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Tax-benefit microsimulation modelling in Mozambique

A feasibility study

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Abstract: This paper assesses the feasibility of developing a tax and benefit microsimulation model in Mozambique. Mozambique's National Development Strategy 2015–35 commits to providing social security to three-quarters of poor and vulnerable households by 2035. Tax–benefit microsimulation can be used to explore ways in which this goal could be achieved as well as the distributional impact of implementing more comprehensive social security arrangements. The paper presents an account of Mozambique's tax and benefit arrangements as well as a possible underpinning dataset—the Household Budget Survey (Inquérito ao Orçamento Familiar)—for a tax and benefit microsimulation model.

Keywords: tax, benefits, microsimulations, revenue
JEL classification: E620, H240

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Acronyms

ACIS	Commercial, Industrial and Services Association (*Associação de Comércio, Industria e Serviços*)
AT	Mozambican Tax Authority (*Autoridade Tributária de Moçambique*)
BSSP	Basic Social Subsidy Programme (*Programa do Subsídio Social Básico*), a sub-programme of DSA
DSA	Direct Social Action (*Acção Social Directa*)
DSSP	Direct Social Support Programme (*Programa Apoio Social Directo*), a sub-programme of DSA
GdM	Government of Mozambique (*Governo de Moçambique*)
GDP	Gross Domestic Product
HHD	Household
ILO	International Labour Organization
INAS	National Institute of Social Action *(Instituto Nacional de Acção Social*)
INE	National Institute of Statistics (*Instituto Nacional de Estatística*)
IOF	Household Budget Survey (*Inquérito aos Orçamentos Familiares*)
IRPC	Corporate Income Tax (*Imposto sobre o Rendimento das Pessoas Colectivas*)
IRPS	Personal Income Tax (*Imposto sobre o Rendimento das Pessoas Individuais*)
MMAS	Ministry of Women and Social Action (*Ministério da Mulher e Acção Social*)
MPD	Ministry of Planning and Development (*Ministério da Planificação e Desenvolvimento*)
MPF	Ministry of Planning and Finance (*Ministério do Plano e Finanças*)
Mt	Metical
NBSSS	National Basic Social Security Strategy (*Estratégia Nacional de Segurança Social Básica*)
NISS	National Institute for Social Security (*Instituto Nacional de Segurança Social*)
PdM	Parliament of Mozambique (*Parlamento de Moçambique*)
PSU	Primary sampling unit
PSA	Basic food subsidy program (*Programa de Subsídio de Alimentos*)
SADC	Southern African Development Community
VAT	Value-Added Tax (*Imposto sobre o Valor Acrescentado*)
WFP	World Food Programme

1 Introduction

This report presents the findings from a feasibility study on the potential for developing a static tax-benefit microsimulation model for Mozambique. The feasibility study was undertaken as part of UNU-WIDER's research project. The study was jointly undertaken by researchers from Southern African Social Policy Research Insights (SASPRI) and Mozambique.

This report focuses first on the details of the tax-benefit system (Sections 2 and 3) and possible data sources (Section 4), building on information collected in the initial scoping study of all countries in the Southern African Development Community (SADC) and East African Community (Wright et al. 2015). The report concludes with an assessment of the feasibility of producing a tax-benefit microsimulation model and its future sustainability (Section 5).

In Sections 2 and 3 the tax and benefit systems are described with the aim of providing an overview of the different tax and benefit instruments in the country. Although it will not be possible to simulate all instruments, it provides an important context about the characteristics of the system and the relevance of the different instruments (e.g. in terms of relative spending or revenue or coverage of the population).

1.1 Policy overview

Mozambique is defined as a low income country by the World Bank and a low human development country by UNDP, but its economy has been growing at about 7 per cent a year on average since 1997 (World Bank 2016).

The country has a population of just under 26 million people. Life expectancy at birth is 50.3 years, and the median age of the population is 17.3.[1] Sixty per cent of the population live below US$1.25 per day. Poverty headcount in Mozambique evolved from 69.4 per cent in 1996–97 to 54.1 per cent in 2002–03 and 54.7 per cent in 2008–09 (MPD 2010). The poverty line at the time of the latest survey conducted in 2008–09 was 18.40 Meticais (Mt). The Gini coefficient was 0.40 in 1996–97, 0.415 in 2002–03 and 0.414 in 2008–09. An alternative and higher Gini coefficient has been estimated using the 2008–09 household budget survey results, in a more recent study (Arndt et al. 2014).

The unemployment rate was estimated to be 22.5 per cent in 2012 (INE 2013). This definition includes occasional workers without a regular job, non-agricultural/self-employed workers without a regular job, agricultural and self-employed workers with a regular job but without carrying out activities in the recent period.

However, there is a strong commitment to reduce the levels of poverty in Mozambique. For example, Mozambique's National Development Strategy 2015–35 commits to providing social security to 75 per cent of poor and vulnerable households by 2035 (United Nations Mozambique 2015: 13). In addition, Mozambique is a flagship country for the One UN Initiative, which emphasizes the importance of coordination across different UN agencies when interacting with the government of a country. The collaborations around the development of a social protection floor are considered to be a 'best practice' example of this initiative (United Nations Mozambique 2015: 7).

[1] http://hdr.undp.org/en/countries/profiles/MOZ

Regarding tax policy, Section 2 provides an overview of a progressive tax system for personal income tax (*Imposto sobre o Rendimento das Pessoas Individuais*—(*IRPS*), and a proportional tax system for corporate income tax (*Imposto sobre o Rendimento das Pessoas Colectivas*—*IRPC*), (ACIS et al. 2011). The fiscal year coincides with the calendar year, with regulated exceptions (PKF 2014). Changes in tax values tend to apply to a new fiscal year (GdM 2008a). Municipal tax rates on property may vary depending on the municipality.

Tax values can be adjusted annually by a ministerial diploma. These changes can also occur through changes in the law or by government decree. However, there is no explicit and transparent indexation to inflation for the main taxes, personal and corporate.

In the 1990s and 2000s, tax exemptions tended to reduce the tax burden on large size companies (Byiers 2005). Therefore, these exemptions on large companies created a distortion equivalent to a higher tax burden on small and middle size companies, which did not benefit as much from it. More recently, from 2007 onwards these exemptions tended to be reduced with the updated legislation on mineral resources, natural gas and oil exploration as well as the legislation on public–private partnerships (PdM 2007a, 2007b, 2007c, 2011).

1.2 Definitions

The official working age in Mozambique is 18 years old (PdM 2007d). The Labour Law allows young people to be working at the age of 15 up to 17 years old, as long as they do not work more than 38 hours a week and seven hours a day.

Female workers are entitled to state pension at the age of 55 and male workers at the age of 60, or after 35 working years (PdM 2009a).

Children start school at the age of six. The National Education System defined seven years of primary education the minimum number of schooling years (PdM 1992).

The *IRPS* law 33/2007 defines dependent members of the family as: those under 18 years old according to Labour Law; family members up to 25 years old who are working and earning less than the annual highest minimum salary, or are also studying or in the military service (PdM 2007e). Other specific categories apply to this definition of dependent members of the family.

Lone parents do not receive special tax benefits, according to clause 18 of the *IRPS* law (PdM 2007e). The benefits accrue as the number of dependent family members increases (PdM 2013). People receiving a pension as retired workers, invalids, or surviving members of the family do not pay personal tax (PdM 2007e). Companies' expenditures on social services and leisure activities for workers are eligible for tax reductions.

