



Indirect Taxation and Gender Equity: Evidence from South Africa

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Abstract

This paper explores the equity implications of indirect or consumption taxes from a gender perspective, using detailed expenditure data for South Africa. While a growing literature on the incidence of indirect taxes investigates their impact on the income distribution in developing countries, there is little work on whether indirect taxes have differential gender outcomes. Gender bias is likely to exist in taxes that are levied on consumption expenditure, because men and women (and their households) spend their incomes on different types of goods, or on goods that are taxed differently. To estimate the gender incidence of indirect taxes, this study explores differences between households that are classified as more ‘female’ or more ‘male’ according to their demographic and economic attributes. The results suggest that the zero-rating of a selection of basic foodstuffs and fuel for household use is important in protecting ‘female-type’ households, especially those in the lowest expenditure quintiles and with children, from bearing an otherwise disproportionate share of the burden of these taxes. In contrast, high taxes on alcohol, tobacco and fuel for private transport result in a higher incidence on ‘male-type’ households, those in the middle and top quintiles and those without children. The paper also suggests ways in which the indirect tax system could be refined to further reduce the large gender (and income) inequities that exist in South Africa.

JEL codes: D63, H22, J16

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1 INTRODUCTION

Equity in taxation, along with efficiency and ease of administration, is one of the three main criteria by which a tax is conventionally evaluated in tax policy analysis. Attempts to quantify how equitable particular taxes are have resulted in a relatively large literature, including a number of studies on developing countries, examining the incidence of indirect taxes specifically (Bird and Miller 1989; Younger 1993; Younger *et al.* 1999; Ahmad and Stern 1991; Gibson 1998; Rajemison *et al.* 2003; Sahn and Younger 1998; 2003). This literature explores the important question of who ultimately bears the economic burden of taxes on goods and services. The focus of most of these studies, however, has been on the incidence of indirect taxes by income class; in other words, on how progressive or regressive the indirect tax system is. This study extends this work by examining equity and indirect taxes in a developing country context from a *gender* perspective, using data from the South African Income and Expenditure Survey of 2000.¹

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¹This study was part of a multi-country project on “Taxation and Gender Equity” funded by the IDRC, Ford Foundation and UNDP, and coordinated by American University and the University of KwaZulu-Natal. The main objective of the project was to investigate gender bias in tax systems in countries of varying levels of development (Argentina, Ghana, India, Mexico, Morocco, South Africa, Uganda and the United Kingdom). The project focused

In understanding the gendered incidence of indirect taxes, it is useful to draw on the distinction made in Stotsky (1997a, 1997b) between explicit and implicit gender bias in tax systems. Explicit bias arises due to specific provisions in the tax laws that treat women and men differently (for example, if men and women are taxed at different marginal rates on their personal income). Implicit bias occurs when provisions of the tax law have a differential impact on women and men due to gendered social or economic behaviour, even though the tax law contains no explicit bias. While it is not common to find explicit bias in the laws governing indirect taxes, implicit bias may arise because men and women (and their households) spend their incomes on different types of goods, or on goods that are taxed differently. For example, if women spend a greater proportion of their budgets on food than men, and food is taxed at a higher rate than all other goods, there will be an implicit bias against women.

A formidable methodological challenge in studies of indirect tax incidence is how to identify the *individual* incidence of a tax (and therefore whether an implicit bias exists against a particular group of individuals) when expenditure often occurs, and expenditure data are almost always collected, at the household level. In the absence of individual-level data, the general approach in tax incidence studies has been either to assume equal sharing of income and expenditure in the household or to impose another sharing rule, and then to analyse the incidence of the tax on the poor compared to the rich. We use a somewhat different approach in this work that we consider to be more suitable for an analysis of the gendered impact of indirect taxes (Grown and Valodia 2010). We classify households as being more ‘female’ or more ‘male’ according to their demographic and economic attributes, and we compare the incidence of indirect taxes across these household types. For example, we compare the tax incidence in households that are headed by females or that have only female breadwinners to the incidence in households headed by males or that have only male breadwinners. We also look at the effects on such households across the expenditure distribution and according to whether or not children live in the household, as we are interested in tax incidence in the more vulnerable types of households in particular.

The South African case study is particularly suited to this methodology as there is a high proportion of women in South Africa who head their own households, who do not live with other adult men, or who do not live with men who earn an income from employment. This has been driven by a number of factors that are specific to the South African socio-economic and political landscape during the apartheid and post-apartheid periods, including high rates of circular labour migration and ‘split’ households, low marriage rates, and very high levels of unemployment. Just over 40 percent of South Africans live in households headed by women, and almost 50 percent live in households that have no male earnings from employment. Women who live without (income-earning) men or who head their own households are also amongst the poorest in South Africa and are more likely to be living with children (own calculations from the 2000 Income and Expenditure Survey).

The findings from the South African data suggest that the system of indirect taxes is largely free of any overall implicit bias against female-type households. The lower tax incidence among these households is mainly due to the VAT zero-ratings which benefit female-type households proportionately more than male-type households, and without which would result in a highly regressive and gender-biased indirect tax system. In addition, the burden of high excise duties on alcohol and tobacco and the fuel levy is carried largely by male-type households. However, at a more disaggregated level, female-type households are still found to bear a higher incidence of indirect taxes on certain consumption items that tend to fall into the ‘necessity’ or ‘merit good’ categories, such as

on the gendered impact of two main types of taxes: personal income taxes (which are direct taxes) and indirect taxes; in particular, value-added, excise and fuel taxes. The findings from the personal income tax analysis for South Africa are available in a country paper by Budlender and Valodia (2007). A longer version of this paper is available in Casale (2009). The results of the overall project are synthesised in Grown, C. and I. Valodia (eds) (2010) *Taxation and Gender Equity*, London: Routledge. The author would like to thank Caren Grown, Sue Himmelweit, Janet Stotsky, Stephen Younger, Diane Elson, Debbie Budlender and Imraan Valodia for their comments and input over the course of the project as well as the members of the country teams who participated in many fruitful discussions. Thanks also to an anonymous reviewer for comments on this version.

basic personal care items, children’s clothing and other non zero-rated food items. Based on some simple simulations, the paper also suggests where any additional reform to the tax system might be directed to further reduce the burden of indirect taxes on poor female households and especially those with children.

2 BACKGROUND

An analysis of the equity implications of indirect taxes is important for a number of reasons, motivating a growing literature in recent years on the welfare outcomes of these taxes in developing countries especially (Bird and Miller 1989; Ahmad and Stern 1991; Younger 1993; Gibson 1998; Alderman and del Ninno 1999; Younger *et al.* 1999; Rajemison *et al.* 2003; Sahn and Younger 1998; 2003). Indirect taxes make up a large portion of government tax revenue, particularly in developing countries, necessitating a clearer understanding of how these taxes affect the distribution of income. In South Africa, indirect taxes make up approximately 40 percent of total government tax revenue (see Table 1), although this is low even by developing country standards, where the share is generally between 50 and 60 percent (Barnett and Grown 2004). In addition, there is a global pattern of indirect taxes increasing as a share of total government revenue, as it becomes more difficult to tax companies and individuals due to the increased mobility of labour and capital (Khattry and Rao 2002; Barnett and Grown 2004; Aizenman and Jinjarak 2006).² It is important therefore to understand whether, and how, the collection of a large share of government revenue affects men and women differently.

Furthermore, the indirect tax base is much wider compared to the direct tax base. While personal income taxes (PIT) and other direct taxes affect only a small percentage of the population, indirect taxes - because they are levied on consumption - will affect most individuals. This point is particularly pertinent to a gendered analysis of taxes in South Africa. Unemployment rates among women are currently around 50 percent (using a broad definition that includes the non-searching unemployed), women are far more likely to be engaged in informal work than men, and, even where women are working in the formal sector of the economy, their earnings are less likely to be above the income tax threshold than men’s (Casale and Posel 2005). Using 2005 labour force data, Budlender and Valodia (2007) estimate that 73 percent of employed women compared to 65 percent of employed men fell outside of the tax net, and of the PIT paid, women’s contributions accounted for only 30 percent. This suggests that the gendered effects of tax collection in South Africa will be more far-reaching through indirect taxes.

In South Africa, a few studies have tried to model the impact of the value-added tax (VAT) specifically on welfare outcomes, using data mostly from the early 1990s when VAT was first introduced (Fourie and Owen 1993; Alderman and del Ninno 1999; Go *et al.* 2005). One more extensive study by Woolard *et al.* (2005) explored the incidence of VAT, excise duties and the fuel levy using data from 2000 as part of a more general report on total tax incidence for the South African National Treasury.³ However, none of these studies explored the impact of the indirect tax system from a gender perspective. This study begins to fill this gap by exploring whether the households in which women live and in which they control resources, especially those that are in the poorest quintiles and that contain children, bear a differential incidence of indirect taxes.

