SOUTHMOD

Country report

Viet Nam

VNMOD v1.0

2012-2017

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About the project

SOUTHMOD – simulating tax and benefit policies for development

SOUTHMOD is a joint project between the United Nations University World Institute for Development Economics Research (UNU-WIDER), the European Union Tax–Benefit Microsimulation Model (EUROMOD) team at the Institute for Social and Economic Research (ISER) at the University of Essex, and Southern African Social Policy Research Insights (SASPRI) in which tax–benefit microsimulation models for selected developing countries are being built. These models enable researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives for the population of each country.

SOUTHMOD models are currently available for Ecuador (ECUAMOD), Ethiopia (ETMOD), Ghana (GHAMOD), Mozambique (MOZMOD), Namibia (NAMOD), Vietnam (VNMOD), South Africa (SAMOD), Tanzania (TAZMOD), and Zambia (MicroZAMOD). SOUTHMOD models are updated to recent policy systems using national household survey data. This report documents VNMOD, the SOUTHMOD model developed for Viet Nam. This work was carried out by the Central Institute for Economic Management (CIEM) in collaboration with KU Leuven and the project partners.

The results presented in this report are derived using VNMOD version 1.0 running on EUROMOD software. The report describes the different tax-benefit policies in place, how the microsimulation model picks up these different provisions, and the database on which the model runs. It concludes with a validation of VNMOD results against external data sources. For further information on access to VNMOD and other SOUTHMOD models see the SOUTHMOD page.

The VNMOD model and its documentation in this country report has been prepared within the UNU-WIDER project on 'SOUTHMOD—simulating tax and benefit policies for development', which is part of a larger research project on 'The economics and politics of taxation and social protection'. For more information, see the SOUTHMOD project page.

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Acronyms

CPI	Consumer price index
GDP	Gross domestic product
GSO	General Statistics Office
MDG	Millennium Development Goal
SST	Special sales tax
VAT	Value-added tax
VHLSS	Viet Nam Household Living Standard Survey
VND	Vietnamese dong
WTO	World Trade Organization

1 Basic Information

Since 1986, Viet Nam has embarked on comprehensive reforms in three main streams, namely: (i) institutional reforms for a market economy, (ii) macroeconomic stabilization, and (iii) pro-active economic integration.[1] Thanks to these reforms and contextual developments, Viet Nam made various socio-economic achievements in the past decades. Growth in gross domestic product (GDP) has been continuous, averaging more than 7.4 per cent per annum in 1990–2010, and 6.1 per cent per annum in 2011–17. From the expenditure side, GDP growth rested largely on expansion of both investment and exports. From the supply side, GDP structure shifted away from agriculture, forestry, and fishery towards industry and construction, thanks to the strong growth of the latter. Moreover, Viet Nam's growth process has been more inclusive. With better participation in economic activities, income across the income distribution has increased significantly. Consequently, poverty incidence fell sharply from 37.4 per cent in 1998 to just over 12 per cent in 2010 and around 8 per cent in 2017.

Meanwhile, the increasing participation in regional and world economies has made Viet Nam's economy more vulnerable to adverse developments in the international markets. On the one hand, the reduction of important tariffs in the absence of replacing domestic tax instruments actually caused increasing concern over declining budget revenues and the fear that it would drain budgetary resources available for direct transfer to households. On the other hand, more direct exposure to international market shocks also increased the vulnerability of domestic households, which in turn requires more transfer-type support from the government budget. The impact is not only profound at the macro level, but also attracts attention due to its differential magnitude on different groups of households.

As one direction of work to address the above issues, Viet Nam needs to improve its capacity of undertaking *ex ante* policy impact assessments, particularly with respect to how various tax instruments and transfers affect the households. This issue becomes even more important when household incomes have been more vastly diversified in terms of level, source, exposure to tax, and reliance on transfer, where the use of a representative household no longer suits. In addition, trial and error approach to such policy changes can be more costly, as impacts on the poor and other social groups can hardly be reversed. A modelling approach, with its capacity to quantify the possible macro and/or micro impacts of price changes on certain groups, can help fill in this gap.

This report attempts to update the technical aspects of microeconomic simulation models of various tax instruments in Viet Nam. In doing so, the report adopts a combination of approaches, namely: (i) the review of existing literature and information on household characteristics and related policy information in Viet Nam, and (ii) the use of an adapted EUROMOD-based model for microsimulation for the case of Viet Nam.

The remainder of this report is structured as follows. The rest of this section gives an update on the general policy setting in Viet Nam. Section 2 describes the simulations of taxes and social contributions in Viet Nam. Section 3 then covers the data and related adjustment under VNMOD. Section 5 attempts to validate the findings from Section 4.