2 The tax system

The Mozambican tax system was strengthened by the general tax legislation and the creation of the Tax Authority in 2006 (PdM 2002, 2006a, 2006b). The new institution allowed a deepening of the taxation reform, including the approval of new and updated legislation, an expansion of the tax basis and the increase in the proportion of total state revenues over the Gross Domestic Product (GDP) from 12.4 per cent in 2004 to 26.2 per cent in 2013. Significant challenges remain, including the need to continue to expand the tax basis, diversifying revenue sources and allowing the formal sector to expand while fulfilling its tax responsibilities. Table 1 presents state revenues by main category source, in recent years.

Table 1: Summary table for tax revenues (10* Mt)*

Tax category \ Year	2011	2012	2013
Personal income (*IRPS*)	10,584	12,007	14,841
Corporate income (*IRPC*) /**	14,238	24,707	34,471
Value added	29,519	32,073	38,704
Specific Consumption (Excise): Domestic	2,917	3,044	3,452
Specific Consumption (Excise): Imports	1,325	1,797	2,713
Customs duties	6,728	7,538	9,745
Other taxes	2,829	3,207	3,544
Other revenues	12,795	14,021	18,776
Total state revenues	80,935	98,394	126,246
Total state revenues/GDP (%)	21.2	22.7	26.2

Notes: * Nominal exchange rate Mt/US$, annual average in years 2011–14: 29.07, 28.37, 30.10, 31.35 (IMF 2016); /** Includes revenues from capital gains regarding coal and natural gas companies, for 2012 and 2013.

Source: GdM (2012, 2013, 2014).

The numbers of taxpayers by tax category are presented in Table 2.

Table 2: Number of tax payers by tax category (2013 and 2014)

Tax category \ Year	2013	2014
Personal income (*IRPS*)	129,025	138,364
Corporate income (*IRPC*)	44,378	48,175
Value added	246,197	255,110
Vehicle Tax (*Imposto sobre Veículos*)	9,469	9,632
Property registration	629	361
Inheritance and gift	304	190
Other taxes	122,303	124,748

Source: AT (2015a).

The Tax Authority report for 2014 indicates that 3,252,554 taxpayers have been registered since 1999 (AT 2015b). Of these, 272,314 were economically active. Of the economically active, 110,967 fell under the general tax regime (of which 45,500 economically active people were included on the normal Value-added Tax (VAT) regime, 34,900 on the simplified VAT scheme, and 30,500 on the VAT exemption regime) and 161,347 were taxed under the simplified tax on small contributors (*Imposto Simplificado para Pequenos Contribuintes*) regime.

2.1 Direct taxation

Personal Income Tax (*IRPS*) and Corporate Income Tax (*IRPC*) are the main direct taxes on income and wealth regulated by:

- Law n. 33/2007, Decree n. 8/2008, and Law n. 20/2013 for *IRPS* (PdM 2007e; GdM 2008a; PdM 2013); and
- Law n. 34/2007, Decree n. 9/2008, and Law n. 4/2012 for *IRPC* (PdM 2007f; GdM 2008b; PdM 2012a).

IRPS includes five categories:

- Wages and salaries;
- Income from companies and professional activities, including from self-employment;
- Capital income and gains, including distributed interests and profits, revenues from property sales;
- Real estate income, including property rents,
- Other sources of income like lottery.

From 2014 onwards, employment taxable income (wages and salaries) has been treated separately from other *IRPS* categories (PdM 2013). The due tax value is withheld at the source, i.e., payed to the Tax Authority by the employer. At the end of the year there is no additional tax to be paid or returned to the taxpayer. Married couples should file tax forms separately. Taxable income which is subject to flat rates (*taxa liberatória*) and benefiting from exemptions is also treated separately from other *IRPS* categories. The minimum amount to be taxed or reimbursed is 500 Mt.

Taxable income is deducted in the following situations:

i. Employment income is deductible by the amount of labour union contributions and compensation by employee to employer when terminating unilaterally the employment contract;
ii. Following contributions should be deducted from the taxable income:
    a. Pension, invalidity, or survival;
    b. Social benefits and leisure activities;
    c. Professional training;
iii. Death subsidy is not subject to income tax (new, after 2014);
iv. Personal income less or equal to Mt225,000 is deducted from the taxable income (this value is applied from 2014 onwards).

Annually, each single taxpayer can deduct from the taxable income:

i. The value of Mt1,800;
ii. The value of Mt 600, Mt 900, Mt1,200, and Mt1,800 if the family has one, two, three, or four and more dependent members, respectively.

IRPS is a progressive tax with the following rates summarized in Table 3, referring to the 2014 fiscal year. Using the example of a taxpayer without dependents earning a monthly salary of Mt25,000, the tax contribution is calculated through the formula:

Mt25,000 (salary)

Mt22,250 (lower limit at the given interval)

= Mt2,750

X 0,15 (coefficient)

= Mt412,50

\+ Mt200 (*IRPS* value to be retained, for zero dependents)

= Mt612,50 (monthly tax value to be withheld).

Table 3: Tax rates and retained values by income interval

Gross monthly taxable income, in Meticais (intervals)	IRPS value to be retained, according to number of dependent family members (Meticais)					Tax rate (coefficient)
	0	1	2	3	≥ 4	
≤ 20,249	-	-	-	-	-	-
20,250 - 20,749	0	-	-	-	-	0.10
20,750 - 20,999	50	0	-	-	-	0.10
21,000 - 21,249	75	25	0	-	-	0.10
21,250 - 21,749	100	50	25	0	-	0.10
21,750 - 22,249	150	100	75	50	0	0.10
22,250 - 32,749	200	150	125	100	50	0.15
32,750 - 60,749	1,775	1,725	1,700	1,675	1,625	0.20
60,750 - 144,749	7,375	7,325	7,300	7,275	7,225	0.25
≥ 144,750	28,375	28,325	28,300	28,275	28,225	0.32

Source: PdM (2013).

For the following cases specific tax rates are applied, as indicated:

i. Income for non-residents is taxed with a flat rate of 20 per cent (*taxa liberatória*);
ii. Share income is taxed with a flat rate of 20 per cent (*taxa liberatória*);
iii. Interests on savings accounts, income from investment in the Mozambican Stock Exchange, income from lottery and from art activities are taxed with a flat rate of 10 per cent (*taxa liberatória*);
iv. Income from agricultural and livestock activities is taxed with a 10 per cent rate;
v. Capital income and the 4th category (property rent income) for the entities with organized accounting system should withhold a flat rate of 20 per cent (*taxa liberatória*); for the 4th category case, the taxpayer can deduct 30 per cent of its taxable income for maintenance and conservation expenses.

By way of background, in the period before 2014 the Tax Authority applied the rates and respective rebate values as shown in Table 4 (now no longer applicable—see Table 3). Personal taxable income was globalized for all categories mentioned above. For the cases where the tax withheld was higher than the due tax, the taxpayer could apply for the reimbursement of the difference. For the opposite case, the taxpayer had to pay for the difference.

Table 4: Tax rates and rebate values by income interval

Gross annual taxable income, in Mt (intervals)	Tax rates (%)	Rebate (Mt)
0–42,000	10	-
42,001–168,000	15	2,100
168,001–504,000	20	10,500
504,001–1,512,000	25	35,700
> 1,512,000	32	141,540

Source: PdM (2007e).

IRPC is applied to following entities, according to PKF (2014) simplified version:

i. Resident corporations, including unincorporated entities, on their worldwide income, whose main activity is commercial, industrial or agricultural;
ii. Non-resident companies with a permanent establishment in Mozambique on the income attributable to this establishment, and which are not subject to personal income tax;
iii. Non-resident companies with no permanent establishment in Mozambique on income deemed to be obtained in Mozambique: capital gains, dividends, interests, royalties, services, and rents (PKF 2014; ACIS et al. 2011; EY 2015).