Indirect taxes are unlikely to produce explicit bias as there are very rarely statutory differences in indirect tax rates (tax authorities do not levy different VAT rates by group, whereas PIT rates

²In South Africa the share of indirect taxes has remained relatively stable since the late 1990s with even a small shift from indirect to direct taxes. Rather than being the outcome of a fall in indirect tax revenue, this shift has been driven predominantly by increasing tax revenues from corporations coupled with a marked increase in the efficiency of the tax authority, the South African Revenue Services (SARS), which has been able to extend the tax base and improve the collection rate substantially (Budlender and Valodia 2007).

³These studies use very different methodologies and data and so the results are difficult to compare. The findings range from VAT being regressive, to mildly regressive or nearly proportional.

for instance do often differ by group). However, implicit bias is likely to exist in indirect tax systems as people have different spending patterns and therefore will bear the burden of the tax in different proportions. This is particularly relevant for gender equity, as much research now shows that men and women have different spending priorities when they control resources. Similarly, we would expect that men and women living with children will spend their incomes differently from those without children.

If implicit bias were found to exist against a particular type of gendered household, this would go against the equity principle inherent in tax policy evaluation. Of course, tax policy has a number of objectives other than ensuring equity, including that taxes should promote economic efficiency and be administratively easy to collect in order to maximise revenue collection. Furthermore, taxes are often used to discourage negative externalities; the ‘sin taxes’ on alcohol and tobacco are typical examples. Therefore the results of the incidence analysis in this paper need to be evaluated in this broader context. While this paper takes the view that tax policy at the very least should not disadvantage women, and beyond this, could even be used to transform gender relations by further reducing pre-tax inequities, we do need to be mindful of the implications for revenue collection. Along these lines, the policy simulations described in Section 5 also consider the impact that the proposed changes to the indirect tax system might have on the government budget.

3 METHODOLOGY AND DATA

3.1 Tax incidence and rate structure

The methodology most commonly used for calculating the incidence of indirect taxes involves estimating the amount of tax paid by households indirectly through information on their spending behaviour. Most countries, including South Africa, conduct household surveys in which detailed data are collected on households’ expenditure patterns. The post-tax expenditure values available in these surveys are used with corresponding tax rate and price information for the year in question to calculate the amount of tax paid by each household on each consumption item.

Where the tax is *ad valorem*, and assuming that the tax is shifted forward entirely onto the consumer, the amount of tax paid per item can be calculated as follows:

$$taxpaidV_{ij} = rate_j * (expend_{ij}/(1 + rate_j)) \quad (1)$$

where $rate_j$ is the tax rate on item j and $expend_{ij}$ is the reported expenditure for household i on item j . For a unit tax, the amount of tax paid by the household per item is calculated as:

$$taxpaidS_{ij} = (expend_{ij}/price_j) * duty_j \quad (2)$$

where $duty_j$ is the per unit duty on item j and $price_j$ is the retail price of that item.

Tax incidence is then usually calculated as the percentage of total household consumption expenditure spent on the tax for that item, or in total. The convention in the literature on tax incidence in developing countries is to use consumption expenditure rather than income as the base, as it is a better measure of wellbeing if households engage in consumption smoothing (Grown and Valodia 2010). A more practical reason for using consumption expenditure as the base in this study is that the consumption information is considered more reliable than the income information in the dataset used (see Simkins 2004).

To calculate the tax incidence for South Africa, data are drawn from the Income and Expenditure Survey (IES) of 2000, a household survey conducted by the national statistical agency, Statistics South Africa (SSA).⁴ The IES, which is predominantly used to update the CPI weights, is conducted

⁴A cleaned version of the expenditure data (prepared by Global Insight) was used. Most of the adjustments made to the variables used in this study involved correcting some basic anomalies or miscalculations which would likely have resulted from programming or coding errors on the part of SSA. The weights used were the revised and updated sampling weights based on the 2001 Census provided by SSA.

every five years among a nationally representative sample of about 30 000 households. It contains very detailed information on the spending patterns of households, with data collected on around 500 expenditure items through face-to-face interviews. According to the official report released with the data, respondent/s were selected as follows: “The person (or persons) responding in this interview should be a member/members of the household who is/are likely to do the purchases for the household or know the answers to our questions.” (Statistics SA 2002: 91).⁵

The tax rate and price information used to calculate the tax incidence per item was gathered from various government sources: National Treasury Budget Review 2000; South African Revenue Services VAT Guide for Vendors; and the Statistics South Africa retail price survey for 2000.⁶

In 2000/01, just over 42 percent of total tax revenue in South Africa was derived from indirect taxes. The main component is value-added tax (VAT), which accounted for 24.7 percent of total tax revenue, with much smaller shares derived from excise duties (4.8 percent), the fuel levy (7.5 percent) and customs duties or trade taxes (2.9 percent) (National Treasury 2000). For this study, we analyse the incidence of VAT, excise duties and the fuel levy. A brief description of these taxes is provided below (Table 2 contains details).

In South Africa, VAT is a single-rate tax levied on the value added at each stage in the production process. Suppliers can claim back the VAT on intermediate goods, which means that VAT is effectively a consumption tax, as it is paid by consumers at the final stage of production (on both locally produced and imported goods). It was introduced at 10 percent in 1991 to replace the General Sales Tax on goods and services and was subsequently increased to 14 percent in 1993, where it has remained since then. To reduce the burden of this tax on the poor, 19 basic food items were zero-rated by 1993, among them brown bread, eggs, vegetable oil, grains, rice, milk, fresh fruit and vegetables, dried legumes and canned fish. In addition, illuminating paraffin, goods which are subject to the fuel levy (petrol and diesel), international transport services, farming inputs, sales of going concerns and certain government grants are zero-rated. The zero-rating of paraffin/kerosene (used predominantly by the poor as a fuel for cooking, lighting and heating) was implemented in 2001 to further alleviate the burden of VAT on poorer households.⁷

There are also a number of goods and services that are VAT exempt: residential rental and accommodation; educational services (including crèches); public road and rail transport; non-fee related financial services; and medical aid and medicine/medical services provided by public health institutions. Unlike with goods that are zero-rated, suppliers of VAT-exempt goods are not able to claim back the input VAT. This implies that, to the extent that the inputs attract VAT themselves, some of the VAT may be passed on to the final consumer. An effective rate would be somewhere between zero and 14 percent. However, in the empirical work, these goods are rated at zero percent, given that the largest input cost in these sectors is likely to be labour.⁸

Specific unit excise duties are levied on sorghum meal, tobacco products, and non-alcoholic and alcoholic beverages. It is important to note here that the unit taxes on tobacco and alcoholic beverages are particularly high with effective rates (based on 2000 retail prices) ranging from 26 percent on spirits and 35 percent on cigarettes, to 56 percent on cigars, for example. The fuel levy

⁵The more recent 2005 IES was released in early 2008, but it was decided not to use the updated survey information here as some of the expenditure data are not considered reliable (SSA 2008). In particular, the share of spending on food was found to be much lower than in 2000 across all quintiles in the distribution (and compared to other countries of similar levels of development), which would affect the incidence results substantially.

⁶The author would like to thank Morné Oosthuizen and Ingrid Woolard who shared their price and excise duty data.

⁷Paraffin was only zero-rated in April of 2001. Although the data are from October 2000, tax incidence is calculated as if the zero-rating had applied in 2000, i.e. using the spending behaviour information of households on paraffin from 2000. This is done to obtain a more realistic picture of the current incidence, especially on the poor. However, this assumption ignores any knock-on effects that an effective reduction in the price of paraffin would have on other spending patterns.

⁸Another way of approaching this would be to estimate the likely effective VAT rate by using a detailed input-output table for South Africa. This would lead to a loss of detail (and precision) as the IES has more detailed expenditure categories than the input-output table for SA and the categories do not correspond well with each other.

is also a unit tax, levied at 110.1 cents per litre of petrol and 89.4 cents per litre of diesel. For this study, the incidence of the fuel levy is calculated on petrol and diesel for household use and for private transport only. The impact of a transfer of the fuel levy onto the consumer where fuel is an input in other production processes is not estimated. However, a rule-of-thumb adjustment for the *public transport* sector is made, where it is assumed that the total amount of the fuel levy is passed on to the consumer and that fuel constitutes 30 percent of input costs in this sector (Grown and Valodia 2010).

3.2 Identifying the ‘gender’ incidence of indirect taxes

As noted earlier, the biggest methodological challenge in estimating the gender incidence of indirect taxes is how to reconcile individual and household-level concepts. This is because sex is an individual attribute, but expenditure information is collected at the household level, and often occurs at the household level (especially where spending is on indivisible/public-type goods). It is common practice in the literature estimating the indirect tax incidence on individuals by race or by income, for example, to assume equal sharing of expenditure in the household, and in turn equal sharing of the burden of taxation across individuals in the household. However, this method is especially unsatisfactory for a study of the gender impact of taxes, given that the intra-household allocation of resources cannot be assumed to be equal.