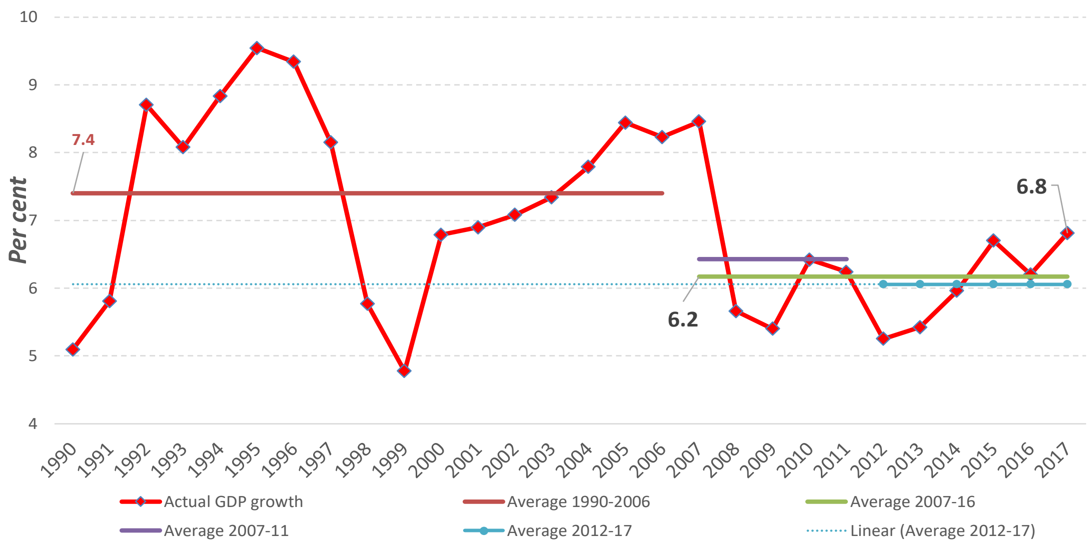
1.1 Selected macroeconomic indicators

1.1.1 Economic growth

Since the accession to the World Trade Organization (WTO) in 2007, Viet Nam experienced more volatility in economic growth. Such volatility resulted from the increasing uncertainty following the global financial crisis, and Viet Nam's switches between macroeconomic policy stances (specifically between growth stimulus and inflation control). In the aftermath of the global financial crisis, economic growth decelerated from 8.5 per cent in 2007 to 5.4 per cent in 2009, before recovering to 6.4 per cent in 2010. With more focus on inflation control which required tightening of both monetary and fiscal policies, Viet Nam generally experienced slower economic growth in 2011–17 (compared with the pre-2007 period). As a positive sign, however, economic growth exhibited a modest recovery from 6.2 per cent in 2011 to 6.7 per cent in 2015 and 6.8 per cent in 2017 (Figure 1.1).

1 For more details, see Dinh et al. (2009) and Central Institute for Economic Management (2013).

Figure 1.1: Viet Nam's gross domestic product (GDP) growth, 1990–2017 (%)

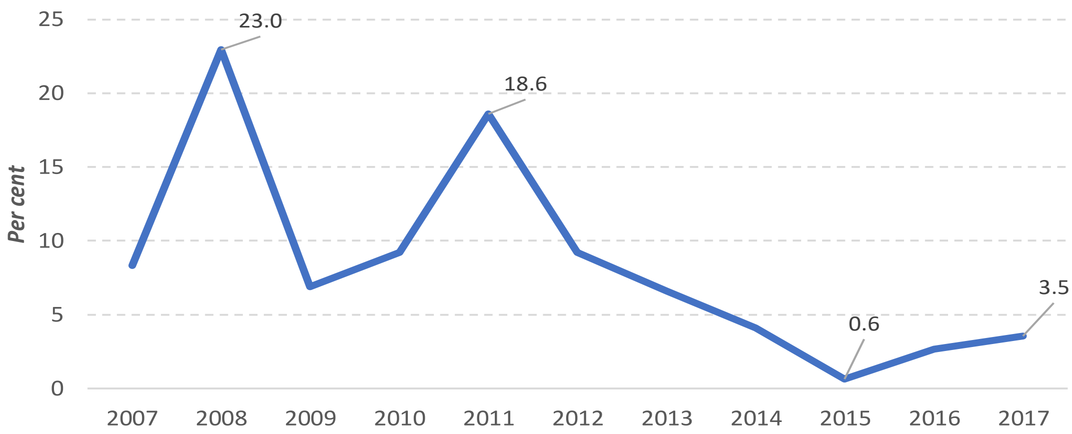


Source: Authors' compilation.

1.1.2 Inflation

The years 2007–17 also witnessed major fluctuations in Viet Nam's inflation rate. The average consumer price index (CPI) inflation rose from 8.3 per cent in 2007 to a peak of 23.0 per cent in 2008, then cooled down before climbing again to 18.6 per cent in 2011. During 2012–15, due to more comprehensive measures to restructure the economy and control inflation, the figure fell continuously to 9.2 per cent in 2012 and 0.6 per cent in 2015. Inflation then recovered to 2.7 per cent in 2016 and 3.5 per cent in 2017. These increases were largely due to the hikes in prices of the goods and services administered by the state, rather than by the increase in aggregate demand or rise in international prices (Figure 1.2).[2]

Figure 1.2: Year-on-year inflation, 2007–17 (%)



Note: Inflation rate is calculated using average CPI for the year (adopted since 2017).

Source: Authors' compilation.

1.1.3 Government budget

Government budget revenues have been increasing continuously. During the years 2007–17, inflation-adjusted budget revenues rose by 6.6 per cent per annum on average. The ratio of budget revenues over GDP, however, increased slightly from 20.5 per cent in 2000 to 26.6 per cent in 2008, then fell over the years to 24.8 per cent in 2017. By item, crude oil constituted a major source of revenues, although its share has been decreasing from 25.9 per cent in 2000

2 See Central Institute for Economic Management (2013, 2018) for more detailed analysis.

to 11.4 per cent in 2014 and 6.8 per cent in 2015. As Viet Nam gradually phased out import and export taxes, revenues from trade also accounted for a smaller share in budget revenues. The trend was most noticeable since 2009: the figure dropped from 23.2 per cent in 2009 to 14.6 per cent in 2012, then recovered to 19.7 per cent in 2014 and 17.8 per cent in 2015. The country then had to rely more on revenues from corporate income tax, the share of which rose remarkably from 33.3 per cent in 2000 to 37.0 per cent in 2008 and 49.9 per cent in 2015. Personal income tax is relatively new in Viet Nam, although the share in revenues climbed from 2.0 per cent in 2000 to 5.7 per cent in 2015 (Table 1.1).