IRPC is a proportional tax on profits at a standard rate of 32 per cent (PdM 2007f; ACIS et al. 2011; EY 2015). A different rate is applied to special cases. For agriculture and livestock activities a 10 per cent tax was applied, and was valid until 31 December 2015 (PdM 2012a). Non-documented expenses and income from confidential or illicit transactions are taxed at 35 per cent (PdM 2007f).

'Income earned by non-resident companies or other entities without a head office, effective management control or a permanent establishment in Mozambique is generally subject to withholding tax at a rate of 20%' (EY 2015, page 950). When this type of company derives income from telecommunications and transportation international services including equipment assembly and installation a tax rate of 10 per cent is withheld (PdM 2007f). Income from the shares at the Mozambique Stock Exchange is subject to a 10 per cent tax rate.

The following categories of income are subject to withholding tax at a 20 per cent rate, when derived from:

- The use of intellectual or industrial property, and the provision of information based on industrial, commercial, or scientific sectors experience;
- The use or rental of industrial, commercial, or scientific equipment;
- Other capital applications not included in the two above paragraphs, or real estate renting, as defined for *IRPS* purposes when the tax payer is subject to *IRPC* or when the income is a cost from commercial, industrial or agricultural activities developed by *IRPS* taxpayers;
- Remunerations as board members of collective or other entities;
- Prizes received in gambling, lottery, raffle and joint betting, and other prizes defined by the Social Entertainment Games Law (Law n.9/94 from 14 September);

- Income from public shows or sports events organized by non-residents in Mozambique, for *IRPC* taxpayers, or *IRPS* taxpayers related to commercial industrial or agricultural activities with organized accounting;
- Income from intermediation in business contracts or from providing other services in Mozambique (PdM 2007f).

For the cases of International Double Tax Treaties, the tax rate withheld is lower than 20 per cent. According to an Ernst & Young publication (EY 2015), currently Botswana, India, Italy, Macau Special Administrative Region (SAR), Mauritius, Portugal, South Africa, United Arab Emirates, and Viet Nam have double tax treaties with Mozambique.

Investors can apply for tax benefits according to the Tax Benefit Code (PdM 2009e). This law considers fiscal generic benefits for new investments, for the following cases of deducting expenses from taxable income for *IRPC* (or *IRPS*, for the second income category) payment purposes (PdM 2009e):

- 5 per cent of the total investment value is deducted in the first five years of construction, when located in Maputo city and 10 per cent in all other provinces;
- Increase the normal rates of buildings and equipment depreciation by 50 per cent;
- Investment in equipment that will be operating with new technologies benefit from 10 per cent reduction of the total investment in the first five years of construction;
- Investment in training Mozambicans benefit from 5 per cent reduction of the total investment in the first five years of construction;
- Investment in training Mozambicans to operate new technology equipment benefit from 10 per cent reduction of the total investment in the first five years of construction;
- Investments in public infrastructures benefit from 110 per cent deduction of the total investment value when located in Maputo city and 120 per cent when located in all other provinces in the first five years of construction;
- Expenses on Mozambican art and cultural manifestations benefit from a reduction in 50 per cent of the total investment value in the first five years of construction.

The Tax Benefit Code also considers specific and complementary benefits, as well as benefits for investors operating in rapid development zones, industrial free zones, and special economic zones (PdM 2009e; ACIS et al. 2011). Tax benefits accruing for companies extracting mineral resources, natural gas and oil are considered in specific legislation (PdM 2007a, 2007b, 2007c).

When tax liability is less than tax paid, the taxpayer can apply for a refund (MPF 2005; GdM 2010b).

Simplified tax on small contributors is another direct tax for small businesses earning an annual gross revenue equal or smaller than Mt2.5 million (PdM 2009b). The annual tax value to be paid is Mt 75,000 or a 3 per cent tax rate on total annual income.

Special tax on gambling is a third category of direct tax. Revenues for this tax are negligible.

The special tax on gambling is dealt in the concession agreement, as follows:

- 20 per cent for a concession period from 10 to 14 years;
- 25 per cent for a concession period from 15 to 19 years;
- 30 per cent for a concession period from 20 to 44 years;
- 35 per cent for a concession period from 25 to 30 years (ACIS et al. 2011).

2.2 Indirect taxation

Indirect taxes are applied to expenditures: VAT (*Imposto sobre o Valor Acrescentado*)), Excise tax (*Imposto sobre Consumos Específicos*), Customs duties (*Direitos Aduaneiros*) and Tax on petroleum products. These are the main indirect taxes categories.

The VAT rate is 17 per cent (PdM 2007g; GdM 2008c; PdM 2009d; PdM 2012b). Economic agents under the simplified tax regime are taxed at a rate of 5 per cent. VAT is applied both on domestic transactions and on imports. The VAT exempted transactions are summarized here.

Health related transactions VAT exempted:

- Health and sanitary services provided in hospitals, health centres and related facilities;
- Provision of health equipment to patients;
- Transmission of human organs, blood, and milk;
- Transportation of patients;
- Provision of mosquito nets;
- Provision of medicines.

Provision of goods and services by public or not-for-profit entities VAT exempted:

- Social assistance and provision of related goods;
- Security services;
- Care services for children, deficient people, and old people;
- Artistic and sports activities;
- Visits to museums, parks, and similar sites;
- Spiritual assistance;
- Activities developed by associations of various natures.

Education and professional training services VAT exempted:

- General education services;
- Professional training;
- Personal training.

Other VAT exempted services:

- Bank and financial services;
- Housing renting (residential);
- Renting for commercial, manufacturing, and other services activities in rural areas;
- Insurance and related services.

Provision of goods and services related to agricultural, forestry, livestock and fishing activities, including basic transformation developed at production areas, are VAT exempted.

Transactions of other goods and services VAT exempted:

- Gambling and social entertainment;
- Cultural and artistic activities;
- Maize flour, rice, bread, iodate salt, powder milk for babies up to one year old, wheat, wheat flour, natural or frozen tomato, potato, onion, frozen horse mackerel, illumination oil, jet fuel, common bicycles, and condoms;
- Transactions of military equipment and materials for the army;
- Transactions of feed products, including raw materials for feed production;
- Transactions of equipment, seed, fertilizers, and all production inputs (please see list in Annex 1 of PdM 2007g);
- Transactions of medicines for livestock;
- Stamps to be used by the post office services;
- Public garbage services;
- Funeral and cremation services.

Transactions of goods and services VAT exempted (valid until 31 December 2015):

- Sugar;
- Raw materials, intermediate goods, equipment, parts, and spare parts utilized in the sugar production;
- Edible oil and soaps;
- Other products resulting from the activity developed by edible oil and soaps' producers;
- Raw materials used by edible oil and soaps' industries (please check Mozambican Customs code);
- Transactions of goods and services related to agricultural production of sugar cane for the industry.

VAT exemptions on imports are listed in the text law and regulation (PdM 2007g; GdM 2008c; PdM 2012b). Exports of goods and services, similar transactions, and international transportation using national territory are VAT exempted. Special customs and fiscal regime, like for rapid development zones, industrial free zones, special economic zones, and extraction of mineral resources, natural gas and oil are regulated in specific legislation.

Special cases regarding taxable income, for VAT purposes:

- For transactions of fuel products, the 'tax on fuel' is not included in taxable income;
- For electric energy, taxable income is calculated on 62 per cent of invoice value;
- For aeronautical taxes, taxable income is calculated on 85 per cent of invoice value;
- For roads, bridges, water supply infrastructure, and rural electricity construction and rehabilitation public works, 60 per cent is deducted from the tax value;
- On diesel purchase, 50 per cent of the tax value is deducted.