The alternative method used here involves classifying *households* as being either more ‘female’ or more ‘male’, according to certain demographic or economic characteristics, and analysing the tax incidence on the individuals within these households.⁹ Three definitions are used to classify households as being ‘male-type’ or ‘female-type’ households. The first takes into account only the presence of male and female adults in the household; the second and third try to take into account gendered spending power in the household by adding the dimension of control over resources, measured through employment status and household headship. Table 3 presents the distribution of individuals across the resulting household types.

The first definition, which uses the presence of male and female adults (aged 18 years and older) to classify households by gender, results in three categories of household: adult female majority households (where adult females outnumber adult males), adult male majority households (where adult males outnumber adult females) and equal numbered adult households. In South Africa, 42 percent of individuals live in adult female majority households, 22 percent live in adult male majority households with the remaining 36 percent living in households where there are an equal number of adult males and females.

The employment status definition¹⁰ classifies households into four categories: ‘female breadwinner households’ with at least one employed adult female and no employed adult males; ‘male breadwinner households’ which contain at least one employed adult male and no employed adult females; ‘dual earner households’ with at least one employed adult male and one employed adult female; and households with ‘no employed’ members. In South Africa, this latter group consists mostly of households where either pensions and grants (predominantly through the government’s social welfare programme) or remittances from migrant workers form the main source of income (87 percent of all households with no employed members), with a much smaller proportion of households

⁹Another approach would be to adopt different sharing rules between men and women for different classes of goods, but in the absence of sufficient case study (or other) research on the intra-household allocation of resources in South Africa that could inform the choice of sharing rule, this exercise proves to be largely arbitrary and highly subjective. In addition, for cross-country comparison, which was one of the aims of the broader project of which this study formed a part, an analysis at the household level is more feasible. National expenditure surveys in most countries collect data on at least the age and sex composition of households and their members’ employment status.

¹⁰In the IES 2000, employment status is based on the following question and prompt, “During the past seven days, did . . . do any work for pay, profit or family gain? *Formal/informal work, working on a farm, casual/seasonal work, etc*”. Although this question is a lot less detailed than the questions used to capture employment in the Labour Force Survey, the employment rate (measured as the percentage of the working age population employed) differs by only a percentage point between these two surveys in the same year.

reporting the sale of farm products or other non-farm income as the main source (own calculations from the South African Labour Force Survey of September 2001).

There are more individuals living in male breadwinner households (26.4 percent) compared to female breadwinner households (21.6 percent), with another 24.2 percent living in dual earner households. It is not surprising in a country with an unemployment rate of around 40 percent for the last decade (using the expanded or non-searching definition of unemployment), that the largest proportion of individuals in South Africa, 27.8 percent, live in households where there are no employed members.

The headship classification categorises households as either male-headed or female-headed. The following excerpt from the official report on the IES 2000 provides the definition of headship used in the survey:

“At Statistics SA we have a clear definition of a household head. Respondents may have a different idea of what ‘household head’ means, and you must explain to them what Stats SA wants. The head is the person in whose name the dwelling is registered. It may be the person who owns the dwelling, or is responsible for the rent, or gets the dwelling through their work, or through their relationship to the owner. If two or more persons have equal claim to be head of the household, or if people state that they are joint heads or that the household has no head, then choose the eldest as the head.” (SSA 2002: 90).

According to this definition, 41 percent of individuals are classified as living in households headed by females in 2000.¹¹

In South Africa, a much higher proportion of the population live in what we could term ‘female-type’ households, i.e. those in which there are more adult females than males, in which there are only female breadwinners, or those headed by females, compared to the other countries for which this analysis was performed (Grown and Valodia 2010). A number of factors drive this phenomenon in South Africa. There are particularly low levels of marriage and partnership and high rates of extra-marital child-bearing in South Africa. This partly reflects the destabilising effect that apartheid policies had on the institution of marriage among black South Africans (Hosegood *et al* 2009) and more recently, the financial constraints faced by many young South Africans who cannot afford to get married and make bridewealth payments (Posel and Casale 2009). In the post-apartheid period since 1995, economic growth and employment creation have been lacklustre, while (non-searching) unemployment rates have risen dramatically to around 40 percent. As a result, a large proportion of women report living without any adult men or, at the least, without employed adult men. The high incidence of labour migration in South Africa, particularly among men, is also a contributing factor and often results in the female in the household being reported as the *de facto* resident head. Historically, the apartheid settlement laws prohibited Africans from settling permanently at their places of employment. This resulted in a system of circular labour migration among mainly African men who migrated to urban and industrial areas while African women were left to tend to the homestead in designated ‘homeland’ or rural areas. While these laws were abolished in the late 1980s, their effects are persistent and labour migration remains an important feature of the South Africa labour market (Posel and Casale 2003). In 2002, about 20 percent of female-headed households reported at least one non-resident household member as a male migrant worker (own calculations from the September 2002 Labour Force Survey).

Also evident from Table 3 is that the female-type households and those with no employed members tend to be concentrated in the lower quintiles of the expenditure distribution. In contrast,

¹¹The headship classification can be a problematic concept for gender analysis. It is not clear to what extent the definition provided by the statistical agency is followed by fieldworkers when conducting the survey, even though Statistics SA instructs enumerators to explain it. This means it often does not capture the phenomenon that analysts assume it does (Budlender 2003). However, it is used here because it does highlight an important gendered group and research has shown there to be significant differences in outcomes by the gender of the head in South Africa (Posel 2001). Households that report being headed by women are concentrated at the lower end of the income distribution, and draw their resources predominantly from female employment and social grants and to a lesser extent migrant remittances.

the male-type households, the dual earner households, and the equal numbered adult households are more heavily concentrated at the upper end of the expenditure distribution. This means that any tax policy that has positive gender equity implications, will also result in strong income equity outcomes.

For South Africa, there is a large overlap across the three gendered household classifications, evident from the cross-tabulations in Table 4. For example, just over 80 percent of female-headed households fall into two employment status categories: 40.7 percent are in the ‘female breadwinner’ category and 40.6 percent are in the ‘no employed’ category. The majority of female-headed households, 71 percent, are in the category of female adult majority households. About 73 percent of female adult majority households fall into the categories of ‘female breadwinner’ (36.6 percent) and ‘no employed’ households (35.9 percent). As will be shown below, the tax incidence results therefore tell a similar story regardless of the gendered household definition that is used.

Before presenting the results, it is important to reiterate the main caveat of the analysis, that is, we are unable to estimate an individual incidence for men and women because we do not have individual-level expenditure information. So, while we may find that male-type households bear a higher burden of a particular tax, women living in those households might also bear part of the tax burden through reduced consumption opportunities. Table 5 shows the distribution of males and females across household types. To take one example which illustrates this point: although the majority of women live in either female breadwinner or no employed households, 21 percent and 23 percent live in male breadwinner and dual earner households respectively. However, in the same vein, 16 percent and 26 percent of men live in female breadwinner and no employed households and, insofar as these households bear a lower incidence on certain goods, the males in these households will also benefit. What we are able to identify in this analysis is how tax incidence differs when households consist mostly of women or when women have greater decision-making or earnings power in the household compared to when men have a greater presence in the household or are in control of resources.¹²

4 RESULTS

Table 6 reports the overall tax incidence results for the different household types using the three gendered household classifications. Due to the strong correlations across household categories reported above, the story that emerges from these results is generally consistent regardless of which household classification is used. Total indirect tax incidence is lower in female-type households than in male-type households, by around a full percentage point on a base of approximately eight percent. This result holds for the different types of taxes as well, i.e. VAT, excise duties and the fuel levy. The pattern of incidence among households with no employed members is similar to the pattern among female-type households, while the dual earner and equal numbered adult households resemble the male-type households in their tax incidence.¹³

While there are statistically significant gender differences for all three types of taxes, the largest

¹²It is possible that the formation of households may be endogenous to expenditure behaviour (and therefore tax incidence). For example, women who are more likely to make certain purchases may also be more likely to be independent and to choose not to form households with men. There is little that can be done to correct for this issue in this context. However, one could argue that endogeneity of this kind is less of a concern in a study of tax incidence, as we are not trying to establish causality. In other words, tax incidence studies are not necessarily concerned with *why* poor households or female-headed households, for example, spend the way they do, but rather how this spending produces differential tax burdens. So tax incidence studies are about evaluating the outcome of the tax in terms of equity, rather than trying to identify behavioural causes. Thanks to a reviewer for pointing this out.