Table 1.1: Structure of budget revenues, final account, 2000–15 (%)

	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenues from trade	20.9	16.7	19.1	21.2	23.2	22.2	21.6	14.6	15.6	19.7	17.8
Revenues from crude oil	25.9	29.2	24.4	20.8	13.4	11.8	15.3	19.1	14.5	11.4	6.8
Proceedings from land	3.1	7.8	10.7	9.1	9.6	9.5	8.4	7.4	6.6	6.3	8.4
Personal income tax	2.0	1.9	2.4	3.0	3.2	4.5	5.3	6.1	5.6	5.5	5.7
Corporate income tax	33.3	32.9	35.8	37.0	40.2	42.0	39.9	43.2	49.0	48.3	49.9
Other revenues	14.7	11.6	7.7	8.9	10.4	10.1	9.5	9.6	8.7	8.8	11.4

Note: As of March 2018, Viet Nam has finalized budget figures for 2015 only.

Source: Authors' compilation.

Viet Nam has been running a prolonged budget deficit. Budget expenditures kept expanding and remained in excess over budget revenues. Total expenditures (adjusted for inflation) rose on average by 5.4 per cent per annum in 2007–17. The ratio of budget expenditures over GDP climbed from 28.7 per cent in 2005 to 32.0 per cent in 2007, then trended downwards to 28.2 per cent in 2017. Over the years, Viet Nam provided relatively more expenditures from the state budget for education and training, health, and pension and social security. Among them, expenditure on education and training accounted for the largest share. Meanwhile, investment from the state budget contracted in relative terms: its share in total budget expenditures fell from 30.2 per cent in 2005 to 20.1 per cent in 2015 (Table 1.2).

Table 1.2: Structure of budget expenditures, final account, 2005–15 (%)

	2000	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
Development investment	30.2	28.1	26.4	32.3	28.2	26.5	27.5	25.0	23.3	20.1	17.8
Expenditure on education and training	10.9	13.5	11.8	12.4	12.1	12.6	13.0	14.3	15.7	15.9	6.8
Expenditure on health	2.9	4.1	3.2	3.5	3.9	3.9	4.0	4.2	4.5	6.0	8.4
Expenditure on pension and social security	6.8	9.2	8.2	9.0	9.9	9.9	8.8	9.2	9.6	10.3	5.7
Other expenditures	49.3	45.2	50.4	42.9	46.0	47.1	46.8	47.3	47.0	47.7	49.9
Other revenues	14.7	11.6	7.7	8.9	10.4	10.1	9.5	9.6	8.7	8.8	11.4

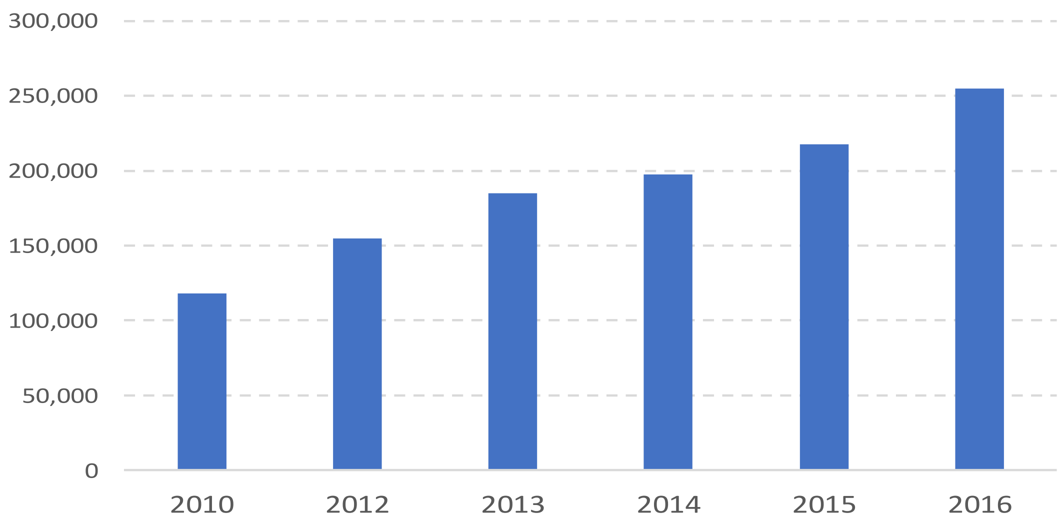
Note: As of March 2018, Viet Nam has finalized budget figures for 2015 only.

Source: Authors' compilation.

1.1.4 Social contributions

Contributions to social insurance funds—including social insurance, health insurance, and unemployment insurance—depicted an upwards trend over time (Figure 1.3). Total contributions to social insurance fund (at current prices) rose on average by 13.6 per cent per annum during 2010–16. Adjusted for inflation, the average growth rate would be 8.8 per cent per annum. As noted in Nguyen et al. (2016), the majority of contributions were made on a compulsory basis.

Figure 1.3: Social insurance contributions, 2010–16 (VND billion, current prices)



Source: Authors' compilation.

1.2 General policy framework in Viet Nam

Viet Nam adopts the convention of calendar year as the fiscal year. Under Viet Nam's system, policies are implemented by ministries, ministerial-level agencies, and line authorities. The policies generally assign the tasks to these agencies and authorities, and they have to prepare their own plans for implementation. The local authorities at the provincial and district levels have a similar structure as the ministries at the central government level, with specific bodies responsible for trade and industry, agriculture and rural development, labour affairs, education and training, etc.