Economic agents with an annual turnover equal or less than Mt750,000 without organized accounting and not importing or exporting, are VAT exempted (PdM 2007g). Economic agents with an annual turnover more than Mt750,000 and less or equal to Mt2.5 million, without organized accounting and not importing or exporting, should pay 5 per cent of taxable income.

Excise tax is applied to domestic transactions and imports (PdM 2009c; PdM 2012c) of goods such as tobacco, alcohol, jewellery, and vehicles. These taxes are defined as ad valorem and vary between 5 and 75 per cent. A simplified list of goods is presented here, for each level of excise tax rate (for details, please see PdM 2009c):

- 5 per cent: electric spark vehicles with engine cylinders' between 1,000 and 1,500 cm^3, diesel and semi-diesel vehicles with engine cylinders' with less than 1,500 cm^3;
- 10 per cent: roots and tuber beer;
- 15 per cent: cheap costume jewellery, special vehicles for golf fields and similar uses, motorcycles with engine cylinders' between 250 and 500 cm^3, trailers for housing or camping, flowers and related articles made of plastic or other materials, shampoos, coins not in use;
- 30 per cent: feed for cats and dogs, perfume, eau de toilette, cosmetic products for the skin, lacquer and similar products, after-shave, bath minerals, deodorants, garments made of animal skin, cargo vehicles, guns and rifles including of air and gas, paintings, drawings, pictures, sculptures, antiques with more than 100 years old;
- 35 per cent: vehicles for transporting 10 or more passengers, electric spark vehicles with engine cylinders' between 1,500 and 3,000 cm^3, diesel and semi-diesel vehicles with engine cylinders' with more than 1,500 cm^3, motorcycles with engine cylinders' more than 500 cm^3, balloons, airships, dirigibles, wings, yachts, motor boats, canoes, kayaks;
- 40 per cent: malt beer, cider and similar drinks, non-denatured ethyl alcohol (more than 80 per cent vol.), electric spark vehicles with engine cylinders' more than 3,000 cm^3;
- 50 per cent: pearls, diamonds, precious and semi-precious stones, synthetic stones, common metals covered with layers of silver, gold, platinum and related materials, common metals, silver or gold covered with a platinum layer, metallic jewellery, metallic goldsmithing;
- 55 per cent: wine, vermouth, liqueur, other alcoholic drinks (with less than 8.5 per cent vol.);
- 65 per cent: denatured ethyl alcohol (more than 80 per cent vol.), non-denatured ethyl alcohol like whiskey, rum, gin, vodka, etc. (less than 80 per cent vol.);
- 75 per cent: cigars, cigarettes, tobacco.

Customs duties are applied to imported and exported goods (GdM 2002; PdM 2009d). Mozambique is in the process of liberalizing trade with SADC countries, in particular with South Africa until the end of 2015. For the rest of the world the tax rates are as follows: basic goods 0 per cent; raw materials 2.5 per cent; capital goods and fuel 5 per cent; intermediary goods 7.5 per cent; and consumption goods 20 per cent (Bolnick and Byiers 2009).

Tax on petroleum products is applied to diesel, gasoline (Ron 9 and unleaded), cooking gas, avgas, jet fuel, and fuel oil (GdM 2003); this tax is applied to a unit of product, for each specific product.

The Tax Benefit Code also considers customs duties and VAT exemptions for the following cases related to equipment imports of the 'K' category: related parts and spare parts (PdM 2009e):

- new investment projects;
- investment in public infrastructures, by private or public–private partnership projects;
- commercial and manufacturing investments in rural areas;
- manufacturing investments;

- agricultural and aquaculture investments;
- tourism and related activities;
- scientific research, and information and communications technology;
- large investments, with Mt12.5 million and above;
- investments in rapid development zones, industrial free zones, and special economic zones.

Manufacturing investments are customs duties exempted when importing raw-materials (PdM 2009e).

Other taxes contribute with lower proportions to revenue collection: stamp duty, national reconstruction, fishing licences, inheritance and gift tax, and others. Property transfer, royalties, and surface tax are becoming very relevant with the expansion of coal and natural gas exploration.

Other revenues are non-tax revenues, consigned revenues, own revenues, and capital revenues.

There are a number of municipal taxes: personal, vehicle, property, property transfer, contribution for infrastructure improvement, levies for issuing operating licenses, tariffs and charges for the provision of municipal services (Bolnick and Byiers 2009; ACIS et al. 2011).

2.3 Tax relief arrangements for private pensions and/or private healthcare

Social protection law and compulsory social security regulation define that both the employer and the employee have to pay for the compulsory social security contribution (PdM 2007h; GdM 2007). Currently, the employer contributes 4 per cent and the employee 3 per cent of the total remuneration (ACIS et al. 2011). The cost correspondent to 4 per cent or any other expenditure on pension funds or social utility activities should be deducted from the revenues, in order to estimate the taxable income.

In the *IRPC* code, medical and medicinal expenditures on prevention and assistance of HIV-AIDS patients are considered costs for employers (PdM 2007f). Expenditures with pension funds or life insurance are considered costs to be deducted from total revenues, in order to obtain the taxable income. Of these type of expenditures, up to 10 per cent of total expenditures with personnel can be considered costs, i.e. in the category of salaries, remunerations, and social benefits. When workers do not benefit from discounts for the social security fund, expenditures mentioned in the paragraph above can go up to 20 per cent, as costs to be deducted.

3 Mozambican benefit system

3.1 Social protection legal framework and government actions

The legal framework on social protection in Mozambique was approved by Law n. 4/2007 of 7 February. Under this law, the social security system is structured in three different levels namely: Basic Social Security (*Segurança Social Básica*); Compulsory Social Security (*Segurança Social Obrigatória*); and Complementary Social Security (*Segurança Social Complementar*).

Following on from this, the government approved the regulation of the Basic Social Security sub-system (*Subsistema de Segurança Social Básica*) by Decree n. 85/2009 of 29 December. The approved regulation establishes the rights of the most vulnerable target groups and sets the types of benefits for those target groups, such as:

- **Risk allowances** *(prestação de risco)*: support in goods, products, payment services, financial values, to mitigate risks or ensure survival and regular monetary social transfers;
- **Provision of social support** *(prestação de apoio social)*: social transfer for a fixed term and social insertion programmes through work.

For the operation of the regulation of the Basic Social Security sub-system, the Government approved through the Resolution of Cabinet n. 17/2010 of 27 May, the National Basic Strategy for Social Security (NBSSS) (*Estratégia Nacional de Segurança Social Básica*) for the period 2010–14. The NBSSS operates in four keys areas which are associated with specific institutional responsibilities:

1. **Direct Social Action** (*Acção Social Directa*) includes:
    a. Unconditional regular cash transfers—Basic Social Subsidy Programme (BSSP) (*Programa do Subsídio Social Básico)*;
    b. Social transfers for a specified time—Direct Social Support Programme (DSSP) (*Programa Apoio Social Directo)*; and
    c. Social welfare services—Programme of Social Services of Social Action (*Programa dos Serviços Sociais de Acção Social*);

    Coordination is the responsibility of the former Ministry of Women and Social Action (*Ministério da Mulher e Acção Social—MMAS*) now the Ministry of Gender, Children and Social Action (*Ministério do Género, Criança e Acção Social*), whilst the implementation is conducted by its subordinate institutions including the National Institute of Social Action *(Instituto Nacional de Acção Social—INAS)*, Civil Society Organizations, and faith-based organizations.