¹³The results were further disaggregated into area type (i.e. urban or rural) and race group to identify whether certain groups of female-type households bear a higher burden of indirect taxes. The results are consistent with the aggregated findings. The incidence of indirect taxes is lower for female-type households compared to male-type households regardless of whether they live in urban or rural areas, or are classified as African, coloured, Indian or white (results are available in Casale 2009).

gender differentials are reported for the excise duties and the fuel levy, taxes which can be justified on negative externality grounds. The higher incidence of indirect taxes in male-type households is being driven predominantly by the larger expenditure in these households on alcohol and tobacco and on fuel for private transport. The gender difference in the incidence of the fuel levy would have been even more pronounced if we had not adjusted for the transfer of the fuel levy to consumers in the public transport sector, as female-type households are relatively more intensive users of public transport, while male-type households are relatively more intensive users of private transport.

It is possible that because female-type households and those with no employed members are amongst the least well off in South Africa (see Table 3), the results simply reflect the nature of spending across the income classes rather than the gender categories. However, disaggregating the results by expenditure quintile indicates that female-type households and households with no employed members bear a lower indirect tax incidence than male-type, dual earner and equal numbered adult households, regardless of which expenditure quintile the households are in. This is the case for total indirect taxes and, with few exceptions, for the different types of taxes (the results are presented in Table 7). These results confirm that even after controlling for expenditure class, there are gendered differences in spending patterns, underlining the importance of an analysis of taxes from a gender perspective that goes beyond standard income/expenditure class comparisons.

For all household categories, total indirect tax incidence tends to fall most heavily on the middle quintiles, particularly quintiles three and four, with the poorest quintile paying a smaller share of expenditure on tax than the richest quintile. For VAT and excise duties, the incidence is predominantly on the middle quintiles, while the fuel levy is strongly progressive. These results are largely consistent with those in Woolard *et al.* (2005), who calculated the incidence of indirect taxes by decile using the same data.¹⁴

Table 8 presents the tax incidence results for the three sets of household categories according to whether there are children aged 17 years or younger present in the household.¹⁵ The main gender findings hold: regardless of the presence of children in the household, female-type households bear a lower incidence than male-type households for total indirect taxes and for the different types of taxes. It is also interesting to note that, within each household category, households with children bear a lower total indirect tax burden than those without children, driven mostly by the differences in the incidence of the excise duties and the fuel levy. This finding reflects, as expected, that living with children affects the way both men and women spend their resources.¹⁶

While most of the gender difference in tax incidence is being driven by a higher incidence of excise duties and the fuel levy in male-type households, there is also a small but statistically significant difference in VAT incidence (7.17 percent in male-headed households compared to 7.08 percent in female-headed households, for example). It is interesting to explore the VAT incidence further, given that it is the largest component of total indirect tax incidence and that the estimated incidence encompasses a variety of zero-ratings and exemptions (listed in Table 2). In particular, useful lessons can be learnt from simulating the simple counterfactual, i.e. what would the VAT incidence look like if no items were zero-rated or exempt from the tax (assuming no knock-on effects of price changes

¹⁴Using the data from the IES 2000, they find that the VAT and excise incidence falls largely on the middle deciles when expressed as a percentage of total expenditure. However, when expressed as a percentage of total income, they find the incidence of these taxes to be regressive. They note that “this appears to be an artifact that is the result of the large mismatch between income and expenditures in the bottom and top deciles” (Woolard *et al.* 2005: 46). Because of concerns with the reliability of the income data in this survey, we do not try to replicate our results using income as a base when calculating tax incidence.

¹⁵In South Africa, female-type households are far more likely to contain children than male-type households and they are also more likely to be concentrated in the lower expenditure quintiles. To take one example, 53 percent of male-headed households contain children, of which 31 percent fall into quintiles 1 and 2, whereas of female-headed households, almost 70 percent contain children and of those, just over half are in quintiles 1 and 2.

¹⁶Similar results are found when disaggregated by quintile, both when comparing female-type households with or without children to male-type households with or without children, and when comparing households with children to those without children across the household categories (Casale 2009). This indicates that the results in Table 8 are not being driven by female-type households with children, for example, being concentrated in the lower quintiles.

on consumption shares).

Figure 1 shows the simulated effect on the VAT incidence in male and female-headed households when no goods or services are zero-rated or exempt.¹⁷ Without any zero-rating or exemptions, the VAT incidence would be substantially higher, clearly regressive, and the incidence in female-headed households greater than the incidence in male-headed households. The net effect of the zero-ratings and exemptions reduces the incidence substantially across all the quintiles, but particularly in the lowest quintile, where incidence is halved (from around 12 to 6 percent of expenditure). The tax is transformed from being highly regressive to one where the burden falls mainly on the middle quintiles. Also, the net effect of the zero-ratings and exemptions benefits female-headed households relatively more, and particularly those at the lower end of the expenditure distribution.

The benefit to female-headed households derives mainly from the zero-rating of a basket of basic foodstuffs and paraffin, where the relative gender gains are largest, and to a lesser extent the exemptions on public transport and education. The exemptions on housing/rentals, financial services and medical expenditure benefit male-headed households relatively more (details in Casale 2009). These findings show that the zero-rating of a well-targeted selection of items, particularly key foodstuffs which make up a larger portion of the budgets of poor female-type households, and fuel for household use which is commonly used by female-type households in many African countries for domestic chores, can have far-reaching effects.¹⁸

It is also instructive to explore whether there are any implicit gender biases in the indirect tax system by consumption item, after taking into account the VAT exemptions and zero-ratings. The approximately 500 consumption items detailed in the IES are allocated to 25 main categories, largely based on the United Nations Classification of Individual Consumption According to Purpose (COICOP), but with some modification to highlight potential gender differences. Although female-type households bear a lower indirect tax incidence overall, Figure 2 shows that some interesting gender biases do emerge when the data are disaggregated into these main consumption categories. These gender differences are largely consistent with the broader international literature on gendered spending patterns. Female-headed households bear a greater tax incidence on food (other non-basic or non zero-rated items as well as sugar/confectionary items); non-alcoholic beverages; utilities; children's clothing; personal care items (both essential and non-essential items); fuel for household use; furniture, household equipment and maintenance; and education (although education is exempt, textbooks and stationery attract VAT in this category). Male-headed households bear a greater tax incidence on housing; meals out; alcoholic beverages (beer, wine and spirits); tobacco; adult's clothing; private transport; fuel for transport; medical expenditure (as private health care attracts VAT); communication; and recreation.

When disaggregated further by quintile, these gendered results tend to hold across the expenditure distribution. Similarly, the findings are reinforced when households are classified by presence of children (Casale 2009). For example, a comparison between male-headed households *with children* and female-headed households *with children*, finds that the male households still bear a higher incidence of taxes on housing; meals out; alcoholic beverages; tobacco; adult's clothing; private transport; fuel for transport; communication; and recreation. Female-headed households with children bear a higher burden on food; children's clothing; basic personal care items and other non-essential personal care items; fuel for household use; and furniture, equipment and household maintenance items.

¹⁷In this figure, and in the remaining figures and tables, only the results for the household headship category are presented due to space constraints and for ease of exposition. The full set of results are available in Casale 2009, and show that with few minor exceptions the analysis remains unchanged when the presence of adults and employment status definitions are used. The headship definition was chosen to present here, as the category of female headship encompasses two important types of household in which females are reported as being head - those in which there are only female breadwinners and those that have no employed members.

¹⁸Indeed, in some of other countries in the project, where the tax on food is levied at a reduced rate only or where zero-ratings apply to a less well-targeted selection of products, the gendered results were not as positive as in the South African case (Grown and Valodia, 2010).

Both male-headed and female-headed households *with children* bear a lower incidence overall compared to the households without children, but a higher incidence on certain consumption items such as housing; food; children’s clothing; personal care (esp. necessities and nappies); fuel for household use; furniture, equipment and household maintenance items; and education. In contrast, male-headed and female-headed households *without children* bear a higher incidence on meals out; non-alcoholic and alcoholic beverages; tobacco; non-essential personal care items; adult’s clothing; transport; fuel for transport; (private) medical expenditure; communication; and recreation. These results suggest that, if we had to divide spending very crudely into ‘good’/necessity items and ‘bad’/luxury items, the presence of women (with spending power) and children in the household is associated with a greater proportion of spending on the former basket of goods.