Resources for these ministries and line authorities are largely from the corresponding levels of state budget, although official development assistance, state credit, proceedings from government bonds or city bonds can be used to finance specific programmes. Apart from that, there might be some charity activities by various social groups and enterprises, and livelihood programmes implemented by non-governmental organizations under the permission of relevant central and local authorities.

The pension system in Viet Nam solely relies on Social Security of Viet Nam, the state organization with a mandate to manage social insurance funds (including health insurance). No private provider of pension is present. In general, the state applies the pension age of 60 years for men and 55 years for women. Not all people, however, are entitled to pension age.[3] This was due to two reasons. First, the employees may have inadequate period of social insurance contribution during their work tenure. Second, mandatory social insurance contributions were only legalized for formally employed labourers. Meanwhile, labourers in the informal sectors or self-employed in agriculture, forestry, and fishery made limited social insurance contributions.

Together with economic reforms in the past decades, Viet Nam has also emphasized various aspects of social developments. During the years from 2000 to 2015, the country has committed to the Millennium Development Goals (MDGs). Under the MDGs, Viet Nam was committed to: (i) eradicate extreme poverty and hunger; (ii) achieve universal primary education; (iii) promote gender equality and empower women; (iv) reduce child mortality; (v) improve maternal health; (vi) combat HIV/AIDS, malaria, and other diseases; (vii) ensure environmental sustainability; and (viii) promote a global partnership for development. Under the themes from (i) to (vii), the country dedicated its own public resources and/or mobilized support from international donors. Such resources were for building knowledge and empowerment of local people, technical assistance, and upgrading relevant physical infrastructures. Since 2015, Viet Nam joined the Sustainable Development Goals (also known as the Global Goals), which comprise 17 areas and carry the MDG work forward until the year 2030.

3 For more details, see Section 3.

Related to education, Viet Nam's schooling system consists of three levels, namely: primary school, lower secondary school, and upper secondary school. Pupils generally finish primary school aged 11 years, lower secondary school aged 15 years, and upper secondary aged 18 years. After finishing upper secondary school, pupils may choose to go to university, technical college, or vocational school should they want to pursue higher education. Viet Nam's education system remains dominated by state providers at all levels. Nonetheless, the presence of non-state providers has been increasing over time. Since accession to the WTO in 2007, in particular, various foreign educational institutions have established their presence in Viet Nam. However, budgetary support to education is only provided for pupils and students at state-owned education institutions.

In terms of health, the dominance of state providers is even more profound than in the education system. The health system is generally divided into three levels, namely: (i) central level, (ii) provincial level, and (iii) local level. Central-level institutions include the Ministry of Health, and all central government hospitals and institutes. The provincial- and local-level institutions include local branches of the Ministry of Health (responsible for health care, food safety, birth control), local hospitals, and health care centres. Most of the health system's expenditures have been assumed by the state, either directly from the state budget or via the health insurance fund (under Social Security of Viet Nam). Only a modest share of expenditures on health care at these public institutions were financed by patients themselves, largely on a voluntary basis as the cost went beyond the insurance limit. In addition, the state regulates the prices and fees of an array of health care services and pharmaceutical products, and makes decisions to increase such prices and fees at times. In private hospitals, patients usually have to pay higher prices, mostly afforded by those with higher incomes or via private insurance schemes.

Due to highly emphasized targets on sustainable developments and deep involvement in the health and education sectors, the state has to allocate significant resources for relevant household- or sector-targeted programmes. Such programmes may range from direct subsidy for the poor in using health and education sector, to promoting reduction of general poverty and hunger incidence.

1.3 Social benefits

Under compulsory social insurance, the types of contributory provisions include: (i) sickness support, (ii) maternal support, (iii) support to work-related injuries or occupational hazard, (iv) pension, and (v) death gratuity.

Benefit 1: Sickness support is provided to the employee in the period of 30 days per year (if the employee has contributed to a social insurance fund for less than 15 years), or 45 days[4] (if the period of contribution is between 15 and 30 years), or 60 days (after at least 30 years of contribution) in the case of ordinary diseases. Under paid sick leave, the employee can receive 75 per cent of the salary of the previous month prorated on a daily basis. After the period of sick leave, if the employee remains weak, s/he can have at most 10 days for recovery, with the benefit equal to 25 or 40 per cent of the minimum wage,[5] if staying at home or at a medical centre, respectively. With diseases in the stipulated list that requires long-term treatment, the employee is entitled to a maximum of 180 days of sick leave, which can be extended with lower-level payments. The monthly benefit is then equal to 65, 55, or 45 per cent[6] of salary for the last month (before leave) if the period of contribution is at least 30 years, between 15 and 30 years, or less than 15 years, respectively. In case a child is sick, each parent under social insurance is entitled to a leave of maximum 20 days if the child is aged less than 3 years, or maximum 15 days if the child is aged between 3 and 7 years.

Benefit 2: Maternity leave is provided to: (i) pregnant employees, (ii) female employees giving birth to their children, (iii) employees who adopt children aged less than 4 months,[7] and (iv) employees who undertake sterilization. Pregnant employees are entitled to a maximum of five

4 This is changed to 40 days in the amended Law on Social Insurance in 2014 (National Assembly 2014).

5 This benefit is combined into a single rate of 30 per cent in the amended Law on Social Insurance in 2014 (National Assembly 2014).