2. **School Social Action Fund** (*Acção Social Escolar*) covers actions that have the objective of promoting the participation of the most vulnerable pupils/students in the education system. The responsibility of implementing the Student Welfare is the former Ministry of Education, now the Ministry of Education and Human Development (*Ministério da Educação e Desenvolvimento Humano*), in coordination with *MMAS* and its subordinate institutions.
3. **Health Social Action** (*Acção Social da Saúde*) includes actions with the objective of improving the quality of health of the most vulnerable populations, with special emphasis on promoting access to basic healthcare. The responsibility of implementation is under the Ministry of Health (*Ministério da Saúde*) in coordination with *MMAS-INAS*;
4. **Productive Social Action** (*Acção Social Produtiva*) was designed to cover activities that aim to promote the socioeconomic inclusion of vulnerable populations with the physical ability to work. The NBSSS suggested that it was drawn up as a National Programme for Productive Social Action which should include initiatives from different sectors. The coordinating responsibilities of this component were to be shared between *MMAS* and other ministries.

In order to assist the implementation of NBSSS, the numbers of beneficiaries were estimated as well as the total resources needed, as presented in Table 5 for two of the key areas.

Table 5: Projected beneficiary and estimated costs for Direct Social Action and Productive Social Action for 2010–14

		2010	2011	2012	2013	2014
Direct Social Action	*Beneficiary HHD*	306,221	410,668	515,993	621,110	726,291
	Amount to allocate (10^6 Meticais)	980	1,269	1,569	1,866	2,164
	% needed in State Budget	1.1	1.32	1.56	1.77	1.96
Productive Social Action	*Beneficiary HHD*	43,818	87,636	131,455	175,273	219,091
	Amount to allocate (10^6 Meticais)	44.9	89.9	134.8	179.7	224.6
	% needed in State Budget	0.05	0.09	0.13	0.17	0.20

Source: GdM (2010a).

The implementation of the NBSSS was expected to cover 945,382 households by 2014 for these two key areas, and it was estimated to cost a total amount of Mt2, 388.83 million (2.16 per cent of state budget). Analyzing the disaggregated data, the major amount was expected to benefit households with elderly, disabled and chronically ill patients through regular money transfer, see Table 6.

Table 6: Projected beneficiaries and percentage of budget allocated disaggregated by type of programme in 2014

Type of programme		Number of households	% of the state budget allocated
Direct Social Action	Regular Money Transfer	311,000 HHD* (HHD with elderly, disabled and chronically ill patients)	1.31
		166,000 HHD (5% of HHD with Orphans and Vulnerable Children)	0.42
	Non-monetary Social Transfer for fixed term	33,512	0.19
'Support of Social Units', which includes School Social Action and Health Social Action		2,351	0.04
Productive Social Action		219,000	0.2

Note: * Reviewed target in operation plan for 2011. The initial target in NBSSS 2010–14 was 523,000 HHD (54% of HHD with elderly, disabled, and chronically ill patients).

Source: GdM (2010a).

Following the adoption of the new package of basic social security programmes through Decree n. 52/2011 of 12 October, there was an annual review of the allowance for each sub-programme. Thus, for the materialization of the Decree, the value of Social Basic Allowance in BSSP rose from Mt130.00 in 2012 to Mt250.00 per person in 2013, and from Mt380.00 to Mt500.00 per household with five or more members. The value of the food kit in the DSSP increased from Mt980.00 in 2012 to Mt1,200.00 in 2013 representing an increase of 22.5 per cent.

Despite the expansion of the coverage of basic social security programmes (number of beneficiaries and special coverage), and the increase in budget allocated to social protection there are still some challenges in terms of insufficient coverage, see Table 7.

Table 7: Beneficiaries households of *INAS* programmes and evolution of state budget allocated to *INAS* programmes and social protection as percentage of GDP (2010–14)

	2010	**2011**	**2012**	**2013**	**2014**
Beneficiary HHD covered by *INAS* Programmes	254,000	287,000	339,736	355,500	439,144
Budget Allocations to *INAS* Programmes (% of GDP)	0.23	0.21	0.24	0.34	0.50
Budget allocated to Social Protection (% of GDP)*	0.34	0.41	0.96	1.04	1.22

Note: *It includes social subsidies for minimization of populations living costs.

Source: ILO et al. (2014), GdM (2011, 2012, 2014).

The World Bank also observed in 2012 that:

> Available information suggests that spending on social assistance in Mozambique is lower than the average for the other Sub-Saharan African countries', with a third of costs for Direct Social Action (DSA) being covered by external resources (pp. 78–79).

It is also acknowledged that:

> Generally, the major social assistance programs in Mozambique have low coverage relative to the number of individuals at risk […] Those who remain largely uncovered by the [social protection] system in Mozambique are poor families with children, young people, and the working poor, particularly those facing recurrent weather-related shocks. (World Bank 2012: 83).

So, for example, it was estimated at the time that five million households were eligible for Direct Social Action (DSA) in 2010 and yet coverage only extended to 26,628 households (World Bank 2012: 82). Hodges and Pellerano (2010) undertook a detailed study of the social protection system for UNICEF Mozambique and highlighted the fragmented nature of provision. Since then the International Labour Organisation (ILO) and others have worked closely with the Government of Mozambique to develop further the vision for comprehensive social security (Cunha et al. 2032; United Nations Mozambique 2015).

More recently, taking into account the actual situation of basic social security in Mozambique the authorities have decided to prepare a new strategy on basic social security for 2015-2019, the NBSSS II. The proposal of NBSSS II was submitted in December 2015 to the Council of Ministers and it is expected to be approved in the next sessions. The new strategy will contain a vision to improve the Basic Social Security in the long term, its objectives, and the pillars. For each pillar the main actions will be presented, as well as lessons from the evaluation of the previous strategy. It will also include a review on inter-sectoral coordination, the monitoring and evaluation framework, budget and financing strategy and critical factors for success. Social security arrangements in Mozambique are therefore undergoing significant changes (United Nations Mozambique 2015).

3.2 Non-contributory benefits

The non-contributory benefits are managed by *INAS* which is a public institution under supervision of the former *MMAS).* It was created by Decree-Law 28/97 of 10 September and restructured by Decree n. 46/2005 of 22 November. The main mandate of *INAS* is to implement programmes of DSA in order to alleviate poverty in Mozambique.

As stated above, the DSA is one of the four pillars of NBSSS 2010-2014 and it includes all programmes of non-contributory social benefits to households living in poverty, such as cash transfers and transfers in kind. Transfers are provided regularly and indefinitely for households without the ability to work—mainly through the BSSP, or for a fixed period to households or individuals suffering from various types of vulnerabilities—mainly through the DSSP (Hodges et al. 2014).

The Basic Social Subsidy Programme

The BSSP consists of regular social transfers to poor households, with all its members permanently unable to work due to age, chronic illnesses or disabilities. The BSSP is actually operating in all districts and administrative posts in the country, but it does not operate in all communities and villages and so does not provide comprehensive cover.

The coverage of BSSP distribution among target groups is as follows: the majority of households (94 per cent) is selected by having elderly members, only 4 per cent by having adult members of working age disabled and unable to work, and 1 per cent by having adult members of working age with chronic degenerative diseases (INAS 2014). The low level of coverage in the last two categories are related to the weakness of mechanisms for identifying individuals and reference by health services, but is also due to the rigidity of specific eligibility criteria. (Hodges et al. 2014).[2]

The Decree n. 52/2011 which creates the programmes foresees the possibility of an annual review of BSSP amounts by the Council of Ministers, as for other social transfers. Although it has not established an automatic mechanism for updating the amount of the transfer—for example, by indexing inflation or as a proportion of the minimum wage—in practice there have been frequent adjustments.

According to the implementation manual, the amount allocated to each household has a direct relationship to household size.

The Direct Social Support Programme

The DSSP consists of transfers for a fixed term which provide in kind subsidies in response to various situations of vulnerability. The DSSP was created as a separate programme in recent times. Previously this programme had operated as a fund for emergencies, without having a specific allocation in the state budget.

