would become eligible conditional on the means test. In October 2008 the value of the grant was R220 per month, approximately US$50 per month at purchasing power parity (Delany et al. 2008; cited in Eyal and Woolard 2011, 2). As of December 2010, the Child Support Grant reached 10.5 million eligible children, covering between 70 and 80 percent of children living in poor households and 54 percent of all children under 18 (SASSA 2011).

The intersection of social grants and gender inequalities is an interesting domain. On the one hand, social grants have transformative potential. They can increase investment in health, increase bargaining power in the private and public sphere, increase labor market participation, and act as recognition of unpaid work (Kabeer 2008). A substantial body of evidence documents the importance of paying attention to who in the household receives cash transfers. While some research has indicated that the gender of the grant recipient does not affect the resource allocation within the household (Case and Deaton 1998), increasingly more refined studies suggest that cash in women's hands leads to greater improvements in children's wellbeing (Kabeer 2008, 66-68).

Yet social grants also contain the potential to reinforce gender inequalities. Molyneux (2007) emphasizes that since grants to children are politically more popular than grants to women, social transfers sometimes prioritize children's interests at the expense of the mother. She argues that in Latin America the state is actively involved in structuring unequal gender relations through its social protection programs. At time programs' goals are inconsistent. They contain a combination of equality measures for the girls and maternalist measures for their mothers (28). The puzzle is not why cash transfers should allocate scarce resources for children. The puzzle is if and how cash transfers can displace risk and vulnerability experienced by children onto mothers as the

transfers increase women's time burden and entrench women's roles as caregivers (70). Molyneux (2008: 64) also notes that social policies often cast social programs as enhancing the citizenship of the poor, but motherhood can be a questionable basis for meaningful citizenship.

Kabeer (2008: 323) frames a transformative approach one built on the concept of empowerment that seeks to change the social structures that underlie women's vulnerabilities. She poses three layers: reaching women, addressing their vulnerabilities, and addressing the underlying causes of their vulnerabilities.

CGE models are gaining traction in evaluations of social transfer programs. Although most evaluations focus on partial equilibrium analysis of targeting outcomes, economists are increasingly recognizing the value of CGE analysis of social transfers' indirect effects. Coady and Harris (2001; 2004) suggest that CGE is uniquely positioned to reflect not only direct income effects of the design of transfers, such as rules for targeting, but also the indirect effects of transfers resulting from the impact of transfers and their financing on the level and composition of demand and supply (see also Gelan 2006; Faria dos Santos et al. 2009; Bhattarai and Whalley 2009).

3 Social accounting extension

3.1 Framework

The foundation of CGE modeling is the SAM, a comprehensive database that provides a "static image" of an economy (Löfgren et al. 2001). A SAM represents all transactions made across agents of a given economy in a given period of time. The crucial distinctions of a SAM in comparison with other accounting systems are that a SAM is represented by a set of single-entry accounts; places more importance on factoral, household, and institutional dimensions; and is comprehensive in so far as it represents all economy-wide transactions (Round 2003). All rows and columns correspond to distinct entities in the economy, and generally these entities can be grouped into six categories: factors of production, households, production activities, the capital account, taxes, and the rest of the world. SAMs vary in the degree to which these broad categories are disaggregated.

The consistency of the SAM derives from its adherence to the fundamental principle whereby every income or receipt corresponds to an expenditure or outlay (Reinert and Roland-Holst 1997). In the square matrix of the SAM, columns represent expenditures and rows represent income. Each account balances accordingly, where the income or row total of each account equals the expenditure or column total of each account, which implies that income equals expenditure for the economy as a whole as well. Table 3 provides a simple example of how to read a social accounting matrix and what the accounts involve.

Kehoe (1996) traces social accounting at least as far back as Quesnay's (1759) tableau économique, although Meade and Stone's (1941) work for the British Cabinet Office marks the development of SAMs as we know them today. Meade and Stone constructed the first logically complete set of double-entry national income accounts. Subsequently, Stone's (1947) work set in motion the incorporation of SAMs into conventions for the United Nations (1953; 1968) System of National Accounts.

The vast majority of SAMs do not contain any gender features (Cockburn et al. 2007). My objective is to disaggregate labor by gender, disaggregate households by gender of household head, and add a valuation of nonmarket work. I use the International Food Policy Research Institute (IFPRI) SAM as my starting point. I build on

the IFPRI SAM to incorporate gender components in order to make possible gender-sensitive policy experiments in my CGE modeling. See Appendix C for discussion of data sources.

3.2 Labor disaggregation

When CGE models do not distinguish workers by gender, they assume that male and female workers are perfect substitutes in market production. However, Kabeer (2008) points out that across developing countries women tend to have lower labor force participation than men, be segmented in the informal economy, earn less, receive less on-the-job training, wield less bargaining power, have work histories interrupted by childbearing and unpaid care labor, retire earlier, and encounter the male breadwinner attitude. Women face gender-related constraints in obtaining recruitment information in particular, as they are usually not as physically mobile as men; their time poverty may limit their ability to apply or reach distribution sites; they are often less literate than men; they do not tend to frequent administrative centers; and they cannot rely on family members to pass on information if family members are not in favor of women's empowerment (Dejardin 1996; Kabeer 2008).

Goldblatt (2005: 239) suggests that the legacy of apartheid is also a gendered legacy. In South Africa, discrimination against women in education and training under apartheid contributed to the gender segmentation of the South African labor market. Goldblatt argues that in many ways gender divisions of labor in the market and in the home have been left "untouched" by the changes since in 1994. Today, despite dramatic improvements in primary and secondary enrollment rates (World Bank 2004), women still face gender-related constraints in the labor market. Men and women are concentrated in different sectors. While sectors such as mining, food, beverages, heavy manufacturing, and construction are male-intensive, textiles and private services, sectors such as textiles and private services are female intensive. Women are also more concentrated in informal work than men. Figures 1 and 2 show the distribution of employment by gender and skill level.

Women in South Africa also earn less than men on average. Valodia (1996) estimates that women earn 65 to 95 percent less than men in formal sector employment. Budlender (1997) finds that substantial discrimination in earnings

between men and women with the same qualifications. Rospabe (2002) estimates an average earnings gap of 20 percent between men and women, attributable to gender differences in productivity and labor market discrimination against women (cited in Cockburn et al. 2007).

Statistics South Africa (2002) also reports the unemployment rate differs by gender. Table 2 shows the unemployment rate across gender and skill, based on the expanded unemployment rate, which does not require that the person takes active steps to find work and includes people who have given up looking for work.

To extend the IFPRI SAM by disaggregating labor, I focus on the transactions where labor accounts make payments to households and the rest of world, and where labor accounts receive income from activities. See Appendix D for discussion of data management.