6 This last is changed to 50 per cent in the amended Law on Social Insurance in 2014 (National Assembly 2014).

7 This was changed to 6 months in the amended Law on Social Insurance in 2014 (National Assembly 2014).

times of 1-day leave for medical check-ups. After giving birth to a child, the employee can take leave of 4, 5, or 6 months[8] depending on normal occupations, hazardous occupations, or status of disability. The employee giving birth to a child is also entitled to: (i) a one-time payment of 2 months of minimum salary, and (ii) monthly payment equal to the average of the 6 months preceding maternity leave. Those adopting children aged 4 months or younger can take leave until the children turn 4 months old, with a one-time payment of 2 months minimum salary. Those undertaking sterilization can take leave of 7 or 15 days depending on the type of measures.

Benefit 3: Support for work-related injuries or occupational hazards is dependent upon the loss of work capacity. Those losing 5–30 per cent of work capacity are entitled to two payments. The first payment is equal to (i) 5 months of minimum salary for the first 5 per cent of work capacity lost, and (ii) one-half of monthly minimum salary for each additional 1 per cent of work capacity lost. The second payment is equal to: (i) 0.5 per cent of monthly salary of the last month before leave if contributing to social insurance for less than 1 year, and (ii) an additional 0.3 per cent of monthly salary of the last month before leave for every year of social insurance contribution. Those losing at least 31 per cent of work capacity are entitled to two monthly payments. The first monthly payment is equal to: (i) 30 per cent of monthly minimum wage if loss at 31 per cent, and (ii) an additional 2 per cent of monthly minimum wage for each additional 1 per cent of work capacity loss. The second monthly payment is equal to: (i) 0.5 per cent of monthly salary of the last month before leave if contributing to social insurance for less than 1 year, and (ii) an additional 0.3 per cent of monthly salary of the last month before leave for every year of social insurance contribution. Under exceptional cases, a social insurance fund may provide support in the form of facilities and payment to servants to the employee. In the case of death due to work-related injuries or occupational hazard, the family members are entitled to one-time payment of 36 months of minimum salary.[9]

Benefit 4: Pension is provided to employees upon retirement, subject to their meeting requirements in terms of age, period of social insurance contribution, etc. Under the Law on Social Insurance in 2006 (effective since 1 January 2007; National Assembly 2006), employees eligible for pension after 20 years of social insurance contribution are either: (i) male labourers retiring at 60 years or female labourers retiring at 55 years, or (ii) male labourers between 55 and 60 years and female labourers between 50 and 55 years who have been working in toxic or dangerous areas (under the list to be identified by the Ministry of Labour, Invalids and Social Affairs and the Ministry of Health; National Assembly 2006) for at least 15 years, or with regional wage-supplementary ratio of at least 0.7 for at least 15 years. For those serving in the army or security forces, the corresponding retirement ages are 55 years for male labourers and 50 years for female labourers under group (i), and between 50 and 55 years for male labourers and between 45 and 50 years for female labourers under group (ii). These conditions for state pension age are retained in the new Law on Social Insurance in 2014 (effective since 1 January 2016; National Assembly 2016). The monthly pension is calculated as follows: (i) 45 per cent of referenced salary for the first 15 years of social insurance contribution, and (ii) an additional 2 per cent for male employees and 3 per cent for female employees for each additional year of social insurance contribution (to the maximum ratio of 75 per cent).[10] A one-time payment is also provided to the retirees in addition to the monthly pension, with the value being 0.5 per cent of referenced monthly salary for each year of social insurance contribution beyond threshold (30 years for males and 25 years for females). For those ineligible for monthly pension, a one-time payment is made with the value of 1.5 months of referenced salary for each year of social insurance contribution (Table 1.3).[11]

8 This is combined into a single period of 6 months under the amended Law on Social Insurance in 2014 (National Assembly 2014).

9 This description is adapted from National Assembly (2006).

10 In the amended Law on Social Insurance in 2014, since 2018, the threshold of 45 per cent of referenced salary will be 15 years of social insurance contribution for female employees. For male counterparts, the corresponding period will be 16, 17, 18, 19, and 20 years for those retiring in 2018, 2019, 2020, 2021, and 2022, respectively. After the threshold, the proportion increases by 2 percentage points for each additional year of social insurance contribution, applicable for both male and female employees (National Assembly 2014).

11 In the amended Law on Social Insurance in 2014, 1.5 months of referenced salary apply to the years of social insurance contribution before 2014; since 2014 onwards, each year of social insurance contribution will be converted into two months of referenced salary (National Assembly 2014).

Table 1.3: Formula for referenced salary

Starting point of social insurance contribution	Referenced monthly salary
Before 1 January 1995	Average monthly salary for the last 5 years of work (under the state payroll) or for all years of work (outside the State payroll)
Between 1 January 1995 and 31 December 2000	Average monthly salary for the last 6 years of work (under the state payroll) or for all years of work (outside the state payroll)
Between 1 January 2001 and 31 December 2006	Average monthly salary for the last 8 years of work (under the state payroll) or for all years of work (outside the state payroll)
Since 1 January 2007	Average monthly salary for the last 10 years of work (under the state payroll) or for all years of work (outside the state payroll)

Source: Authors' compilation from National Assembly (2006).

Benefit 5: Death gratuity is provided to family members (including children, spouse, mother, father, mother-in-law, father-in-law, and other dependent people subject to eligibility) if the employee or retiree passes away. The monthly payment is equal to 50 per cent of minimum salary (in the presence of other employees/retirees as supporters to those members) or 70 per cent of minimum salary (in the absence of other employees/retirees as supporters to those members). For those ineligible for monthly payment, a one-time payment is made at the value of: (i) 1.5 months of referenced monthly salary for each year of social insurance contribution, with the minimum being 3 months, if the employee passes away; and (ii) 48 months of pension in the first 2 months after retirement, which will be reduced by 0.5 months for each additional month under pension, if the retiree passes away. In addition, the family is entitled to support to organize the funeral, equal to 10 months of minimum salary.