[2] See also Selvester et al (2012) for a detailed study on the BSSP.

The DSSP brings together a number of different kinds of interventions and with different objectives that have in common the feature of providing in-kind support. The three subcomponents of DSSP are as follows:

- **Regular transfers to households unable to work**, consists of in-kind support through transfer of food kits to households headed by children until they reach the age of majority. This support is also given to households transitioning from the BSSP, when all the households members are bedridden; households temporarily unable to work.
- **Regular transfers in kind to poor households with adults on anti-retroviral treatment or children suffering from severe malnutrition.** The support is designed as a complementary intervention to therapeutic action against severe malnutrition carried out by health services in order to increase its effectiveness and restore the nutritional situation of the individual. This subcomponent of DSSP consists of delivering a food kit to meet the food needs of the household. It also carries out distribution of breast milk substitutes for a specified time to children, in cases where mothers have died or can't breastfeed.
- **Prompt support** multiform' to respond to shocks and specific situations of vulnerability. This category include various types of prompt transfers, including: *the distribution of means of compensation for people with disabilities*, support of transportation costs for reintegration/reunification, and funeral expenses; distribution of outfits in case of twin births or triplets; the provision of home building materials, in case of total or partial loss of it, the distribution of food kits and school supplies.

In 2013, the *INAS* approved a revision of the value and composition of the food kit distributed under the DSSP, introducing levels in order to take into account the family beneficiary household size as was the case with the BSSP. This represents an important advance in terms of equity.

These two sub-programmes of DSA registered positive results during the period of NBSSS implementation. The number of beneficiary households has increased, and also the state budget amount allocated to social protection, see Table 8.

Table 8: Summary results of implementation of Basic Social Subsidy Programme and Direct Social Programme 2010 and 2014

Type of Programme		2010	2014*
BSSP	*Number of Beneficiary HHD*	166,000	326,000
	Amount of subsidy (Meticais) (a)	130	280
DSSP	*Number Beneficiary HHD*	25,000	35,848
Amount of DSSP Subsidy (Mt) (b)	*monthly value of food kit for HHD with one member*		between 595 MT and 665 MT
	monthly value of food kit for HHD with two or three members		between 1,300MT and 1,480 MT
	monthly food kit for HHD with more than three members		between 2,220 MT and 2,550 MT
	monthly food kit from the WFP (c)		1,500 MT

Notes: a) These values relate to a household with one member.

b) There are cases which the DSSP is operated in partnership with World Food Programme (WFP). The differences in values depend on local price variations because the composition of the kits and amounts are fixed.

c) The WFP food kit does not change with the household size.

Source: Authors based on Hodges et al. (2014).

The BSSP and DSSP programmes benefit households with elderly, persons with disabilities, chronically ill patients, and malnourished pregnant women as well as vulnerable children. Individuals have to present their identification documents. They must also have resided in the place of application for assistance for more than six months, and be able to provide a certificate from the local administrative structure to this effect. Although there is a means test applicable to low income working households (World Bank 2012: 85), in practice the emphasis is on workless households (Hodges et al. 2014).[3]

The strict application of the criterion of ability to work greatly limits the number of households that can benefit from regular social transfers. So in the BSSP the eligibility criteria is mainly directed to elderly people living in poverty, in most cases living alone (men and women aged respectively 55 and 60 or over). However, 40 per cent of elderly and 75 per cent of people with chronic diseases and disabilities living in poverty have other household members with capacity for work and therefore are excluded from regular social transfers in BSSP.

Almost all (95 per cent) of the poorest children in the country are excluded from mechanisms of long-term transfers. The DSSP does assist child-headed households with in-kind subsidies, but

[3] A proxy means test was anticipated at the time of the Hodges et al. (2014) report but this does not seem to have been implemented. Please see Hodges et al. (2014) Annex 3 about the characteristics and eligibility criteria for BSSP and DSSP.

because of the nature of the target group, coverage levels are relatively small (Hodges et al. 2014).

3.3 Contributory benefits

In Mozambique the contributory benefits (*Segurança Social*) are managed by the National Institute for Social Security (NISS) (*Nacional de Segurança Social*). NISS is a public entity with legal personality, administrative and financial autonomy and its own assets. It was established under Decree n. 17/88 of 27 December and it is under supervision of Ministry of Labour, Employment and Social Security.

According to the Social Security Act, it is mandatory to register workers who are nationals and foreign residents, as well as their employers in the social security system managed by the NISS. Technically, in NISS, the employer is designated *taxpayer* and the worker is designated *beneficiary*.

Moreover the employers are responsible for the registration of workers to NISS. However, the worker can continue to pay their contributions, even when no longer employed, by way of voluntary maintenance in the system.

The global rate of contributions to the social security system is fixed at 7 per cent of total income[4] paid monthly to workers by their companies. The breakdown of the global rate of contributions between companies (taxpayers) and employees (beneficiaries) is 4 and 3 per cent respectively.

Currently, the social security assigns the following benefits: (i) sickness grants (*subsídio por doença*); (ii) death grants (*subsídio por morte*); (iii) funeral allowance (*subsidio de funeral*); (iv) old-age pension (*pensão por velhice*); (v) disability pension (*pensão por invalidez*); (vi) survivor's pension (*pensão de sobrevivência*); (vii) old-age allowance (*abono por velhice*); (viii) hospitalization allowance (*subsidio por internamento hospitalar*); and (ix) maternity allowance (*subsídio de maternidade*). There is no unemployment insurance fund.

The reported statistics show that in April of 2013 almost 45,645 taxpayers were registered (of which 21,179 were active) and there were 1,064,956 beneficiaries (of which 354,746 were active).

The difference between old-age pension and old-age allowance is as follows.

[4] Remunerations and all additional payments.

Old age pension

It is granted to the beneficiary who turns 55 years old, being a woman, or 60 years, being a man, since it cumulatively meets the following requirements:

i. they have been entered in the system for at least 20 years before applying for a pension;
ii. have completed 10 years (120 months) of contributions.

An individual is also entitled to an old-age pension when meeting the following conditions at the time of application:

i. they have been entered in the system for at least 30 years before applying for a pension;
ii. have completed 25 years (300 months) of contributions.

Old-age allowance

The old age allowance is granted in the form of a 'one-time grant', to the beneficiary who has completed 60 years of age, being a man, or 55 being a woman, but who does not meet the registration requirements of time of at least 20 years and has not completed 10 years (120 months) of contributions.

4 Data sources

4.1 Income and expenditure data

Microsimulation of the tax and benefit system in a particular country requires detailed data on individuals in terms of their demographic profile, incomes, expenditures, and household relationships. A potentially suitable data source was identified in the scoping study (Wright et al. 2015): the *Inquérito ao Orçamento Familiar* (*IOF*) or Household Budget Survey. The latest data from the *IOF* were collected in 2014–15, though at the time of writing these data were not yet available. The surveys prior to this took place in 2008–09, 2002–03, and 1996–97.

IOF 2008–09

The *IOF* 2008–09 is a cross-sectional survey which was administered to a representative sample of households in Portuguese, the Mozambican official language. The resultant data was used in the third national assessment of poverty and wellbeing in Mozambique, in which various indicators on consumption poverty were estimated (MPD 2010).[5]

The sample was drawn up on the basis of the mapping data of the 2007 General Census of Population and Housing. The sample was random and stratified and involved three selection steps: i) primary sampling unit (PSU); (ii) enumeration areas (EA) within the PSU; and iii) households within each EA. To obtain an updated sample of households, two weeks before the beginning of the interview a list of households within each EA was drawn up. The selection of households within each sample EA was made randomly and systematically with equal probabilities. Fifteen households were selected within each urban EA and 12 in each rural EA. Of these sample households in each EA, three were reserve, and therefore used under specific conditions.