3.3 Household disaggregation

While the IFPRI SAM disaggregates household heads across province, area type, population group, and per capita expenditure quintile, it does not do so by gender. However, gender of household head is an interesting distinction. Chant (2003) suggests that much development discourse considers female-headed households "the poorest of the poor," based on the tendencies for female-headed households to constitute a disproportionate number of the poor, and to experience greater extremes of poverty than male-headed households (BRIDGE 2001; Buvinic and Gupta 1993; González de la Rocha 1994). Moreover, the concept of intergenerational transmissions of poverty is also widely cited, whereby the deprivation of female household heads devolves into a poverty trap for their children (Chant 1997; 1999). Mehra et al. (2000: 7) suggest that poverty is prone to be inter-generationally perpetuated because female heads cannot "properly support their families or ensure their well-being." In South Africa female-headed households have a 50 percent higher poverty rate than male-headed households (Chitiga et al. 2010). Figure 3 shows household expenditure by gender of household head in South Africa in 2000.

Nonetheless, as Chant (2003) points out, a growing body of literature based on macro- and micro-level data challenges the assumption that female-headed households necessarily make up the poorest of the poor. As a result, when I disaggregated South

African households by gender of household-head, I did not assume a priori that they would be the most vulnerable.

To disaggregate households, I focus on transactions that where household accounts make payments to commodities, direct taxes, government, savings, and the rest of world, and where household accounts receive income from labor, enterprises, government, and the rest of world. See Appendix D for discussion of data management.

3.4 Incorporation of care labor

Economists sometimes equate productive activities with market work, but the care economy also reveals compelling insights into the workings of policy interventions. Across developing countries women are more likely to engage in care labor, which consists of rearing and caring for children, caring for other household members, cooking, cleaning, and fetching water and fuel. These activities are also called "reproductive work" and "nonmarket work." Much unpaid care labor has equivalents in the market economy. For example, individuals can pay maids to clean, cooks to prepare meals, and a nanny to watch a child. However, when women and men provide services without pay, they become invisible in ways that also make invisible women's gender-related constraints and contributions (SSA 2001). Table 1 and Figure 4 show the distribution of time use by gender in 2000.

Creating a gendered social accounting matrix involves incorporating nonmarket work into the IFPRI SAM by creating a new sector, home production, with data from the Time Use Survey. To determine which activities individuals performed, I allocate nonmarket production to households. The TUS defines care labor as "care of persons in the household," which includes looking after children, the sick, elderly and disabled members of the household (SSA 2001). See Appendix D for discussion of data management.

4 Model construction

4.1 Framework

Like all economic modeling, CGE modeling aims to generate abstractions complex enough to account for key facets of economic problems but simple enough to be tractable. Harberger (1962) and Johansen (1960) mark the beginning of the work of numerical applications of general equilibrium narrowly, and Scarf and Hansen (1967) made possible the solving of CGE models with an algorithm to return possible solution vectors to the general equilibrium problem. The computable facet of CGE implies that the model is a computer representation of a nation made up of consumers, producers, and a government, where consumers purchase goods from producer and supply factors of production, and may pay taxes and save. The general equilibrium facet of CGE implies that there are multiple interacting agents, individual behavior is based on optimization, most agent interactions are mediated by markets and prices, prices adjust such that agents cannot do better by altering their behavior subject to the constraints they face, and markets generally clear such that supply equals demand in each market (Markusen 2002, 2). A key facet of CGE modeling is that the baseline replicated the social accounting matrix.

4.2 Dimensions

There are 15 representative consumers across area type (rural/urban), poverty status (bottom 3 expenditure quintiles/top 2 expenditure quintiles), presence of children (at least 1 child/no children), and gender of the household head. There are 37 factors, with 1 capital account, 6 types of market labor across skill (high/medium/low) and gender, and 30 types of nonmarket labor across all households and gender. In terms of production markets, there are 9 traditional industries: agriculture, mining, food processing, manufacturing, utilities, construction, retail, transportation, finance, other services, and other transportation. In addition, there are 3 nontraditional production markets: government, savings, and the rest of the world. To simplify the model, I aggregate the spending and income of the government with the spending and income of consumers, such that taxes accrue not to the government sector but to households. While in a dynamic model consumers save to increase future consumption and

investment made in one period increase the capital stock in the next, in this static model I represent investment goods as another final demand for goods. In my simple model, I also do not model the foreign sector as a separate agent, but rather as a production activity with exports as inputs and imports as output. There are also 30 home production markets across all households and gender.

4.3 Functional forms

In CGE modeling, agent behavior is based on optimization, so each consumer solves a utility-maximization problem of the form:

(1) $\max u(c_1, c_2, \dots, c_{15})$

subject to:

(2) $\sum_{i=1}^{15} p_i\, c_i \leq (1-\tau)\left(w_1\bar{l}_1 + w_2\bar{l}_2 + w_3\bar{l}_3 + w_4\bar{l}_4 + w_5\bar{l}_5 + w_6\bar{l}_6 + r\bar{k}\right) + T$

In the utility function, c_i are the basket of consumption goods: agriculture, mining, food processing, manufacturing, utilities, construction, retail, transportation, finance, other services, other transportation, government, savings, imports, male home production, and female home production. In the budget constraint, p_i is the price of good i, $\bar{l}_i$ are the endowments of labor across skill level (high, medium, and low) and gender, $\bar{k}$ is the capital endowment, w_i are the wage rates, τ is the direct tax rate, and T is the government transfer payment. The utility function is Stone Geary such that:

(3) $u\left(c_i^j\right)_{i=\{1,2,..,15\}}^{j=\{A,B,...,O\}} = \sum_{i=1}^{\mathrm{j}} \theta_i^j\ \log(c_i^j - m_i^j)$

where A through O correspond to 15 households (across area type, poverty status, presence of children, and gender of the household head), θ_i^j are share parameters, m_i^j are the minimum of level of each good that the household must consumer, and c_i are the basket of consumption goods, as above. I assume non-homothetic preferences for my households. I use a Stone-Geary utility function so that agent behavior in my model corresponds to the large body of empirical studies that finds that poorer households in developing countries have a food income elasticity of demand greater than one. As an example, the utility function for the urban, poor, male-headed household with children is:

(4) $u(c_1, c_2, \dots, c_{11}) = \sum_{i=1}^{11} \theta_i \log(c_i - m_i)$

where θ_i are nonnegative efficiency parameters, c_1 is agriculture, c_2 is manufacturing, c_3 is retail, c_4 is transportation, c_5 is finance, c_6 is other services, c_7 is government, c_8 is savings, c_9 is imports, c_{10} is male home production, and c_{11} is female home production.