5 SIMULATIONS AND POLICY SUGGESTIONS

In this section, the possibility of further changes to the indirect tax system is considered. In particular, the distributional and revenue consequences of zero-rating additional items that would benefit female-type households, those in the poorer quintiles and those with children, are estimated. These simulations are performed for the following goods: 1) all other (non-confectionary) food items that are not currently zero-rated; 2) poultry more specifically; 3) children’s clothing and footwear;¹⁹ and 4) a basket of basic personal care items (toilet paper, toothpaste, toothbrushes, soap, tissues, contraception, sanitary towels). The goods were chosen on the basis that a) they are recurring expenditure items, b) they do not impose any obvious negative externalities, and c) they make up a larger relative share of the budget of female-type households (particularly those with children and those in the lower quintiles) compared to male-type households.²⁰ This last criterion by definition results in strong gender and income distributional outcomes for all of the policy experiments; interest lies, therefore, in which policy changes have the largest relative effect without resulting in undue revenue losses. For comparison, the effect of VAT rating items that are currently zero-rated, i.e. a basket of basic food items and paraffin, is estimated.

The results of the policy simulations are presented in Table 9. The table shows the percentage change to the average incidence for that household category following the policy change, as well as the relative gains/losses. The findings suggest that the largest income equity gains have already been exhausted through the government’s current zero-rating of basic food items and paraffin. This is especially the case for paraffin, which is used primarily by poor households as a source of fuel for cooking and lighting in areas where electricity is not available – mainly in rural areas and urban informal housing settlements. The zero-rating of basic foodstuffs and paraffin has also resulted in substantial gender equity outcomes, benefiting female-type households the most in relative terms. Of the four policy experiments, the zero-rating of children’s clothing and footwear provides the next largest gain in terms of income and gender equity. This would seem to be the most attractive policy recommendation, also because of its almost perfect targeting to households with children.

Although the revenue loss to the fiscus from this policy change of 576 million rands per annum in 2000 prices (see final row of Table 9) is more than double the loss incurred through the zero-rating of paraffin, it amounts to a relatively small percentage of the total VAT intake (only 1.2 percent, using the budget estimate for 2000). By comparison, the reduction in revenue from the zero-rating of all other non-confectionary foodstuffs would amount to a loss of over 10 percent of the total VAT intake. Put another way, the loss of revenue from the zero-rating of children’s clothing is the equivalent of

¹⁹Zero-rating all non-confectionary food items and children’s clothing are interesting policy experiments also because these items are currently zero-rated in the UK.

²⁰Baby food (milk and grain only) and other fuels for household use (particularly coal, firewood and candles) were also possible candidates, but were not considered further here because, for the former, there is some concern about the implications for breastfeeding, while for the latter, there are possible environmental consequences (Casale 2009). White bread, white sugar and tea were also excluded because of the nutritional implications, although they do form a larger relative share of the budgets of (poor) female-type households compared to male-type households.

about one percent of the education budget for that year and only about half a percent of the total social services budget (National Treasury, 2000).

In a similar vein to reducing taxes on necessities or merit goods that are consumed relatively more intensively by female-type households, one could estimate the effect of raising taxes on luxury or demerit items where incidence falls more heavily on male-type households to finance the policy changes suggested above. However, one needs to be very cautious here given that we are not able to estimate the gender incidence of indirect taxes *within* the household or to measure any behavioural change following a tax policy adjustment. A tax increase based on static household incidence results may have unintentional negative effects. For example, raising the excise duties on alcohol and tobacco, which are already very high, could result in negative gender effects within the household if income is taken away from necessities to finance the inelastic demand for these items.

6 CONCLUDING REMARKS

The findings of this study suggest that in South Africa there is no overall implicit bias in the indirect tax system against ‘female-type’ households, a result that holds when controlling for both expenditure quintile and the presence of children in the household. The zero-rating of a basket of basic food items and paraffin has helped to protect these households from carrying a very high and otherwise disproportionate share of the indirect tax burden, as the simulations in this paper have shown. The high taxes on alcohol and tobacco and the fuel levy, often introduced to reduce the negative externality effects of these goods, at the same time contribute to the heavier tax burden on ‘male-type households’, those in the middle and top quintiles and those without children.

Implicit bias against female-type households in the indirect tax system is visible only when the results are disaggregated into different consumption categories: female-type households (in the lowest quintile and with children) bear a higher burden on ‘good’ or necessity items such as other non zero-rated foodstuffs and fuel for household use, basic personal care items and children’s clothing. The policy simulations suggest that the zero-rating of children’s clothing in particular may be a feasible recommendation as it produces large gender and income distributional benefits, it perfectly targets households with children, but has relatively small revenue implications.

However, any change to the indirect tax system that benefits female-type households needs to be evaluated against the trade-off of introducing further horizontal inequity (and complexity) into the indirect tax system. Debates in the tax literature suggest that a broad-based tax that introduces the least distortions possible is most desirable from both an efficiency and administrative simplicity point of view. Instead, policies to reduce unequal outcomes for women and children may be better directed from the expenditure side of budget. While this is partly achieved through a relatively extensive system of social welfare grants in South Africa and a large budget for social services, many households are unable to access these, and significant gender (and income) inequities persist in South Africa. This suggests that there is room on the revenue side of the budget to effect change, and at the very least, a need for constant evaluation of tax policy on both income and gender equity grounds.

References

- [1] Alderman, H. and del Ninno, C. (1999) “Poverty Issues for Zero Rating Value-Added Tax (VAT) in South Africa”, World Bank Informal Discussion Paper, No. 19336.
- [2] Aizenman, J. and Y. Jinjark (2006). “Globalization and developing countries - a shrinking tax base?” Working Paper 11933, NBER Working Paper Series. Cambridge, National Bureau of Economic Research.

- [3] Ahmad, Ehtisham, and Nicholas Stern (1991) *The Theory and Practice of Tax Reform in Developing Countries*, Cambridge: Cambridge University Press.
- [4] Barnett, K. and C. Grown (2004) ‘Gender Impacts of Government Revenue Collection: The Case of Taxation’, Economic Paper 62, London: Commonwealth Secretariat.
- [5] Bird, R. and B. Miller (1989) ‘The Incidence of Indirect Taxes on Low-Income Households in Jamaica’, *Economic Development and Cultural Change*, Chicago, IL: The University of Chicago.
- [6] Budlender and Valodia (2007) “Gender and tax in South Africa.” Country report on Personal Income Taxes prepared for the Project on “Taxation and Gender Equity” coordinated by American University and the University of KwaZulu-Natal.
- [7] Casale, D. (2009) ‘Indirect taxation and gender equity: Evidence from South Africa.’ Country report prepared for the Project on “Taxation and Gender Equity” coordinated by American University and the University of KwaZulu-Natal. Available at <http://www.sds.ukzn.ac.za/default.php?2,6,611,4,0>.
- [8] Casale, D. and Posel, D. (2005) ‘Women and the Economy: How far have we come?’ *Agenda*, 64:21-29.
- [9] Department of Finance (2000) Budget Review 2000, Pretoria: Department of Finance.
- [10] Gibson, John. (1998) “Indirect tax reform and poor in Papua New Guinea” *Pacific Economic Bulletin* 13(2)29-39.
- [11] Go, D.S.; Kearney, M.; Robinson, S. and Thierfelder, K. (2005) “A Analysis of South Africa’s Value Added Tax”, World Bank Policy Research Working Paper, No. 3671.
- [12] Grown, C. and Valodia, I. (eds) (2010) *Taxation and Gender Equity*. London: Routledge.
- [13] Khattry, Barsha and J. Mohan Rao. (2002) “Fiscal faux pas? An analysis of the revenue implications of trade liberalization.” *World Development* 30(8): 1431-1444.
- [14] Hosegood, V. McGrath, N. and Moultrie, T. (2009) “Dispensing with marriage: Marital and partnership trends in rural KwaZulu-Natal, South Africa 2000-2006”. *Demographic Research*, Vol. 20, Article 13, pp. 279-312.
- [15] Fourie, F.C.vN. and Owen, A. (1993) “Value-added tax and regressivity in South Africa”, *South African Journal of Economics*, 61(4): 281-300.
- [16] National Treasury (2000) *National Budget Review*. Pretoria: National Treasury.
- [17] National Treasury (2008) *National Budget Review*. Pretoria: National Treasury.
- [18] Posel, D. (2001) ‘Who are the heads of household, what do they do and is the concept of headship useful? An analysis of headship data in South Africa.’ *Development Southern Africa*, 18(5), 651-670.
- [19] Posel, D. and Casale, D. (2009) “Sex ratios and racial differences in marriage rates in South Africa.” ERSA Working Paper No. 153.
- [20] Posel, D and Casale, D (2003) ‘What has been happening to internal labour migration in South Africa, 1993-1999?’ *South African Journal of Economics*, Vol. 71(3), 455-479.
- [21] Rajemison, Harivelo, and Stephen D. Younger (2000) “Indirect Tax in Madagascar: Estimations Using the Input-Output Table,” CFNPP Working Paper #106.