[5] These data are not publicly available, so it is necessary to contact *INE* for permission to access data.

The survey response rate was estimated to be 99.9 per cent, resulting in a sample size of 10,832 households comprising 51,177 individuals. The *IOF* 2008–09 is representative below national level, for urban and rural zones and each of the ten provinces plus Maputo City.

Households are defined as people living under the same roof and eating from the same pot. The household head is identified by the household. Child-headed households are captured in the data: examination of the data reveals that 35 of the 10,832 household heads (<0.4 per cent) are aged under 18 and the youngest is 13.

Data

The *IOF* 2008–09 data were obtained from colleagues at UNU-WIDER as they are not publicly available. The survey was undertaken in Portuguese, but the questionnaires are also available in English. A report with a description of the survey data is available in Portuguese on the website of the National Institute of Statistics (*Instituto Nacional de Estatística* (*INE*)).[6] There does not appear to be any other metadata and the variables are not labelled. Some variable names and content are in Portuguese, others relate to the question number and codes in the questionnaire. It can, therefore, be difficult to navigate the numerous data files, though *INE* or the Directorate of Economics and Financial Studies in Ministry of Economics and Finance (Former Directorate of Studies and Policies Analysis of Ministry of Planning and Development) can be contacted for queries. The main user of the data collected by *INE* was the Directorate of Studies and Policies Analysis.

The data files contain weights. The sampling weights were calculated as the inverse of the probability of each household being selected. Population weights were obtained by multiplying together the household weight *hhweight* and the household size *hhsize*.

As a general rule, imputation was not undertaken on the variables.

There is information on relationship to household head and biological father/mother (including ID numbers) and therefore it will be possible to determine some relationships within the household. Others may need to be determined using a series of rules aimed at identifying the most likely relationships.

There are 13 data files in total, including a household file and an individual file. The other files largely[7] contain information on income and expenditure and have names that in general relate to sections of the (Portuguese) questionnaire (e.g. DM is *Despesas Mensais* or monthly expenses). The files can be merged together using the appropriate ID variables.[8] The information contained in the relevant files is described in Appendix A.[9]

Previous analysis of the data

MPD (2010) produced the third national poverty assessment using the *IOF* 2008–09. Analysis of poverty in Mozambique tends to be consumption-based for monetary poverty, with additional

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[6] See http://www.ine.gov.mz/operacoes-estatisticas/inqueritos/inquerito-sobre-orcamento-familiar .

[7] There is a file about tourism (*turismo*) and a file listing product codes (*Produtos*).

[8] The key variables are *ae* (PSU), *af* (household), and *no* (person number).

[9] In addition, in each file there is usually information about the interview and location including household and/or person id numbers, and weights. These variables are not mentioned each time.

consideration of education, health/nutrition and property. The Republic of Mozambique (2010) also presented analysis of the *IOF* 2008-09 within its report on the Millennium Development Goals. Arndt et al. (2013) have worked with the *IOF* 2008–09, and Arndt et al. (2015a) present analysis up to 2008–09 on consumption poverty rates in Mozambique. Arndt et al. (2015b) explore changes in relative prices of commodities consumed in different shares across income groups in Mozambique using 2002–03 and 2008–09 data. Simulations of three social security options were undertaken by Pellerano (2010) using the IOF 2002/03 and other data sources. Other publications which have made use of the *IOF* data are listed on the International Household Survey Network website.[10]

Weaknesses of the data

There is evidence of systematic underreporting of food/calorie consumption for (specific) households in certain locations, particularly the urban South.[11] Other issues with the expenditure/consumption data are a shorter than usual list of food products, and difficulty in the conversion of local quantities (e.g. a basin or can to kilograms).

The income data has not been previously analysed as it is reportedly difficult to gather the information and the data are of low quality due to under-reporting. It is difficult to determine whether this concern is any more than the usual apprehension about income data collected through surveys, particularly in developing countries. In any case, care should be taken when using the income data.

Lastly, Tvedten et al. (2009) express concern about the definition of a household. They state that the survey:

> defines the household as people living under the same roof and eating from the same pot, which does not reflect the complex realities on the ground as we have experienced them. In particular, there are many household members who do not live under the same roof but 'eat from the same pot'—including 'split households' who maintain an urban and rural unit as part of their coping strategy. In Maputo in particular, there are also people who live under the same roof but do not 'eat from the same pot' and who are not members of the same household. (p. 10).

4.2 Sources of data for uprating and upweighting

Datasets of the type required for tax-benefit simulations are rarely produced on an annual basis, and in any case, there is usually a time-lag between data collection and release. In order to be able to model current tax and benefit rules (or any year between the year of data collection and the current year) it is usually necessary to uprate the income and expenditure data collected in surveys. The Consumer Price Index (CPI) or similar is used for this purpose. Monthly CPI data is available by division from 2007–15, and by region (three representative regions—Maputo, Beira, and Nampula). The base period is December 2010.

When analysing output from the microsimulation model, it is usually necessary to take into account demographic changes since the date the survey data were collected. *INE* has population projections up to 2040 based on the last Census of Population in 2007. The Population estimates

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[10] See http://catalog.ihsn.org/index.php/catalog/2168/related_citations .

[11] See MPD 2010 page 89.

are detailed by age groups, gender, area of residence (urban, rural). The Demographic Health Survey contains more up-to-date demographic information for the period since 2007.

5 Assessment of tax-benefit microsimulation feasibility

5.1 Feasibility of building a microsimulation model

The nationally representative *Inquérito ao Orçamento Familiar* (*IOF*) 2008–09 has been identified as the best available dataset to underpin a tax-benefit microsimulation model in Mozambique (see Section 4).

In order for the *IOF* 2008–09 to relate to a 2015 timepoint optimally, it is necessary to recast the survey weights using population estimates for 2015. The income and expenditure data could be up-rated from 2010 to 2015 using the CPI.

The social security system in Mozambique has undergone significant changes and these are still underway (United Nations Mozambique 2015). The policy time-point will be June 2015, but it is likely that a number of changes will be implemented via NBSSS II. Table 9 summarizes the feasibility of simulating each tax (Section 2) and benefit (Section 3) in Mozambique.

Table 9: Simulation feasibility of taxes and benefits in Mozambique

Tax-benefit policy	Simulation feasibility
Taxation	
Personal income tax	Yes
VAT	Yes, for household expenditures
Excise Tax	Yes, for household expenditures
Other taxes	No
Contributory benefits (*Segurança Social*)	Contributions: yes, employee and employer contributions. Receipt: no, as contribution history is not known.
Non-contributory benefits	DSA has three strands: BSSP*:* yes. DSSP: it should be possible to simulate estimates of entitlement for regular in-kind support to households unable to work, though not for households containing adults on antiretroviral drugs as this is not measured in the survey, nor for those eligible for the prompt support strand of DSSP. Programme of Social Services of Social Action : not at this stage
Other: School Social Action Fund; Health Social Action; Productive Social Action	Not at this stage.

Source: Authors.

As indicated in the table, it does seem that it will be feasible to simulate eligibility for two of the three strands of DSA, at least in part. It is likely that eligibility for the DSSP could be simulated for households headed by children aged 12–18, and for households where the adults or older people are bedridden (for which a proxy indictor would need to be produced). It should be more straightforward to simulate the rules of the BSSP. The means-test for both programmes will take into account contemporary figures for the minimum wage for the relevant sectors.

There are a number of additional caveats that should be signalled here. As mentioned in the Section 4, the income data does not seem to have been analysed previously and concerns have been raised about its adequacy. The extent to which the dataset yields plausible results has not been assessed by the team, though it is very encouraging that it has already been extensively worked on (with the exception of the income data) within and outside of Government. Lastly, additional issues may only become apparent when the model is being constructed.

