7

Methodological/Analytical Tools for Gender-revenue Analysis

This section discusses possible methodological approaches and analytical tools for gender revenue analysis. The first part reviews the standard tax analysis methodologies used by tax practitioners to evaluate the impact of tax proposals on individuals and on specific sectors of the economy and their relevance for gender analysis: tax burden analysis; tax incidence analysis; representative taxpayer analysis; microsimulation models; and macrosimulation models. The second part discusses methodologies applied to expenditure analysis by gender responsive government budgeting (GRGB) initiatives and their applicability to gender revenue analysis.

7.1 Traditional Methodologies and Tools for Tax Policy Analysis

7.1.1 Tax Burden Analysis

Tax burden is defined as the statutory tax payment obligation as a percentage of disposable income. For a particular tax, or for a combination of taxes, to the extent that there are data on tax filers, tax payments and net income, tax burdens can be calculated by income class, by sector of the economy and by individual compared to business filers. Gender tax burden analysis would require data by sex. Tax filers, even when they file separately, are not identified by sex, but gender burden analysis could be done with appropriate assumptions based on census or other demographic data, which all countries have in rudimentary form.

7.1.2 Tax Incidence Analysis

Tax incidence analysis can be used to analyse the distributional impact of taxes and subsidies, for instance how this varies for various groups of households on the basis of income, geographic location and other factors. Gender incidence analysis takes into account intra-household relations. Gender incidence analysis, as with burden analysis, may require assumptions based on limited data, but can nevertheless be a useful exercise.

Incidence studies define the groups of interest, typically in terms of income/consumption, geographic location, gender, ethnicity, age and socio-economic group, and then calculate the taxes paid by each household group.[32] Incidence studies distinguish between statutory incidence (those who have to transfer the tax to the government) and economic incidence (those whose real purchase power declines because of the tax). To quantify the tax paid, the technique either estimates the taxes paid as the official tax rate multiplied by the pre-tax value of expenditure, or estimates the 'effective' tax rate by dividing the actual tax revenues by the tax base and applying this to the categories of interest.

Box 7.1: The Feasibility of Gender Incidence Analysis: The Case of Mongolia

A recent report by Richard Marshall for UNDP reviewed the feasibility of conducting a gender incidence study of the tax system in Mongolia. Marshall's review found that suitable sex-disaggregated data is not available for an incidence study of direct taxes; the authorities simply do not hold sex-disaggregated data for any tax. Even where personal records are held, they are not sex-disaggregated. Investment in primary data collection is a necessary first step in the development of a gender revenue analysis in Mongolia.

Source: Marshall, 2003

7.1.3 Micro-simulation Modelling

Tax policy analysis often uses micro-simulation modelling, based on a representative sample of tax return data. Such modelling requires a sufficiently large base of micro data on individuals, such as from taxpayer records stripped of personal identifiers, or from current population surveys or household surveys. These models are particularly used for personal and corporate income taxes. By capturing key variables in the database which interact with tax policy options, and based on defined assumptions about taxpayer behaviour, the micro-simulation model can calculate the effect of tax policy options on the number of filers, size of payments, impact of special credits or deductions, distribution of burden and total revenue collected. Since tax data do not capture the sex of filers, micro-simulation modelling by gender would need to make assumptions based on other data about the distinct economic activity of women and men and intra-household allocation decisions. The reliability of the results would depend on the data used and the underlying assumptions required.

7.1.4 Macrosimulation Modelling

Another potential tool for understanding the gender dimensions of revenue is a macrosimulation model. Such models involve longer-term forecasting and are based on macro variables such as inflation rates, trade balances, forecasts of profits across different economic sectors, estimates of elasticities and so forth. Macrosimulation models aim to produce a gender-aware medium-term macroeconomic framework. Some common models include financial programming models, fixed coefficient, two-gap growth accounting models, macroeconometric simulation models and computable general equilibrium models. Most of these are currently gender blind, but a variety of approaches could be used to introduce gender concerns, including gender disaggregation of variables already included in the models, introduction of new variables and equations which capture the pattern of gender relations, and construction of models

which include a sector that represents the social reproduction system (see Çağatay *et al.* (1995) for a detailed discussion of gender-aware macroeconomic models).