1.3.1 Not strictly benefits

Not strictly benefit 1: Voluntary social insurance covers contributory support in the forms of: (i) pension, and (ii) death gratuity. The value and eligibility of pension and death gratuity are similar to those under compulsory social insurance, except that the referenced salary is calculated based on actual income as basis for contribution.

Not strictly benefit 2: Benefits from unemployment insurance include: (i) unemployment benefits, (ii) support for vocational training, and (iii) support in job-seeking. By nature, these benefits are contributory.

Unemployment benefits are paid to the unemployed person subject to the conditions that: (i) s/he has paid unemployment insurance for at least 12 months in the last 24 months before unemployment, (ii) s/he has registered unemployment with Social Security of Viet Nam fund, and (iii) s/he has been unable to find jobs within 15 days after registration of unemployment. The monthly unemployment benefit is equal to 60 per cent of average salary in the last 6 months before unemployment. The period for receiving unemployment benefits is: (i) 3 months if unemployment insurance is paid for 12–36 months, (ii) 6 months if unemployment insurance is paid for 36–72 months, (iii) 9 months if unemployment insurance is paid for 72–144 months, and (iv) 12 months if unemployment insurance is paid for more than 144 months. Apart from that, subject to eligibility, the unemployed person can receive financial support for vocational training, job searches, and health insurance during the period of unemployment.

Not strictly benefit 3: Apart from the above benefits, Viet Nam also provides non-contributory payments to support: (i) invalids, families of soldiers killed during the national struggle or national unification, and those merited for supporting the national struggle/national unification; (ii) poor and disadvantaged people; and (iii) selected elderly people. For those under group (i), the death gratuity or other supportive payments are made on both one-time and monthly basis, with the value to be determined in each period by relevant regulations (National Assembly 2006). Other forms of support include education and training, vocational training, and assistance with job searches. In accordance with Decree No. 70/2017/ND-CP in 2017 (effective 1 July 2017; Government of Viet Nam 2017), the referenced value is VND 1.417 million, which helps identify monthly and one-time payments to various groups of beneficiaries under group (i). Support for the poor and disadvantaged people in group (ii) depends upon the type of programmes to help these people, scale and coverage of the programme, as well as resource availability. Support for these people includes provision of health insurance, fee exemption for education and training, agricultural training, and emergency relief during crop loss. Under (iii), a monthly payment is paid to elderly people (aged more than 60 years) having no income supporters, and elderly people (aged more than 80 years) ineligible for social insurance benefits. As of 2017, the monthly payment is valued at VND 270,000 (or US$11.9)[12] per person.

1.4 Social contributions

The system of social insurance also underwent significant change since 2006. No change, however, took place in 2017. The Law on Social Insurance in 2006 identified the contributors of compulsory social insurance as: (i) those with labour contracts without predetermined term or with predetermined term of at least 3 months; (ii) public servants and staff; (iii) staff in national defence and security areas; and (iv) employers of employees under (i), (ii), and (iii) and other business households.

Apart from the statutory contributions for eligibility for pension (Benefit 4 in Sub-section 1.3), households in Viet Nam often have to make a range of contributions, which are either fixed or variable (in terms of percentage or monetary value). These contributions can be to support schools, medical centres, or donations to disadvantaged groups. By nature, these contributions are voluntary, but households often feel such contributions are unavoidable.

1.5 Tax system

As of 2017, Viet Nam's tax system is still under renovation. The changes were more dramatic since 2007, as Viet Nam had to revert to domestic revenues as replacement for revenues from trade (following drastic tariff reduction under the WTO). All economic activities are subject to the following types of taxes:

Tax 1 *(Corporate income tax)*: This is the ad valorem tax levied on income of business entities, at the rate of 25 per cent (before 2014), 22 per cent (for 2014 and 2015), and 20 per cent (since 2016). The exception is with oil and gas extraction where the rate ranges from 32 to 50 per cent, depending on the locality and actual project condition. To promote investment in some sectors or areas, the government may waive and/or reduce corporate income tax.

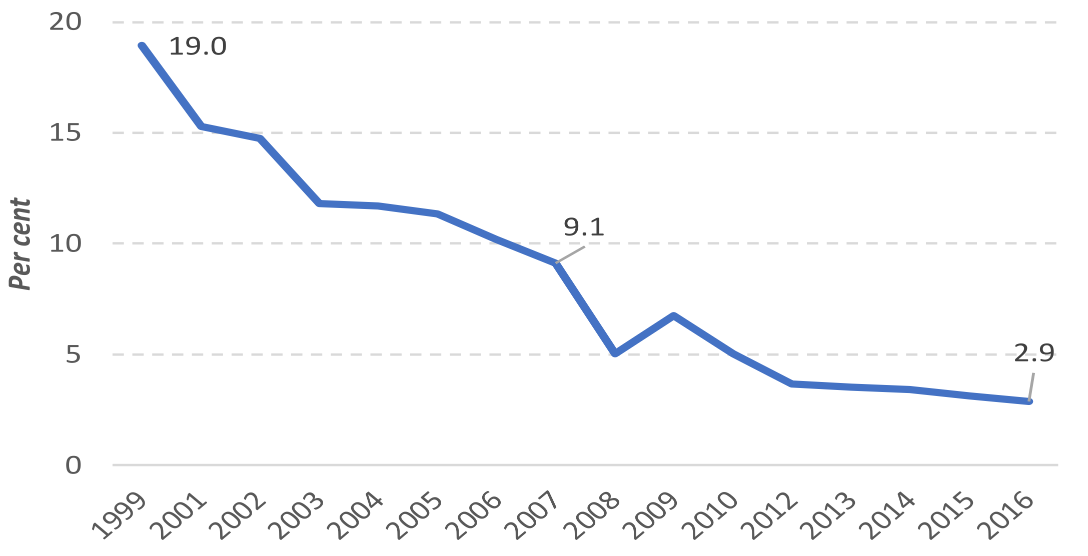
Tax 2 *(Foreign contractor tax)*: This is the tax applicable on payment to foreign contractors, which includes interest rate payment, copyright fee, service fees, insurance premium, and transportation fees.