- [22] Sahn, David E., and Stephen D. Younger (1998) "Fiscal Incidence in Africa," Ithaca: CFNPP Working Paper #91.
- [23] Sahn, David E., and Stephen D. Younger (2003) "Estimating the Incidence of Indirect Taxes in Developing Countries," in Bourguignon, Francois, and Luiz Pereira da Silva, eds., *Evaluating the Poverty and Distributional Impact of Economic Policies*, New York: Oxford University Press.
- [24] Simkins C. (2004) "What happened to the distribution of income in South Africa between 1995 and 2001?" Appendix A to Woolard et al (2005).
- [25] Statistics South Africa (2002) "Income and expenditure of households, 2000" Statistical release P0111, Pretoria: Statistics South Africa.
- [26] Statistics South Africa (2008) "Income and Expenditure of Households 2005/6: An Analysis of Results", Report No. 01-00-01. Pretoria: Statistics South Africa.
- [27] Stotsky, J. (1997a) 'Gender Bias in Tax Systems', *Tax Notes International*, June 9, 1997: 1913-1923.
- [28] Stotsky, J. (1997b) 'How Tax Systems Treat Men and Women Differently', *Finance and Development*, March: 30-33.
- [29] Woolard I, Simkins C, Oosthuizen M & Woolard C. (2005). Tax Incidence Analysis for the Fiscal Incidence Study being conducted for National Treasury. Final Report.
- [30] Younger, Stephen D. (1993) "Estimating Tax Incidence in Ghana: An Exercise using Household Data", Cornell Food and Nutrition Policy Program Working Paper 48.
- [31] Younger, Stephen D., David E. Sahn, Steven Haggblade, and Paul A. Dorosh (1999) "Tax Incidence in Madagascar: An Analysis Using Household Data," *World Bank Economic Review*, v.13, no.2 (May).

Tables and Figures

Table 1: Tax Structure, South Africa, 1988-2008

Tax/Source of revenue	1988/89		1998/99		2007/08	
	Revenue raised in R'm	% of total tax revenue	Revenue raised in R'm	% of total tax revenue	Revenue raised in R'm	% of total tax revenue
Individuals	14 910	30%	76 400	42%	191 046	30%
Companies	11 244	22%	23 330	13%	176 471	27%
Other	657	1%	5 558	3%	23 978	4%
Total – direct taxes	26 811	53%	105 288	58%	391 495	61%
VAT/GST	13 123	26%	43 600	24%	167 028	26%
Excise duties	2 508	5%	8 338	5%	22 083	3%
Fuel levy	2 555	5%	13 600	8%	26 434	4%
Customs duties	2 466	5%	6 200	3%	31 473	5%
Other	3 054	6%	4 044,1	2%	3 755	1%
Total – indirect taxes	23 707	47%	75 782	42%	250 773	39%
Total tax revenue	50 518	100%	181 070	100%	642 268	100%

Source: Budlender and Valodia (2007) from National Revenue Accounts, National Treasury, South Africa

Table 2. Indirect tax rates and specific duties

Tax	Item	Ad valorem rate/specific duty
VAT		
VAT-rated	Most goods and services (incl. imports)	14%
Zero-rated goods	-19 basic food items (brown bread, dried mielies and mealie rice, brown bread flour, samp, eggs, fruit, vegetables, dried beans, lentils, maize meal, rice, pilchards in tins or cans, vegetable cooking oil, milk, cultured milk, milk powder and dairy powder blend, edible legumes and pulses of leguminous plants i.e. peas, beans and peanuts) -Paraffin -Exports -Petrol and diesel -Farming inputs -Sales of going concerns -Certain grants by government	0%
Exempt goods	-Residential rental and accommodation -Educational services (including creches) -Public road and rail transport -Non-fee related financial services -Medical aid and medicine/medical services provided by public health institutions	Assumed to be 0%
Excise duties		
	Preparations of sorghum for making beverages	33 cents/kg
	Mineral water and non-alcoholic beverages	8 cents/litre
	Beer	2239 cents/litre of absolute alcohol
	Sorghum beer	745 cents/100 litres
	Unfortified wine	6790 cents/100 litres
	Fortified wine	15360 cents/100 litres
	Sparkling wine	18811 cents/100 litres
	Spirits	303365/100 litres of absolute alcohol
	Cigars	56989 cents/kg
	Cigarettes	141.5 cents/10 cigarettes
	Cigarette tobacco	6412 cents/kg
	Pipe tobacco	3893 cents/kg
Fuel levy^a		
	Petrol	110.1 cents/litre
	Diesel	89.4 cents/litre

Source: National Budget Review 2000, Department of Finance, South Africa

Notes: ^aThe levy consists of a fuel levy component and a Road Accident Fund component.

Table 3. Distribution of individuals across household categories and by quintile (%)

	All	Quintile					
		Q1	Q2	Q3	Q4	Q5	
Presence of adults							
Adult male majority	21.9	15.2	17.5	20.7	22.8	23.8	100
Adult female majority	42.0	26.6	24.2	20.4	17.5	11.3	100
Equal number adults	36.1	15	16.7	19.2	21.3	27.8	100
	100						
Employment status							
Male breadwinner	26.4	12.2	15.4	20.8	26.7	24.9	100
Female breadwinner	21.6	20.3	22.9	22.7	20.2	13.9	100
Dual earner	24.2	9.8	12.5	18.6	23.1	36	100
No employed	27.8	35.8	28.8	18.5	10.7	6.3	100
	100						
Headship							
Male-headed	59.1	14.7	15.9	19.1	22.6	27.7	100
Female-headed	40.9	27.4	26	21.5	16.3	9	100
	100						
Average p.c. monthly expenditure per quintile in 2000 Rands		R66.26	R140.37	R250.16	R531.38	R2585.30	

Source: Own calculations from IES 2000

Notes: Data are weighted.

Table 4. Cross-tabulations of individuals by household classification

a) Employment status by headship			
	Male-headed	Female-headed	
Male breadwinner	39.5	7.4	
Female breadwinner	8.4	40.7	
Dual earner	33.2	11.2	
No employed	18.8	40.6	
	100	100	
b) Presence of adults by headship			
	Male-headed	Female-headed	
Adult male majority	30.3	9.8	
Adult female majority	21.3	71.8	
Equal number adult	48.4	18.4	
	100	100	
c) Employment status by presence of adults			
	Adult male majority	Adult female majority	Equal number adults
Male breadwinner	46.3	10.4	32.9
Female breadwinner	9.1	36.6	11.9
Dual earner	22.2	17.1	33.7
No employed	22.4	35.9	21.5
	100	100	100

Source: Own calculations from IES 2000

Notes: Data are weighted.

Table 5. Distribution of males and females across household categories

	MALES		FEMALES	
	Number	%	Number	%
Presence of adults				
Adult male majority	6 795 431	32.82	2 680 544	11.9
Adult female majority	6 099 400	29.46	12 039 943	53.45
Equal number adults	7 812 318	37.73	7 803 523	34.65
		100		100
Employment status				
Male breadwinner	6 733 645	32.52	4 671 982	20.74
Female breadwinner	3 405 791	16.45	5 949 693	26.41
Dual earner	5 188 428	25.06	5 284 704	23.46
No employed	5 379 285	25.98	6 617 633	29.38
		100		100
Headship				
Male-headed	14 085 323	68.04	11 460 892	50.9
Female-headed	6 615 800	31.95	11 055 689	49.1
		100		100

Source: Own calculations from IES 2000

Notes: Data are weighted.

Table 6. Overall incidence by household category (tax as a percentage of expenditure)

	Total Tax	VAT	Excise Tax	Fuel Tax
Headship				
	*9.06	*7.17	*0.96	*0.94
Male headed	(0.011)	(0.007)	(0.006)	(0.006)
<i>Female headed</i>	7.99	7.08	0.44	0.48
	(0.011)	(0.008)	(0.005)	(0.005)
Employment categories				
	*9.36	*7.36	*1.12	*0.88
Male breadwinner	(0.018)	(0.011)	(0.010)	(0.009)
<i>Female breadwinner</i>	8.14	7.05	0.45	0.64
	(0.016)	(0.012)	(0.007)	(0.007)
Dual earner	*9.15	*7.13	*0.89	*1.14
	(0.018)	(0.012)	(0.009)	(0.011)
No employed	*7.84	*6.99	*0.49	*0.37
	(0.013)	(0.010)	(0.006)	(0.005)
Household Sex Composition				
	*9.23	*7.29	*1.1	*0.84
Adult male majority	(0.020)	(0.012)	(0.012)	(0.011)
<i>Adult female majority</i>	8.13	7.07	0.47	0.59
	(0.011)	(0.008)	(0.005)	(0.005)
Equal # adult	*8.84	*7.12	*0.85	*0.88
	(0.014)	(0.010)	(0.007)	(0.008)

Source: Own calculations from IES 2000

Notes: Data are weighted. Standard errors in parentheses.