Excluding male and female home production, each produced good has a production function that combines intermediate inputs in constant elasticity of substituion and labor and capital with substitution possibilities governed by a nested Cobb-Douglas production function:

(5) $VA_j = \beta_j k_j^{\alpha_j} \left((\delta_{1,\mathrm{j}} l_1^{\gamma_j} + \delta_{2,\mathrm{j}} l_2^{\gamma_j})^{\frac{1}{\gamma_j}} + (\delta_{3,\mathrm{j}} l_3^{\gamma_j} + \delta_{4,\mathrm{j}} l_4^{\gamma_j})^{\frac{1}{\gamma_j}} + (\delta_{5,\mathrm{j}} l_5^{\gamma_j} + \delta_{6,\mathrm{j}} l_6^{\gamma_j})^{\frac{1}{\gamma_j}} \right)^{1-\alpha_j}$

where β and δ are share parameters, α and γ are substitution parameters, VA is value added, k is capital, l_1 is high-skilled male labor, l_2 is high-skilled female labor, l_3 is medium-skilled male labor, l_4 is medium-skilled female labor, l_5 is low-skilled male labor, and l_6 is low-skilled female labor. The general form of the total production function is:

(6) $y_j = (a_j VA^{\rho_j} + \sum_{i=1}^{13} a_{i,j} q_{i,j}^{\rho_j})^{\frac{1}{\rho_j}}$

where a_j and $a_{i,j}$ are share parameters, ρ_j is a substitution parameter, and $q_{i,j}$ are the intermediate goods: agriculture, mining, food processing, manufacturing, utilities, construction, retail, transportation, finance, other services, other transportation, government, savings, and imports. Producers also minimize costs and earn zero after-tax profits. Cost minimization implies that:

(7) $(1 - t_j) p_j y_j - (\sum_{i=1}^{13} p_i a_{ij} y_j + w_1 \bar{l}_1 + w_2 \bar{l}_2 + w_3 \bar{l}_3 + w_4 \bar{l}_4 + w_5 \bar{l}_5 + w_6 \bar{l}_6 + r\bar{k}) = 0$

where t_j is the tax rate on good j, w is the wage rate, r is the rental rate of capital, k is capital, l_1 is high-skilled male labor, l_2 is high-skilled female labor, l_3 is medium-skilled male labor, l_4 is medium-skilled female labor, l_5 is low-skilled male labor, and l_6 is low-skilled female labor, p_j is the price of good j, and p_i is the price of intermediate good i. As an example, the government's production function is:

$$(8)\quad g(l_1, l_2, l_3, l_4, k, q_1, q_2, q_3, q_4) = \left(\beta_g k_g^{\alpha_j}\left((\delta_{1,g} l_1^{\gamma_g} + \delta_{2,g} l_2^{\gamma_g})^{\frac{1}{\gamma_g}} + (\delta_{3,g} l_3^{\gamma_g} + \delta_{4,g} l_4^{\gamma_g})^{\frac{1}{\gamma_g}}\right)^{1-\alpha_g}\right)^{\frac{1}{\rho_g}} + a_{1,g} q_1^{\rho_g} + a_{2,g} q_2^{\rho_g} + a_{3,g} q_3^{\rho_g} + a_{4,g} q_4^{\rho_g}$$

where g is government, A and a are efficiency parameters, α_g is a share parameter, δ is a distribution parameter, γ and ρ are substitution parameters, k is capital, l_1 is high-skilled male labor, l_2 is high-skilled female labor, l_3 is medium-skilled male labor, l_4 is medium-skilled female labor, q_1 is manufacturing, q_2 is finance, q_3 is savings, and q_4 is imports.

4.4 Calibration

Calibration involves choosing parameters such that functional forms and data are consistent; the data represent a solution to the model. Calibration is necessary for replication, whereby the model reproduces the input data form the SAM.

I code two distinct ways for the model to calibrate unemployment. First, I model unemployment with a labor-leisure tradeoff. I find the amount of time women and men spend on leisure in the Time Use Survey and the opportunity cost of their time in the Income and Expenditure Survey. I specify an elasticity of 0.5 between labor and leisure as my preferred elasticity, and test 1.5 as well. The idea is that people can substitute between labor and leisure, and both activities increase their utility in so far as both increase their welfare given leisure is in the utility function with this method of modeling unemployment. Second, and more realistically, I model unemployment with price floors. I find the unemployment rates for each the six types of labor in my model from the Labor Force Survey (see Table 2), and set six price floors that are binding in my baseline equilibrium. I program an upward sloping labor supply curve that endows consumers with distinct amounts of labor based on the real wage rate. The price floors do not try to represent legal minimum wages, but rather labor market frictions, such as powerful unions and high firing costs (Levinsohn 2008), that result in the prevailing wage being higher than the market-clearing wage. Go et al. (2010: 2) point out that average growth of real wages was about 1.3 percent annually during the 1980s and 1.5 percent annually during the 1990s. They highlight that Lewis (2001) estimates that real wages for unskilled and semi-skilled workers in particular have risen by 150% from 1970

to 1999, while over that same period unemployment rates for unskilled and semi-skilled workers increased from less than 10 percent to more than 50 percent.

My other choices of elasticities of substitutions are also important in the policy experiments I run. I treat female and male labor as imperfect substitutes in the production of home goods to reflect rigidity in the gender division of care labor. My benchmark is 0.5, following Mitik and Decaluwe (2009), Cockburn, Corong, and Cororato (2010), and Fofana et al. (2006). I also use separate elasticities of substitution between female and male labor in industry sectors. My preferred value is 0.5, following Mitik and Decaluwe (2009). I use distinct elasticities for each sector for the substitution between low-, medium-, and high-skilled labor in production activities, as listed in Table 3, following Burns, Edwards, and Pauw (2010). The elasticities in the benchmark scenario are comparable with widely cited estimates by Fallon and Lucas (1998), while their high and low cases represent plausible ranges of wage elasticity values for developing countries more generally (Hamermesh 1993, cited in Burns, Edwards, and Pauw 2010).

The Mathematical Programming System for General Equilibrium (MPSGE) operates as a subsystem within the General Algebraic Modeling System (GAMS). MPSGE is a high level language that translates the baseline data of the economy from the SAM into equations for GAMS to solve. Ultimately the problem of finding the set of prices and factor allocations in equilibrium is translated into a problem of solving a system of n equations with n unknowns. The system of equations involves 3 types of inequalities. First, there are zero-profit conditions. Each production market has a corresponding non-positive profits inequality. For example, for the agriculture market, the inequality is:

(9) $ca(a, q_1, q_2, k) \geq p_a$

where ca is the unit cost of agriculture, a is agriculture, q_1 is manufacturing, q_2 is transportation, k is capital, and p_a is the price of agriculture. The complementary variable is A, agriculture output. Second, there are market-clearing conditions. Each production market also has a corresponding market-clearing inequality. For example, for the agriculture market:

(10) $A \geq e_{pa}(p_a, p_m, p_t, p_k)W$

where A is, e_{pa} is, p_a is the price of agriculture, p_m is the price of manufacturing, p_t is the price of transportation, p_k is the price of capital, and W is welfare. The

complementary variable is p_a. Third, there are income balance equations for each consumer. For example, for the representative rural, female-headed household with children, the income balance equation is:

(11) $I = p_t t^* + p_k k^*$

where I is income, p_t is the price of time, t^* is the optimal amount of time, p_k is the price of capital, and k^* is the amount of capital. The complementary variable is I (Markusen 2002).