5.2 Long-term future of a microsimulation model

The long-term future of a microsimulation model in Mozambique depends upon the following things being in place:

- commitment to develop the model with in-country partners;
- a first draft of the model in Portuguese and English which demonstrably enables social security options to be explored by government and academia;
- a transparent user guide in Portuguese and English;
- an organization which issues user licences for the model, and liaises with users (in Portuguese and English);
- regular training events for new users in Portuguese and English;
- an organization to coordinate updates of the policies, reweight the survey weights, inflate the income data etc. each year, and add new datasets as they become available;
- users having licences for STATA or another software package with which to analyse the output data.

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Appendix A: Additional information about the *IOF* 2008/09

Information on households

Non-expenditure/consumption information on households can be found in a single file called *HHdata* (questionnaire 3). The file contains information on type of housing; ownership; material for walls/roof/floor; number of rooms; drinking water source and distance; time to walk to nearest facilities; toilet facility; source of fuel for cooking/lighting; number of meals household had yesterday; problems with food in last 12 months; adequacy of food in last month; household's economic condition compared to a year ago; money; owned or leased farms, orchards or plantations in the 2007–08 season; visit from extension agent in last farm season; knowledge of times and places to sell farm produce.[12]

Information on individuals

Non-income information on individuals can be found in a single file called *INdata*[13]. The file contains information on relationship to head of household; sex; age; nationality; marital status; residence and migration; biological mother and father; literacy; school attendance; highest level of education; current level of education; problems with school; expenditure on school items; handicaps; illness or injury; visits to health practitioner/institution or healer in past 2 weeks; problems with visits; cost of visits; (asked of household members aged 7 and above) work in last 7 days; work to return to; available for work; activity to look for work; primary and secondary occupation; employer; type of work; hours worked per week; months worked in last 12 months; hours spent in last 7 days doing different types of labour; hours spent yesterday doing housework.[14]

The possible responses to the question on marital status are: single; married; monogamous marital union; polygamous marital union; divorced/separated; widowed.

Information on income

Information on income is collected at the individual level. Data collection took place from September 2008 to August 2009. The income questions generally relate to the last month, though the question on transfers is for the last year. Incomes have been deflated through a temporal price index calculated for each quarter and the fourth quarter is the reference/base.

The file *INdata* additionally contains information on pay from employment (how much was the last pay and is this daily, weekly, or monthly), as well as the value of rent, food, and transportation received. The remainder of the income information can be found in three files: *RM* (*Receitas do Último Mês*—income in the last month); *TF* (*Transferências Feitas Pelos Filhos e ou Cônjuge do Chef do AF que não são Membros do Agregado Familiar*—transfers from children or spouse of head of household who are not members of the family household); and *TR* (*Transferências*—transfers, both paid and received in last month). These files contain the following information:

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[12] There are additionally a number of derived variables (region, zone, hhweight, hhsize, hgender, hage, hmstat, heduc, hempl, hactiv, adulteq, totexp, expquintile, pcexpquintile, pazone).

[13] This seems to be identical to the file *AFPessoa*.

[14] There are additionally a number of variables which it has not been possible to identify (inf1 inf2a inf2b inf2c inf3 inf4). They possibly relate to the section of the questionnaire which asks about height, weight and feeding of young children.

File *RM*: (asked of any person who received any type of income) net income in last month from: rental of house; rental of farmland; car rental; income in last month from: gambling (lottery, totabola, raffles, etc); bequests; other occasional income.

File *TF*: total value of transfers from children or spouse of head of household who are not members of the family household in last 12 months; PSU, household and person numbers; total value of transfers made in last 12 months; how transfers are sent.

File *TR*: (asked of any person who received one of the transfers) how much was received in last month from: reform pension; alimony; survivor's pension; board pension; interest from banks or borrowers; insurance; non-profit or religious institutions (and in-kind value); family members living outside household (and in-kind value); family members working abroad (and in-kind value); rotating savings and loan association; other.

Although there is information on a range of income sources, some income variables have been aggregated such that they may only allow crude simulations to be produced. The extent of this will only become clear when starting to build any microsimulation model. It also seems that the questions on support from the basic food subsidy programme (*Programa Subsídio de Alimentos—PSA*) and direct social support programme (*Programa Apoio Social Directo*) have been omitted from these files.

Information on expenditure/consumption

Information on expenditure/consumption is collected at the household level. Data collection took place from September 2008 to August 2009. The one-year period was divided into quarters and for each sub-group of the population, one quarter of households was interviewed in each period in order to pick up on seasonal (pre-/post-harvest) variations in prices for agricultural products.[15] Expenditure/consumption is recorded as daily, monthly or annual expenses/consumption depending on the type of expenditure. Expenditures have been deflated through a temporal price index calculated for each quarter and the fourth quarter is the reference/base. A spatial price index has also been calculated, with rural areas of Niassa and Cabo Delgado provinces treated as the reference/base.

Information on expenditure/consumption can be found in six files, obtained from questionnaires 1 (*Despesas Diarias*—daily expenses of the family household) and 2 (*Despesas Anuais*, *Mensais e Receitas*—annual and monthly expenses and income). The files are: *DD* (*Despesas Diárias*); *AC* (*Auto Consumo*); *RE* (*Receita em Especie Pelo Trabalho*; *DM* (*Despesas Mensais*); *BD* (*Posse de Bens Duravels e Despesas Annuais)*; and *TR* (*Transferências*). These files contain the following information:

File *DD*: (*Despesas Diarias*—daily expenses: food, drink, food and drink out, transportation and communication). day (dia); line number (ddline); product (designacao); quantity (quantos); price (valor); how many days (dias); standard unit (unidadeup); amount in standard unit (qpadr); product code (codigo); purchase unit code (unid); place code (lugar); standard unit code (codigoup).

File *AC*: (Auto Consumo—auto-consumption: consumption of product produced by household) day (dia); line number (ddline); product (designacao); quantity (quantos); standard

[15] See MPD 2010 pages 2–3.

unit (unidadeup); amount in standard unit (qpadr); unit price (preco); value (valor); product code (codigo); purchase unit code (unid); standard unit code (codigoup).

File *RE* (received in kind from work): day (dia); type of product (codigo); source (origem); how many days (dias); quantity (quantos); quantity in standard unit (qpadr); unit price (preco); value (valor); product or local unit code (unid); standard unit code (codigroup).

File *DM* (Despesas Mensais—monthly expenses): code (codigo); type of goods or services (designacao); quantity (quantos); total price (valor); place of purchase (lugadeaq); place of purchase code (lugar); unit code (codigoup).

File *BD* (Posse de Bens Duravels e Despesas Annuais—ownership of durable goods and annual expenses): type of goods (designacao); code (codigo); quantity owned (quantos); quantity bought in last 12 months (qcomprou); amount paid (valor).

File *TR*: (asked of any person who paid one of the transfers) in last month how much was: paid for alimony; paid for board pension; paid for interest (including leasing payments); transferred abroad; paid to clubs, parties, associations; contributed to religious and non-profit institutions; paid to rotating savings and loan associations; other.

The aggregate of income/expenditure data are all derived variables and there is also a food consumption aggregate and non-food consumption aggregate.

The expenditure/consumption data is therefore very detailed, however, some assistance will be required in interpreting and using these files in the construction of any microsimulation model.

Additional information: agricultural production

There is a section of the questionnaire about farming and livestock raising (including sales/income and costs) but the information from these questions does not appear to be in the data files.[16]

[16] There is also a section on non-farm family household small businesses (including income and expenditure) but again, the information does not appear to be in the data files.