Fontana (2002 and 2001) has developed gender-aware Computable General Equilibrium Models (CGE) for Bangladesh and for Zambia.[33] These models include a reproductive sector and leisure in addition to the market sector, and treat male and female labour as two distinct factors of production. While the Fontana analysis simulates changes in trade policy in an economy where male and female workers have different levels of consumption, it could be extended to simulate the effect of a variety of tax reform measures.

7.2 Methodologies and Tools Used in Gender-responsive Government Budgeting

Gender-responsive government budgeting has developed five tools for gender expenditure analysis, used in pre- and post-budget analysis (Budlender *et al.*, 1998). The first three are used in pre-budget analysis, and have been developed through participatory methods and surveys of opinions. If adapted for gender revenue analysis, these would be:

1. Gender-aware medium-term tax policy framework;
2. Gender-aware tax policy appraisal;
3. Gender-disaggregated tax burden assessment.

The other tools are used in post-budget expenditure analysis and are similar to the methodologies discussed previously for tax analysis. These require significant resources to implement successfully, as they do for expenditure analysis, but they would include:

4. Gender-specific tax incidence analysis;
5. Gender-aware revenue statement.

7.3 Summary

All methodologies for gender analysis of taxation require sex-disaggregated data. Three types of data are needed for this analysis: data on time use of individuals within households, which are important in estimating the productivity of domestic or household work; data on household budgets and the degree of sharing of household income and expenditure by gender; and sex-disaggregated data on both formal and informal employment.

The analysis of tax impacts is a complex task and would require significant investment of resources and time. A thorough analysis of the gender impact of taxation requires consideration of both direct and indirect effects. It should also be paired with a gender analysis of expenditures to properly identify the full gender-differentiated cost-benefit ratio of public policy.

The type and reliability of available data drive the methodology chosen in all tax policy analysis. If the aim of the analysis requires a level of accuracy which cannot be achieved with available data, interim strategies must be devised to produce the needed data. More descriptive methodologies can be used in the short term.

The most appropriate methodology for gender revenue analysis will depend on the following interacting considerations:

- The goal of the analysis and its expected policy impact;
- The type of gender bias, i.e. whether it is explicit or implicit;
- The data available;
- The degree of accuracy expected;
- The cost-benefit ratio of performing the analysis.

The first goal of gender revenue analysis should be to eliminate explicit bias by removing legal inequities in the tax system. The methodology appropriate for this goal is a detailed legal review of the tax laws to reveal bias and proposals for statutory changes.

The second goal should be to reduce or eliminate implicit bias in tax policy. Attaining this goal may require complex methodologies and significant investment, so the cost-benefit should be evaluated on a case-by-case basis. For example, implicit bias in personal income tax marginal tax rates (the 'marriage tax'), or in the allocation of deductions and credits between husband and wife, would ideally require simulation modelling. Analysis of the incidence by gender of consumption taxes, or of other taxes that are passed on throughout the economy, would require macrosimulation or general equilibrium modelling. Analysis of implicit gender bias could also benefit from new theoretical work on household bargaining models. Pilot studies in selected countries would be a very useful next step.

A third goal for gender revenue analysis might be to advance gender mainstreaming in the public sector. In this case, descriptive methodologies that are low-cost but serve to raise awareness may be the best approach. Gita Sen (2000) discusses a number of methodologies for gender mainstreaming in ministries of finance that could be adapted for this purpose.

Finally, there could be an attempt to improve public sector equity and efficiency by advancing understanding of the impacts of public policies on both women and men. This goal could be met by some of the participatory methodologies used for gender expenditure analysis, and revenue analysis could perhaps be integrated into existing procedures. Tax literacy can be beneficial for civil society and women's organisations, and gender sensitisation is especially important for tax planners and staff who work in ministries of finance in all countries.