5 Policy experiments

5.1 Wage subsidy

5.2 Child Support Grant

6 Conclusion

In this project I construct a gendered South African SAM by disaggregating labor by gender, disaggregating households by gender of household head, and adding a valuation of care labor, and I build a CGE model to run experiments of the introduction of a wage subsidy for medium- and low-skilled labor and the universalization of the Child Support Grant.

A natural future direction is to link gender-sensitive CGE experiments to a microsimulation model. Microsimulation models are made up of micro-level data of households and individuals, coded policy rules, and a framework for changing policy rules. A top-down layering approach involves feeding output from the CGE model into a micro-simulation model (Samson 2011). The main advantage is accounting for agents' heterogeneity. Whereas a CGE model includes representative households, a micro-simulation contains the granularity of the entire micro-level income and expenditure survey data (Cockburn, Corong, and Coroaton 2010).

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A Tables

A.1 Time allocation by gender

Activities		Total minutes		Distribution given gender		Distribution given activity	
		Male	Female	Male	Female	Male	Female
SNA production	Work in establishments	151	83	10.5	5.8	64.5	35.5
	Primary production not in establishments	26	22	1.8	1.5	54.2	45.8
	Other production not in establishments	13	11	0.9	0.8	54.2	45.8
Non-SNA production	Household maintenance	74	181	5.1	12.6	29.0	71.0
	Care of persons in household	4	32	0.3	2.2	11.1	88.9
	Community service	5	3	0.3	0.2	62.5	37.5
Non-productive	Learning	109	96	7.6	6.7	53.2	46.8
	Social and cultural	218	171	15.1	11.9	56.0	44.0
	Mass media	112	105	7.8	7.3	51.6	48.4
	Personal care	727	734	50.5	51.0	49.8	50.2

Source: Time Use Survey (2000).

A.2 Unemployment rates by gender and skill

	Male	Female
High skill	9.4	13.0
Medium skill	27.3	34.5
Low skill	22.3	34.5

Notes: Broad definition of unemployment that includes discouraged workers.

Source: Labor Force Survey (2001).

A.3 Example social accounting matrix

	Factors of production	Households	Production activities	Capital account	Total
Factors of production			GDP at factor cost		Domestic factor income
Households	GDP at factor cost				Disposable national income
Production activities		Total final consumption demand		Gross investments	Net final demand
Capital account		Domestic savings			Total savings
Total	Domestic factor income	Total expenditure at market prices	GDP at market prices	Total gross investments	

Source: Khan (2007).

A.4 Elasticities of substitution among demand for high-skilled, medium-skilled, and low-skilled labor by production sector

	Elasticity level	
Industry	Preferred	High
Agriculture	0.36	1.50
Mining	0.21	1.50
Manufacturing	0.55	1.50
Utilities	0.63	1.50
Construction	0.68	1.50
Retail	0.66	1.50
Transport	0.65	1.50
Finance	0.65	1.50
Services	0.70	1.50

Source: Burns, Edwards, and Pauw (2010).

A.5 Key summary statistics for interpretation of policy experiments

Household type				Population (millions)	Total income (hundreds of million of R)	Percent of subsidy bill paid	Percent of income from CSG*	Labor income (hundreds of million of R)	Labor income percent distribution by household						
									High skill		Medium skill		Low skill		Total
									Male	Female	Male	Female	Male	Female	
Urban	Poor	No kid	Male	1.8	219	3	0	75	9	0	55	1	31	4	100
			Female	1.1	77	0	0	10	0	0	0	30	10	60	100
		Kid	Male	4.3	491	5	7	220	10	2	46	5	26	11	100
			Female	4.2	409	1	9	106	2	12	18	22	8	39	100
	Rich	No kid	Male	2.6	1207	12	0	324	45	11	30	5	6	1	100
			Female	0.7	68	0	0	16	6	50	13	25	0	6	100
		Kid	Male	7.8	5205	69	1	2807	42	16	28	7	5	2	100
			Female	3.0	513	4	5	243	10	46	12	22	3	7	100
Rural	Poor	No kid	Male	0.9	55	0	0	5	0	0	60	0	40	0	100
			Female	0.5	23	0	0	0	0	0	0	0	0	0	0
		Kid	Male	5.5	572	1	10	115	10	2	35	4	32	17	100
			Female	7.3	909	0	9	100	6	13	19	20	9	33	100
	Rich	No kid	Male	0.2	40	0	0	10	20	10	60	10	0	0	100
		Kid	Male	1.8	627	5	3	259	24	16	37	7	8	7	100
			Female	0.9	121	0	9	70	10	61	10	11	3	4	100

* According to policy experiments.

Notes: "Poor" is in the bottom 3 expenditure quintiles. "Rich" is in the top 2 expenditure quintiles.

Source: Extended SAM (2000) and Income and Expenditure Survey (2000).

A.6 Further summary statistics for interpretation of policy experiments

Household type				Percent of expenditure spent on each good by household*									
				Agriculture	Food	Manufacturing	Utilities	Retail	Transport	Finance	Services	Savings	Total
Urban	Poor	No kid	Male	3	25	32	2	1	10	8	12	7	100
			Female	0	28	32	4	0	12	8	12	4	100
		Kid	Male	9	29	34	3	1	9	6	6	3	100
			Female	3	33	38	4	1	10	5	3	2	100
	Rich	No kid	Male	1	9	21	1	4	3	16	10	35	100
			Female	0	12	26	2	5	9	12	9	26	100
		Kid	Male	1	11	25	2	4	6	15	11	26	100
			Female	0	15	34	2	3	11	10	6	18	100
Rural	Poor	No kid	Male	10	30	30	0	0	10	0	10	10	100
			Female	0	50	50	0	0	0	0	0	0	100
		Kid	Male	19	25	32	1	1	6	3	5	7	100
			Female	12	29	34	2	1	6	3	6	6	100
	Rich	No kid	Male	3	6	18	3	6	3	26	15	21	100
		Kid	Male	3	12	36	2	3	6	16	12	9	100
			Female	0	14	45	1	3	9	11	8	10	100

* Percent out of the consumption bundle listed: agriculture, food, manufacturing, utilities, retail, transport, finance, services, and savings.

Notes: "Poor" is in the bottom 3 expenditure quintiles. "Rich" is in the top 2 expenditure quintiles.

Source: Extended SAM (2000).