* Reports statistical significance in equality of means t-tests with unequal variance at 5% level. Reference category label in italics. For example, tax incidence in female-headed households is tested against tax incidence in male-headed households.

Table 7. Incidence by household category and quintile (tax as a percentage of expenditure)

	Total Tax	VAT	Excise Tax	Fuel Tax	Total Tax	VAT	Excise Tax	Fuel Tax
Quintile	Male-headed				Female-headed			
1	*7.81 (0.024)	*6.7 (0.017)	*0.8 (0.014)	*0.31 (0.007)	6.87 (0.017)	6.34 (0.015)	0.27 (0.007)	0.26 (0.005)
2	*8.76 (0.023)	*7.34 (0.014)	*0.98 (0.015)	*0.44 (0.009)	8 (0.019)	7.2 (0.014)	0.47 (0.011)	0.33 (0.005)
3	*9.5 (0.023)	*7.7 (0.014)	*1.13 (0.015)	*0.67 (0.011)	8.61 (0.021)	7.65 (0.016)	0.47 (0.011)	0.48 (0.010)
4	*9.85 (0.025)	*7.55 (0.016)	*1.15 (0.014)	*1.16 (0.016)	8.97 (0.030)	7.7 (0.022)	0.61 (0.015)	0.66 (0.015)
5	*8.97 (0.026)	*6.65 (0.018)	*0.76 (0.012)	*1.56 (0.015)	8.17 (0.054)	6.49 (0.037)	0.44 (0.020)	1.24 (0.033)
Quintile	Male breadwinner				Female breadwinner			
1	*8.17 (0.039)	*6.98 (0.025)	*0.85 (0.024)	0.35 (0.012)	6.9 (0.027)	6.27 (0.023)	0.29 (0.010)	0.33 (0.009)
2	*8.95 (0.038)	*7.4 (0.023)	*1.08 (0.025)	*0.47 (0.015)	8.2 (0.030)	7.27 (0.021)	0.52 (0.019)	0.41 (0.008)
3	*9.64 (0.033)	*7.78 (0.020)	*1.24 (0.023)	0.62 (0.014)	8.72 (0.028)	7.59 (0.022)	0.49 (0.014)	0.64 (0.017)
4	*9.92 (0.037)	*7.53 (0.023)	*1.31 (0.021)	*1.08 (0.023)	8.73 (0.038)	7.43 (0.028)	0.53 (0.017)	0.77 (0.021)
5	*9.36 (0.018)	*6.97 (0.029)	*0.99 (0.023)	*1.4 (0.024)	8.08 (0.057)	6.41 (0.041)	0.41 (0.020)	1.25 (0.029)
Quintile	Dual earner				No employed			
1	*7.95 (0.047)	*6.73 (0.030)	*0.9 (0.028)	0.33 (0.012)	7 (0.020)	*6.39 (0.016)	*0.39 (0.009)	*0.23 (0.005)
2	*9.24 (0.041)	*7.45 (0.023)	*1.23 (0.027)	*0.57 (0.014)	*7.82 (0.020)	*7.12 (0.015)	*0.44 (0.011)	*0.26 (0.005)
3	*9.5 (0.035)	*7.7 (0.022)	*1.04 (0.023)	*0.76 (0.018)	*8.56 (0.029)	7.63 (0.020)	*0.59 (0.016)	*0.34 (0.010)
4	*10.07 (0.034)	*7.78 (0.022)	*1.01 (0.019)	*1.27 (0.024)	*8.96 (0.047)	*7.67 (0.033)	*0.72 (0.027)	*0.56 (0.020)
5	*8.69 (0.034)	6.4 (0.023)	*0.61 (0.013)	*1.68 (0.022)	*8.72 (0.080)	*6.73 (0.057)	*0.56 (0.029)	*1.43 (0.047)
Quintile	Adult male majority				Adult female majority			
1	*7.67 (0.039)	*6.68 (0.027)	*0.76 (0.024)	*0.23 (0.008)	7.07 (0.018)	6.4 (0.015)	0.37 (0.008)	0.3 (0.006)
2	*8.8 (0.040)	*7.37 (0.023)	*1.01 (0.028)	*0.42 (0.014)	8.1 (0.019)	7.25 (0.014)	0.47 (0.010)	0.38 (0.006)
3	*9.52 (0.038)	*7.76 (0.023)	*1.14 (0.026)	*0.62 (0.016)	8.64 (0.022)	7.58 (0.016)	0.52 (0.012)	0.54 (0.010)
4	*10.05 (0.043)	*7.58 (0.025)	*1.37 (0.027)	*1.1 (0.028)	9.13 (0.029)	7.64 (0.021)	0.61 (0.013)	0.87 (0.017)
5	*9.52 (0.053)	*6.92 (0.033)	*1.09 (0.028)	*1.5 (0.031)	8.2 (0.043)	6.4 (0.032)	0.42 (0.014)	1.38 (0.025)
Quintile	Equal # Adult							
1	*7.49 (0.029)	*6.59 (0.021)	*0.62 (0.016)	*0.28 (0.008)				
2	*8.51 (0.028)	7.21 (0.018)	*0.93 (0.018)	0.37 (0.008)				
3	*9.41 (0.027)	*7.75 (0.017)	*1.05 (0.018)	*0.62 (0.014)				
4	*9.64 (0.032)	7.57 (0.021)	*1.04 (0.017)	*1.03 (0.019)				
5	*8.75 (0.032)	*6.56 (0.022)	*0.63 (0.012)	*1.56 (0.019)				

Source: Own calculations from IES 2000

Notes: Data are weighted. Standard errors in parentheses. * Reports statistical significance in equality of means t-tests with unequal variance at 5% level. Reference category label in italics. So, for example, tax incidence in female-headed households in quintile one is tested against tax incidence in male-headed households in quintile one.

Table 8. Incidence by household category and presence of children (tax as a percentage of expenditure)

	With Children				Without Children			
	Total Tax	VAT	Excise Tax	Fuel Tax	Total Tax	VAT	Excise Tax	Fuel Tax
Headship								
	*8.93	*7.17	*0.87	*0.89	*9.52	*7.18	*1.26	*1.09
Male headed	(0.012)	(0.008)	(0.006)	(0.007)	(0.029)	(0.018)	(0.017)	(0.015)
<i>Female headed</i>	7.92	7.06	0.41	0.45	8.48	7.17	0.61	0.7
	(0.012)	(0.009)	(0.005)	(0.005)	(0.037)	(0.027)	(0.019)	(0.017)
Employment categories								
	*9.14	*7.34	*0.98	*0.82	*9.95	*7.39	*1.51	*1.06
Male breadwinner	(0.019)	(0.012)	(0.011)	(0.010)	(0.040)	(0.024)	(0.026)	(0.021)
<i>Female breadwinner</i>	8.11	7.06	0.45	0.6	8.37	7.01	0.5	0.86
	(0.017)	(0.013)	(0.008)	(0.008)	(0.046)	(0.037)	(0.020)	(0.021)
Dual earner	*9.11	*7.14	*0.86	*1.11	*9.39	*7.02	*1.03	*1.33
	(0.018)	(0.012)	(0.009)	(0.011)	(0.053)	(0.036)	(0.027)	(0.031)
None employed	*7.7	*6.97	0.42	*0.31	8.58	7.09	*0.85	*0.64
	(0.014)	(0.011)	(0.006)	(0.005)	(0.042)	(0.028)	(0.024)	(0.017)
Household Sex Composition								
	*8.99	*7.31	*0.88	*0.79	*9.68	*7.24	*1.5	*0.93
Adult male majority	(0.022)	(0.014)	(0.012)	(0.013)	(0.040)	(0.023)	(0.026)	(0.019)
<i>Adult female majority</i>	8.1	7.07	0.47	0.56	8.34	7.01	0.52	0.82
	(0.012)	(0.009)	(0.005)	(0.005)	(0.038)	(0.030)	(0.017)	(0.018)
Equal # adult	*8.73	*7.09	*0.82	*0.82	*9.33	*7.22	*0.96	*1.15
	(0.015)	(0.010)	(0.008)	(0.008)	(0.037)	(0.025)	(0.020)	(0.021)

Source: Own calculations from IES 2000

Notes: Data are weighted. Standard errors in parentheses.

* Reports statistical significance in equality of means t-tests with unequal variance at 5% level. Reference category label in italics. So, for example, tax incidence in female-breadwinner households with children is tested against tax incidence in male-breadwinner households with children.