Tax 3 [*Value-added tax* (VAT)]: This ad valorem tax applies to all goods and services that are produced, sold, and consumed in Viet Nam. Viet Nam has three VAT tax rates, namely, 0, 5, and 10 per cent. Only some selected goods and services are subject to the tax rates of 0 or 5 per cent. VAT is calculated after including all other taxes (including import tariff and special sales taxes, if any) and fees (including costs of sales).

Tax 4 *(Import tariff)*: This is the tax applicable on imported products. The actual tax rate varies depending on the classification of product, exporting country, and satisfaction of rule of origin. As discussed later, this constitutes an important source of revenue for the government, despite smaller share over time due to the trade-liberalization-induced process of phasing out tariff (Figure 1.4).

12 Exchange rate for 2017: US$1=VND 22,700.

Figure 1.4: Trade-weighted import tariff of Viet Nam, 1999–2016 (%)



Source: Authors' compilation based on import tariff data from World Bank (2017).

Tax 5 *(Special sales tax)*: This is the tax applicable only to the sale and import of a selection of products and services. The products subject to special sales tax include automobiles (of less than 24 seats), beer, cigars, cigarettes, wine and alcohol, motorbikes (of more than 125 cubic centimetres in cylinder), aircraft, yachts, petrol (of all kinds), air conditioners (of less than 90,000 BTU in capacity), playing cards, and joss papers. Services subject to special sales tax include discotheques, massage, karaoke, casinos, jackpots, slot machines, betting, lottery, and golf. The tax base is the domestic producer price before VAT (for domestically produced goods) or import price plus import tariff (for imported products).

Tax 6 *(Natural resource tax)*: This is the tax levied on the extraction of natural resources such as oil, gas, minerals, products from natural forest, natural aquatic products, and natural water.

Tax 7 *(Real estate tax)*: This is the tax payable for the use of land/real estate by individuals and business entities.

Tax 8 *(Export tax)*: This is the tax applicable on some export products. However, the number of products subject to export tax is limited.

Tax 9 *(Environment protection tax)*: This is the indirect tax levied on the products of which the production and/or import may cause adverse impacts on the environment.

Tax 10 *(Personal income tax of Vietnamese residents, including foreigners earning income in Viet Nam who are considered as Vietnamese residents for tax purpose)*: This is the tax applicable on taxable income of Vietnamese employees and foreign staff working in Viet Nam. Prior to 2007, Viet Nam focused mainly on collecting income from high-income earners. It was only since 2007 that Viet Nam began to implement personal income tax on a broader group of income earners. The actual brackets and tax rates are discussed later in simulations. All income sources are taxed equally, while the income earner has to file the tax declaration individually. The tax bracket will be changed subject to the decision of the Standing Committee of the National Assembly, provided that the CPI has increased by more than 20 per cent (from the base level as of July 2013; see National Assembly 2013).

2 Simulation of taxes and benefits in VNMOD

2.1 Scope of simulation

Similar to the version in 2016, the current version of the model still excludes most benefits. Various monetary benefits, such as old-age grant, or grant scheme for veterans, people with a disability, and those who contributed to national struggle/unification, are aggregated as other benefits in the Viet Nam Household Living Standards Survey(VHLSS) questionnaires. For some monetary benefits that are separated in the VHLSS questionnaires, the calculations of benefits require additional information that could not be collected from the questionnaires and data. As an example, pension data are available, yet the data on period of social insurance contribution are absent from the dataset. This issue also applies to other data on one-off benefits for job loss, death gratuity, etc. (Table 2.1).

Table 2.1: Possibility of simulating benefits based on VHLSS data for 2012 and 2014 in Viet Nam

Benefit	Reason for no simulation
Exemption/reduction of tuition fees	In-kind benefits
Other support for education	In-kind benefits
Provision of health insurance card	In-kind benefits
Health insurance benefits	No data on occurrence
Unemployment benefit	No data on length of unemployment in the year and previous contribution to unemployment insurance
One-time benefits for job loss	No data on contribution history
Pension for on-age retirees	No data on contribution history
Pension for early retirees	No data on contribution history
Benefits for loss of work capability	No data on contribution history
Support to plantation activities	Gross item only
Social benefits for veterans, invalids, those with contribution to national struggle/unification	No specific data (included in item of other benefits)
Social benefits for targeted groups (disadvantaged, remote, poor households, etc.)	No specific data
Non-contributory transfer to elderly people without pensions (old-age grant)	No specific data (included in item of other benefits)
Social benefits to support recovery after natural disasters, fire	No data on occurrence of events, lack of exact details in support policy
Insurance benefits (excluding those from social insurance)	No data on contribution history
In-kind provision of food (emergency)	In-kind benefits
Birth grant	No policy
Child grant	No policy
Maternity leave benefits	No specific data
Paternity leave benefits	No specific data
Death gratuity	No specific data

Source: Authors' compilation based on data obtained from VHLSS for 2012 and 2014.