A.7 Results modeling unemployment with a labor-leisure tradeoff: percent changes in welfare, labor supply, and wages

	Intervention				Wage subsidy for low- and medium-skilled workers								Child Support Grant							
					20%		50%		20%		20%		Means tested		Universal		Universal		Universal	
	Sensitivity analysis										Labor across skills elastic		Labor/leisure elastic				Labor across skills elastic		Labor/leisure elastic	
					ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ
Households	Urban	Poor	No kid	Male		-0.8		-3.2		-0.4		-0.6		-3.3		-4.9		-4.9		-4.9
				Female		3.0		10.7		3.4		3.7		-0.7		-0.7		-0.7		-0.7
			Kid	Male		1.7		6.2		2.2		1.6		4.4		3.0		3.0		3.0
				Female		3.4		12.3		3.8		3.7		8.4		8.0		8.0		8.0
		Rich	No kid	Male		-2.0		-8.7		-2.2		-1.6		-2.4		-3.6		-3.6		-3.6
				Female		2.9		10.2		3.0		3.5		-0.1		0.0		0.0		0.0
			Kid	Male		-1.2		-5.2		-1.4		-1.4		-2.6		-3.1		-3.0		-3.1
				Female		1.1		3.6		1.1		1.0		-1.4		3.1		3.1		3.1
	Rural	Poor	No kid	Male		2.1		7.2		2.4		2.9		-0.9		-1.0		-1.1		-1.0
				Female		0.4		0.4		0.5		1.3		-1.1		-1.2		-1.2		-1.2
			Kid	Male		3.0		10.7		3.3		3.5		9.7		9.4		9.4		9.4
				Female		2.3		8.0		2.5		3.0		8.7		8.6		8.6		8.6
		Rich	No kid	Male		4.0		14.4		4.2		4.6		0.0		0.0		0.0		0.0
			Kid	Male		1.3		4.1		1.3		1.3		-1.7		0.5		0.5		0.5
				Female		4.4		15.5		4.1		4.0		0.4		10.0		10.0		10.0
Labor	High skill			Male	2.0	-0.7	5.1	-2.1	0.2	-1.5	1.0	2.0	-0.7	0.8	-0.9	0.8	-0.8	0.8	-0.9	0.8
				Female	2.5	-0.9	7.3	-2.5	1.2	-1.3	1.4	1.8	1.1	1.5	1.4	1.1	1.3	1.1	1.3	1.2
	Medium skill			Male	17.2	4.7	65.5	13.8	19.5	5.4	16.1	7.5	-0.4	0.6	-0.5	0.6	-0.5	0.6	-0.5	0.6
				Female	17.6	4.8	67.5	13.8	20.1	5.6	16.6	7.4	0.2	0.7	0.4	0.5	0.5	0.5	0.4	0.5
	Low skill			Male	17.8	4.3	68.0	12.4	19.7	4.6	16.1	7.3	0.1	-0.1	0.0	-0.1	-0.2	-0.2	0.0	-0.1
				Female	18.6	4.0	71.1	11.2	20.5	4.3	16.7	7.0	0.9	-0.7	0.9	-0.8	0.7	-0.8	0.9	-0.7

Notes: Prices normalized to the price of welfare of urban, poor consumers. Percent changes are in reference to the baseline data from the SAM.

Source: Own policy experiments.

A.8 Results with modeling unemployment with a price floor: percent changes in welfare, labor supply, and wages

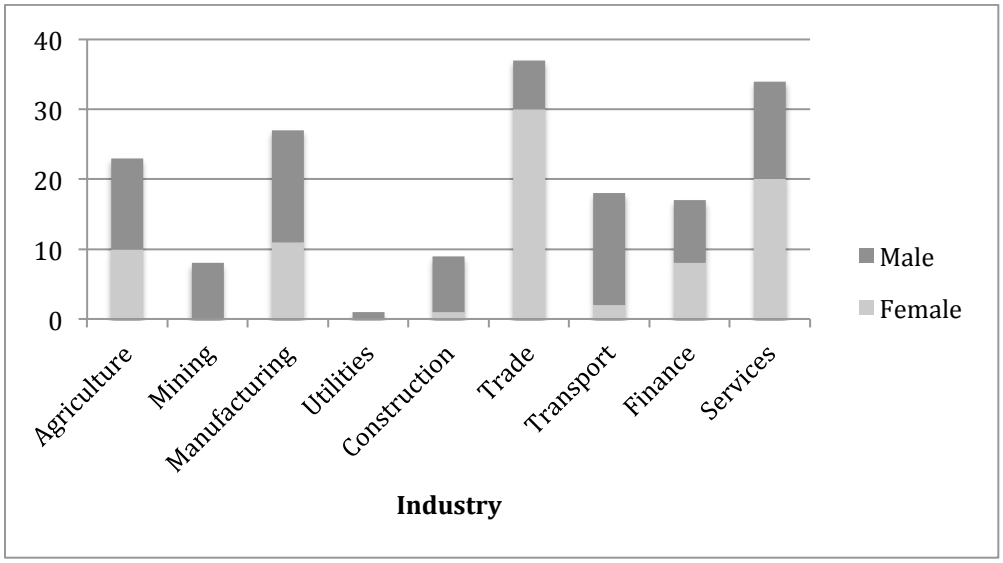
	Intervention				Wage subsidy for low- and medium-skilled workers						Child Support Grant					
					20%		50%		20%		Means tested		Universal		Universal	
	Sensitivity analysis								Labor across skills elastic						Labor across skills elastic	
					ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ	ΔP	ΔQ
Households	Urban	Poor	No kid	Male		9.6		14.7		13.1		-3.3		-4.8		-4.8
				Female		13.1		22.7		14.9		-0.7		-0.8		-0.8
			Kid	Male		12.6		27.3		16.6		4.2		2.9		2.9
				Female		13.6		25.9		15.9		8.3		7.9		7.9
		Rich	No kid	Male		7.7		1.6		7.6		-2.2		-3.4		-3.4
				Female		12.8		22.0		13.6		0.1		0.0		0.0
			Kid	Male		8.9		6.7		8.4		-2.7		-3.1		-3.1
				Female		10.9		15.1		11.4		-1.3		3.0		3.0
	Rural	Poor	No kid	Male		12.1		20.9		14.1		-0.9		-0.9		-0.9
				Female		9.6		10.2		10.4		-1.0		-1.1		-1.1
			Kid	Male		13.6		26.8		15.9		9.7		9.4		9.4
				Female		12.5		20.0		13.9		8.7		8.6		8.6
		Rich	No kid	Male		13.9		30.2		16.1		0.1		0.1		0.1
			Kid	Male		11.4		19.4		12.9		-1.6		0.6		0.6
				Female		14.6		29.8		14.0		0.8		10.2		10.2
Labor	High skill			Male	5.2	10.4	9.6	10.4	0.0	6.2	0.0	0.5	0.0	0.4	0.0	0.4
				Female	0.0	12.3	1.8	14.9	0.0	7.6	0.0	2.1	0.0	2.0	0.0	2.0
	Medium skill			Male	0.0	30.6	53.4	38.0	5.2	37.6	0.0	0.4	0.0	0.3	0.0	0.3
				Female	0.0	31.0	27.4	53.4	0.0	42.7	0.0	0.8	0.0	0.7	0.0	0.7
	Low skill			Male	1.6	28.7	72.3	29.1	10.6	28.1	0.0	0.0	0.0	0.0	0.0	0.0
				Female	0.0	30.0	24.8	53.3	0.0	38.1	0.0	-0.1	0.0	-0.1	0.0	-0.1

Notes: Prices normalized to the price of welfare of urban, poor consumers. Percent changes are in reference to the baseline data from the SAM.