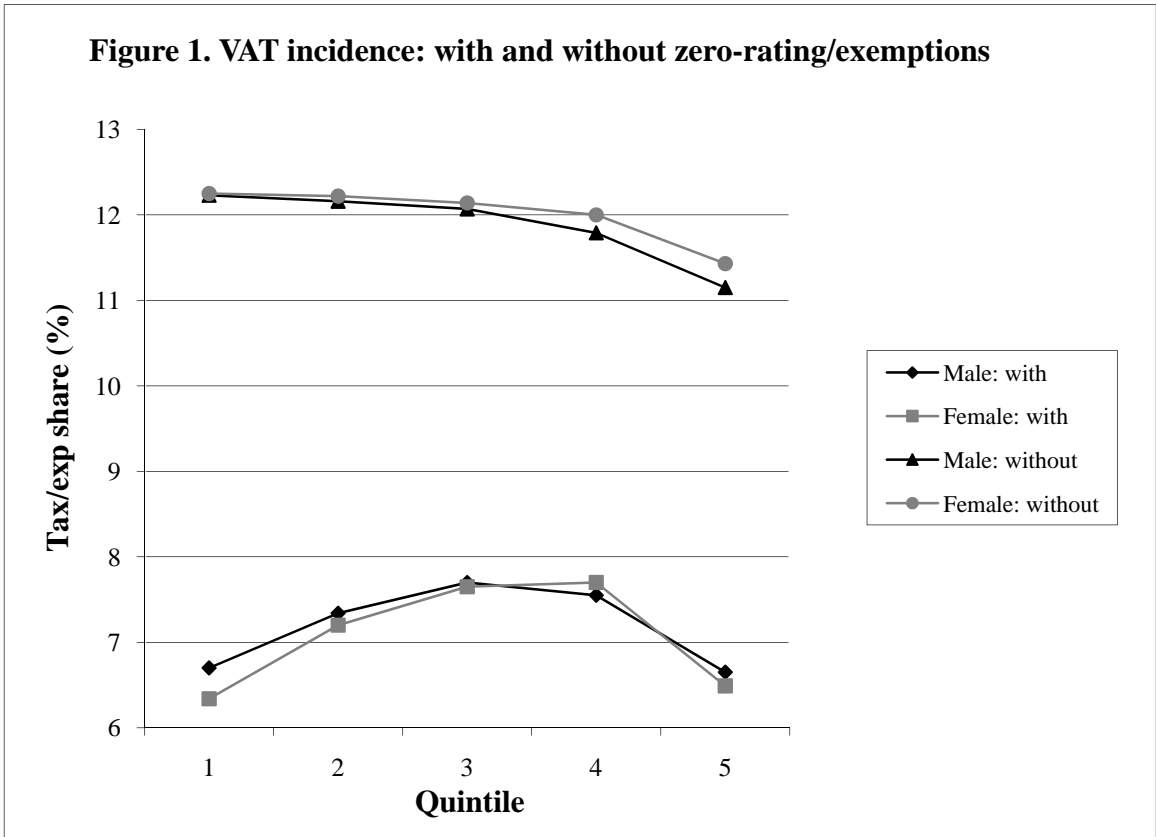
Table 9. Effect on tax incidence and govt. revenue of VAT/zero-rating certain items

	Base incidence (% of exp)	Effect of VAT-rating (% change in tax incidence)		Effect of ZERO-rating (% change in tax incidence)			
		Basic food	Paraffin	Other non-conf. food items	Children's clothing	Basic personal care items	Poultry
Male-headed	9.06	24.50	2.21	-20.20	-3.09	-3.20	-4.30
Female-headed	7.99	39.67	3.50	-25.41	-4.76	-4.51	-6.13
Ratio % change female/male		1.62	1.59	1.26	1.54	1.41	1.42
Quintile 1	7.28	60.03	5.22	-26.37	-5.91	-5.77	-7.29
Quintile 2	8.36	41.27	4.07	-25.96	-5.26	-4.78	-6.76
Quintile 3	9.11	29.09	2.74	-24.15	-3.95	-3.95	-5.65
Quintile 4	9.56	18.83	1.36	-21.44	-2.72	-2.93	-4.07
Quintile 5	8.82	8.39	0.23	-14.17	-1.59	-1.59	-1.81
Ratio % change Q1-3/Q4-5		4.79	7.57	2.15	3.51	3.21	3.35
With children	8.49	32.51	2.71	-23.20	-4.48	-3.89	-5.30
Without children	9.23	20.48	2.06	-18.53	-0.87	-3.25	-4.01
Ratio % change with/without		1.59	1.32	1.25	5.16	1.20	1.32
Loss/gain to fiscus per year (millions Rands, 2000 prices)		3 876	229	-4 788	-576	-618	-761

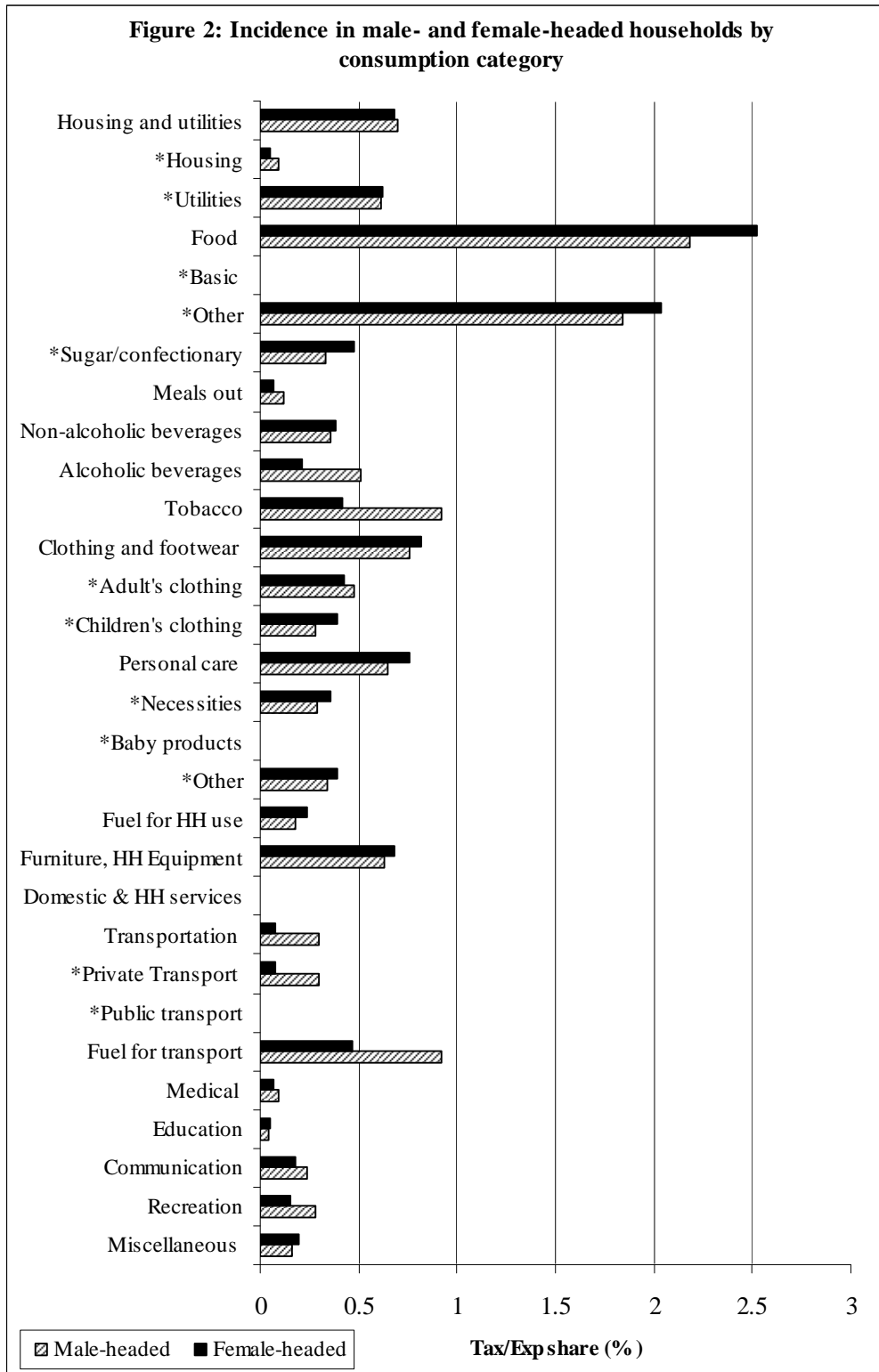
Source: Own calculations from IES 2000

Notes: Data are weighted.

Figure 1. VAT incidence: with and without zero-rating/exemptions



Source: Own calculations from IES 200



Source: Own calculations from IES 2000.

Notes: * Denotes subcategory.

All gender differences are statistically significant except for baby products and domestic and household services where incidence is only 0.01%. The incidence on basic foodstuffs and public transport is zero as these items are exempt and zero-rated respectively.