Source: Own policy experiments.

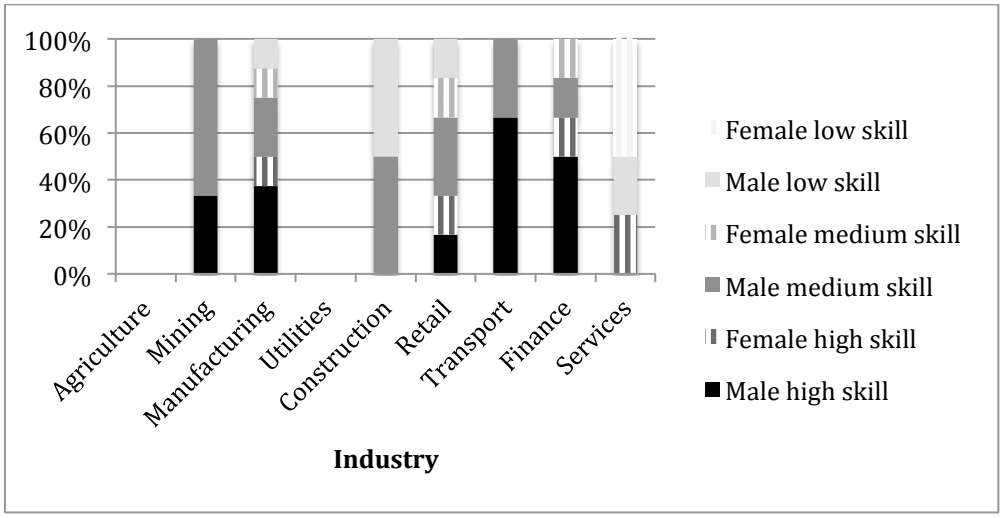
B Figures

B.1 Percent distribution of employed women and men by industry



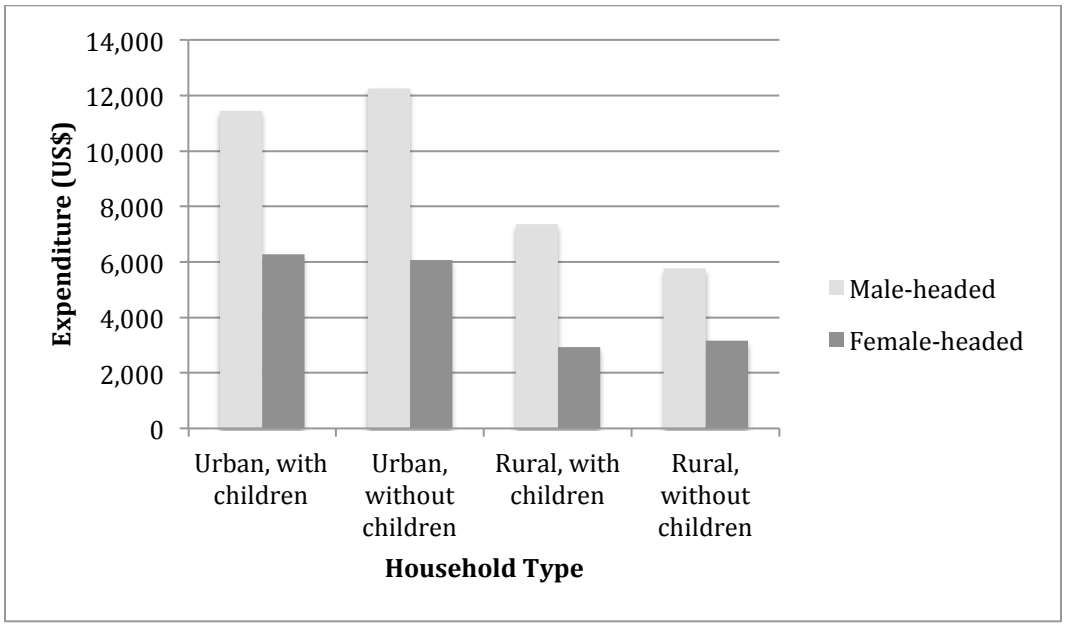
Source: Labor Force Survey (February 2001).

B.2 Percent distribution of gender and skill-level of workers by industry



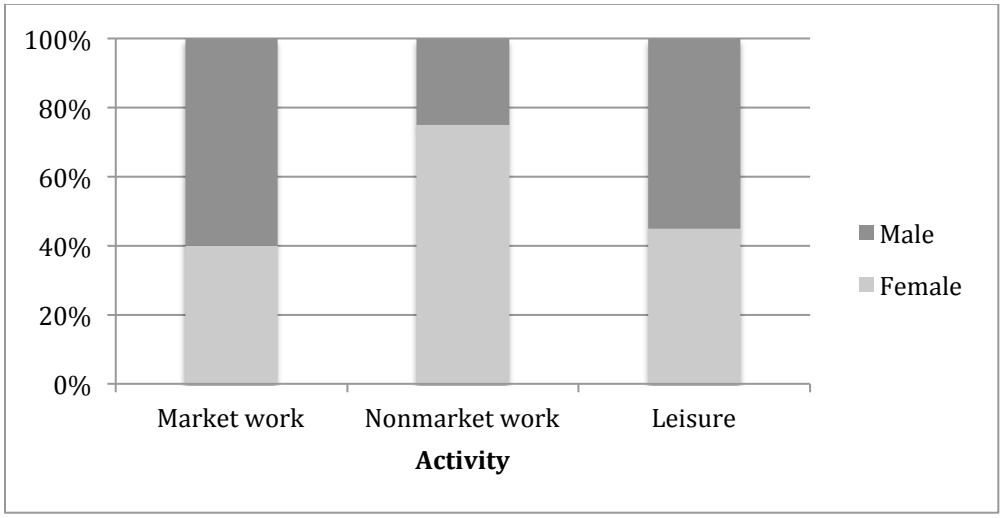
Source: Extended IFPRI SAM (2000).

B.3 Expenditure distribution by household type



Source: Income and Expenditure Survey (2000).

B.4 Percent distribution of time allocation by gender



Source: Time Use Survey (2000).

C Data sources

This appendix describes the data sources for the SAM extension.

C.1 Social accounting matrix

The IFPRI South African SAM for 2000 is a 755 by 755 matrix in Excel prepared by Thurlow (2005) that contains: 351 activities (across 39 types and 9 provinces), 39 commodities, 3 transaction costs, 81 labor accounts (across 9 provinces, 3 races, and 3 skill levels), capital, enterprises, 270 household accounts (across 9 provinces, 2 area types, 3 races, and 5 per capita expenditure quintiles), government, 5 taxes, savings/investment, inventories, and rest of world.

Thurlow (2005) constructed the SAM in two phases. First, he created a macro-SAM with national accounts and other aggregate data sources. He then distributed production across provinces using shares as to not imbalance the SAM. Second, he disaggregated the factor and household accounts with information from household surveys. He used cross-entropy estimation to balance the household accounts by drawing on prior information in the balanced aggregate-household SAM and detailed Information in the micro-level surveys.

Although the SAM is dated in so far as the South African economy has certainly evolved since 2000, Burns, Edwards, and Pauw (2010) point out that using data that is not recent tends to matter less in comparative statics where analyses report changes in comparison with the baseline data. They suggest, “As long as it remains plausible to think that the broader economic structure as represented by the base remains relevant, the results can be considered realistic even in a modern-day context” (21).

C.2 Labor force and income and expenditure surveys

Both the South African Labor Force Survey (LFS) and Income and Expenditure Survey (IES) for 2000 are micro-level surveys carried out by Statistics South Africa. The data are in several flat, ASCII, fixed field files, which can be linked based on unique identifiers. For both surveys, Statistics South Africa used a two-staged selection process based on the 1996 Population Census. In the first stage, 3,000 clusters were randomly selected from a list of census enumeration areas with probability proportionate to their size. In the second stage, 10 households were selected from each cluster. This design is

self-weighted because theoretically each of the 30,000 households, made up of 100,000 individuals, in the sample had an equal probability of being part of the sample (SSA 2002; PROVIDE 2005).

C.3 Time use survey

The South African Time Use Survey (TUS) for 2000 is another micro-level survey carried out by Statistics South Africa. The data are in five flat, ASCII, fixed field files, with a sample of approximately 8,300 households made up of 14,300 individuals. The study was conducted in three rounds to capture seasonal variations in time use. It covered all nine provinces and four different settlement types: formal urban, informal urban, commercial farms, and other rural settlements. In each household, two people aged ten years or above were selected randomly (SSA 2001).

The TUS used a 24-hour diary, divided into 30-minute slots, to record activities. In each slot, a maximum of three activities could be recorded to account for simultaneity. The TUS also used three different measures of duration of activities: time slots, 24-hour minutes, and full minutes. The variable “time slots” indicates the time period of the day to which the record refers.

The variable “24-hour minutes” is based on the number of activities recorded for a particular timeslot and simultaneity or otherwise of those activities. All activities for a given timeslot sum to 30 minutes. Where more than one activity is performed simultaneously, the available time is distributed evenly between them.

The variable “full minutes” is also based on the number of activities recorded for a particular timeslot and simultaneity or otherwise of those activities. However, activities for a given timeslot can sum to more than 30 minutes. Each activity is recorded as having the full duration over which it occurs, even if another activity is performed simultaneously (SSA 2001).

D Data management

This appendix elaborates on the data management procedures I followed in Stata and Excel.

D.1 Disaggregating households and labor

I begin by writing data dictionaries for the IES and LFS to transfer the data from flat, ASCII, fixed field files to Stata files. I then merge household- and individual-level data based on unique identifiers. To identify representative household and labor accounts, I create new household identifiers by area type, poverty, the presence of children, and gender of head of household, and labor identifiers by skill level and and gender. There are challenges with data idiosyncrasies, i.e. more than one than one person designated as household head. To identify the specific receipts and payments, I follow Thurlow (2005) as closely as possible to replicate his process for consistency.

For each of the transactions in the SAM involving households and labor, in Stata I collapse the survey by household or labor identifier, and then find the weighted proportion of the particular receipt or payment by gender. For the transaction involving Income from labor, I need an intermediate step that locates gender-specific income from labor, and then a subsequent step that locates gender-specific income from gender-specific labor.

D.2 Incorporating care labor

I begin by writing data dictionaries to transfer the data from flat, ASCII, fixed field files to Stata files. To identify representative household accounts, I create new household identifiers by area type, poverty, the presence of children, and gender of head of household.

To identify the amount of time of households spend on care labor, in Stata I count the number of time slots that correspond to each type of activity and Identifier, and find weighted totals by gender. I also sum the 24-hour minutes and full minutes by identifier that correspond to each type of activity, and find weighted totals by gender. I then find the proportions of time that households spend engaged in care labor. I compare the proportions based on time slots, 24-hour minutes, and full minutes, and find no significant discrepancies.

D.3 Rebalancing

I rebalance the SAM in Excel, because for example, when I disaggregate labor and households by gender, although the income of low-skilled labor equals the expenditure of low-skilled labor, the income of low-skilled female labor does not equal the expenditure of low-skilled female labor based on ratios I find from micro-level survey data.

Therefore, given my assumption that my data on labor income is more reliable than my data on labor expenditure, I leave gender-disaggregated labor income alone and multiply each transaction involved in gender-disaggregated labor expenditure by a constant ratio that raises or lowers expenditure so that it equals income. This process preserves the ratio between each transaction.

Similarly, given my assumption that my data on household expenditure is more reliable than my data on Income, I leave gender-disaggregated household expenditure alone and multiply each transaction involved in gender-disaggregated Income by a constant ratio that raises or lowers income so that it equals expenditure in order to preserve the ratio between each transaction.

D.4 Standardizing

In Excel I alter the IFPRI structure to conform to a standard CGE structure. I move all capital ownership to households, all tax receipts to households, delete government spending to itself, merge government services with government, rebalance corresponding accounts while preserving the ratio of expenditures and incomes as during gender disaggregation, and correct rounding errors.

E Variable definitions

This Appendix identifies key variables for the SAM extension from the IES 2000.

E.1 Household income

Income from labor:

1. Salaries and wages for normal hours worked (Part 24.1 Question 1.1)
2. Bonuses and income from overtime (Part 24.1 Question 1.2)
3. Commission and director's fees (Part 24.1 Question 1.3)
4. Part-time work and cash allowances in respect of transport, housing and clothing (Part 24.1 Question 1.4)
5. Value of goods and services received by virtue of occupation and shown as expenditure, including housing and transport but excluding pension and provident fund (Part 24.2 Questions 4.1, 4.2 and 4.4)
6. Imputed income from value of own production less costs of production (Part 22)

Income from enterprises:

1. Net profit from business or professional practice/activities or farming (excluding interest and dividends) conducted on a full-time or part-time basis (Part 24.1 Question 2)
2. Net income from letting of fixed property (only if property is not a bona fide business) (Part 24.1 Questions 3.1 and 3.2)
3. Royalties (Part 24.1 Question 4)
4. Interest received and/or accrued on deposits, loans, savings certificates, and dividends on building society shares (Part 24.1 Question 5)
5. Dividends on shares other than building society shares (Part 24.1 Question 6)
6. Regular receipts from pensions resulting from employment before retirement (Part 24.1 Question 7.1)
7. Annuities and similar recurring receipts resulting from own investments (Part 24.1 Question 7.2)
8. Net income from hobbies, side-lines and part-time activities (Part 24.2 Question 7.2)

Income from government:

1. Social allowances and pensions: Old age and war pensions (Part 24 Question 7.3.1)
2. Social allowances and pensions: Disability grants (Part 24 Question 7.3.2)
3. Social allowances and pensions: Family and other allowances (including state maintenance grant and child grants) (Part 24 Question 7.3.3)
4. Social allowances and pensions: Workmen's Compensation, Unemployment Insurance, Pneumoconiosis and Silicosis Funds and similar funds (Part 24 Question 7.4)

Income from rest of world:

1. Alimony, maintenance and similar allowances received from divorced spouse, family members, etc., living elsewhere (Part 24.1 Question 8)
2. Regular allowances received from family members living elsewhere (Part 24.1 Question 9)
3. Payments received from borders and other members of the family (Part 24.2 Question 3)
4. Other income received in-kind or from individuals other than employer (Part 24.2 Questions 8.3 to 8.8)
5. Lobola/dowry received (Part 24.2 Question 9)

E.2 Household expenditures

Payments to agriculture:

1. Total input cost of produce (P2205total)
2. Livestock (S2204)
3. Seeds, plants, shrubs and trees, fertilizer, plant and pest spray remedies (P2003Q03)

Payments to mining and quarrying:

1. Total cost household fuel (Part 11)

Payments to food processing:

1. Total cost of grain products (Part 5.1)
2. Total cost of meat and meat products (Part 5.2)
3. Total cost of fish and other seafood (Part 5.3)
4. Total cost of butter, fats, oils and margarine (Part 5.4)
5. Total cost of milk, cheese and eggs (Part 5.5)
6. Total cost of vegetables (Part 5.6)
7. Total cost of fruit and nuts (Part 5.7)
8. Total cost of sugar, sugar products and sweeteners (Part 5.8)
9. Total cost of syrup, jam, and related products (Part 5.9)
10. Total cost of coffee, tea and cocoa (Part 5.10)
11. Total cost of baby food (Part 5.11)
12. Total cost of other food products (Part 5.12)
13. Total cost of meals and snacks (Part 5.13)
14. Total cost of non-alcoholic beverages purchased and consumed in cafes, restaurants, hotels, bars, etc. (Part 6.1 Question 1)
15. Total cost of non-alcoholic beverages purchased in shops, cafes, bottle stores, from off-sales (Part 6.1 Question 2)
16. Total cost of alcoholic beverages purchased and consumed in cafes, restaurants (Part 6.2 Question 1)
17. Total cost of alcoholic beverages Purchased in shops, cafes, bottle stores (Part 6.2 Question 2)

Payments to manufacturing:

1. Total cost of cigarettes, cigars, tobacco and smokers requisites (Part 7.2)

2. Total cost of personal care (Part 8.1)
3. Total cost of other consumer goods (Part 9.1)
4. Total cost of clothing (Part 12.1)
5. Total cost of footwear (Part 12.2)
6. Total cost of home-made and specially made-up clothes and clothing repairs (Part 12.3)
7. Total cost of furniture (Part 13.1)
8. Total cost of household textiles (Part 13.2)
9. Total cost of appliances (Part 13.3)
10. Total cost of other household equipment (Part 13.4)
11. Total cost of computer and telecommunication equipment (Part 16.1)
12. Total cost of recreation instruments, equipment and accessories (Part 20.1)

Payments to electricity, gas, and water supply:

1. Electricity (including basic levies where applicable) (Part 3.3 Question 6.3)
2. Electricity (Part 3.3 Question 6.4)
3. Gas supplied by public networks (Part 3.3 Question 6.5)

Payments to construction:

1. Repair and maintenance of existing buildings, swimming pools, etc. (Part 3.4 Question 4.1)
2. Additions and alterations (Part 3.4 Question 4.2)
3. Building materials not included above (e.g for building houses) (Part 3.4 Question 5)

Payments to wholesale and retail trade:

1. Total annual cost of holiday accommodation (Part 3.5.2)

Payments to transport, storage, and communication:

1. Driving lessons (Part 15.1.2 Question 16)
2. Car wash and valet services (Part 15.1.2 Question 17)
3. Total cost of public and hired transport (Part 15.2)
4. Total cost of communication for purposes (Part 17.1)

Payments to financial and business services:

1. Finance, insurance (Part 21.4)

Payments to community, social, and personal services:

1. Total cost of household services (Part 10.1)
2. Total cost of medical care for medical aid (Part 14.1)
3. Domestic workers services (S0402)

Payments to taxes:

1. Deductions (PAYE and SITE) according to pay-sheet (Part 21.3 Question 1)

2. Other payments according to assessment including preliminary payments, payments with regard to previous assessments (Part 21.3 Question 2)
3. Less refunds received (according to assessment) (Part 21.3 Question 3)

Payments to savings:

1. Pension, provident and annuity funds paid by self (Part 21.4 Question 6.1)
2. Contributions to stokvel (Part 21.4 Question 7)
3. Investment in unit trusts (Part 21.4 Question 8.1)
4. Investment in investment plans (Part 21.4 Question 8.2)
5. Offshore investment (Part 21.4 Question 8.3)
6. Amount paid into savings account during the last 12 months (Part 21.4 Question 9)

Payments to government:

1. Housing assessment rates and taxes (Part 3.3 Question 6.1)
2. Traffic fines (Part 15.1.2 Question 4)
3. License and registration fees (including that of motor cycles) (Part 15.1.2 Question 15)
4. Television licenses (Part 20.4 Question 1.1)
5. Pet licenses (Part 20.4 Question 3.1)
6. Other fines (Part 21.5 Question 6)

Payments to rest of world:

1. Maintenance of/and remittances to family member and dependents living elsewhere (including alimony paid to ex-wife, children) (Part 21.2 Question 1)
2. Gifts to persons who are not members of this household (including cash gifts) (Part 21.2 Question 2)
3. Tribal levies (Part 21.2 Question 3)
4. Lobola/dowry paid (Part 21.5 Question 2)