Some other benefits—such as free health insurance and exemption/reduction of tuition fees—are in-kind in nature. Simulating these benefits then requires certain assumptions about their monetarized value which also differs across geographical locations. For selected items such as health insurance and tuition fees, the market prices are specified by the state and thus can be simulated. For other items, monetarization of in-kind benefits can be more challenging.

For the case of Viet Nam, the focus of microsimulation is on various instruments of taxes. Specifically, these instruments include: (i) personal income tax, (ii) VAT, and (iii) special sales tax. In general, all these instruments can be simulated in the model although very subtle rules/

points are excluded.[13] Due to absence of data from the questionnaires, a range of other tax instruments are excluded, such as import tariff, contractor tax, export tax, and environment protection tax (Table 2.2).

Table 2.2: Simulation of taxes in VNMOD

	Variable name(s)	Treatment in VNMOD					
		2012	2013	2014	2015	2016	2017
Labour income tax	*tinna_s*	S	S	S	S	S	S
Capital income Tax	*tinkt_s*	S	S	S	S	S	S
VAT	*tva01_s, tva02_s*	S	S	S	S	S	S
Special sales tax	*tvl_144, tvl_145, tvl_151, tvl_204, tvl_225, tvl_330, tvl_501, tvl_502, tvl_504, tvl_505, tvl_506, tvl_523*	S	S	S	S	S	S
Import tariff	—	E	E	E	E	E	E
Foreign contractor tax	—	E	E	E	E	E	E
Corporate income tax	—	E	E	E	E	E	E
Natural resource tax	—	E	E	E	E	E	E
Real estate tax	—	E	E	E	E	E	E
Export tax	—	E	E	E	E	E	E
Environment protection tax	—	E	E	E	E	E	E
Employer social contribution	*tscer_s*	S	S	S	S	S	S
Employee social contribution	*tscee_s*	S	S	S	S	S	S

Notes: 'S' policy is *simulated*, although some minor or very specific rules may not be simulated; '—' policy did not exist in that year; 'E' policy is *excluded* from the model as it is neither included in the microdata nor simulated; 'PS' policy is *partially simulated* as some of its relevant rules are not simulated.

Source: Authors' compilation.

Despite a range of actual contributions made by the people, the team could only undertake simulation of contributions to social insurance for those who are formally employed. Such contributions are, by legal provisions, made by both employers and employees at different rates. The percentage contributions by employers and employees were different, and exhibited some changes over time. Details on these social contributions are discussed later.

2.2 Order of simulation and interdependencies

The order of simulation in VNMOD is as follows. First, the calculation of social contribution by employer is performed on the basis of checking the formal employment status of the person. Second, the spine allows for subsequent calculation of social contribution by the employee, subject to being formally employed. There is no interdependency between these calculated contributions, although both of them occur only for formally employed persons. Third, payment of capital income tax is computed if the person earns income from rental of property or investment. Fourth, the employees have to pay labour income tax under the status of formal employment. Again, no interdependency is observed between different income tax instruments as well as between those taxes and social insurance contribution. Nevertheless, the calculation of labour income is after the calculation of social contribution by employees, since such contribution is deducted from the labour earnings to form the tax base. Fifth, the amount of VAT paid is simulated based on the specific expenditures on goods subject to VAT and the relevant VAT rates. Finally, the computed amount of VAT is subtracted from expenditure items, which form the values for calculating the special sales tax. In this regard, the calculation of special sales tax paid is conditional upon the value of VAT paid (Table 2.3).

13 More details are found in specific sub-sections on these tax instruments.

Table 2.3: VNMOD Spine: Order of simulation

Policy	2012	2013	2014	2015	2016	2017	Description of the instrument and main output
Social contribution by employer	On	On	On	On	On	On	If a person is formally employed, his/her employer will have to make social contribution at a certain fraction of the labour income. Output is the value of social contribution by employer.
Social contribution by employee	On	On	On	On	On	On	If a person is formally employed, s/he will have to make social contribution at a certain fraction of the labour income. Output is the value of social contribution by employee.
Capital income tax	On	On	On	On	On	On	If a person earns income from rental of property or investment, s/he will have to pay a fraction of that income as tax. Output is the value of capital income tax payment.
Labour income tax	On	On	On	On	On	On	If a person earns income from formal employment, s/he will have to pay a fraction of that income as tax. Output is the value of labour income tax payment.
VAT	On	On	On	On	On	On	When consumers buy goods and services in Viet Nam, they have to pay VAT (but the VHLSS questionnaires do not incorporate questions on purchase of services). Output is the value of VAT payment.
Special sales tax	On	On	On	On	On	On	When consumers buy certain products in Viet Nam, they have to pay special sales tax. Output is the monetary amount paid for special sales tax.

Source: Authors' compilation.

2.3 Social contribution for formal employment

By law, employees have to make monthly compulsory contributions of 5 per cent of gross wage/salary to the social insurance fund (under the sub-funds for pension and death gratuity), and the rate increases by 1 percentage point every 2 years since 2010 until it reaches 8 per cent. Apart from that, employees also have to contribute 1.5 per cent of gross wage/salary to health insurance and another 1 per cent for unemployment insurance. Altogether, employees have their gross wage/salary withheld by 7.5 per cent, and the rate increases by 1 percentage point every 2 years since 2010 until it reaches 10.5 per cent. The calculation is based on income of employees from formal employment (i.e. *yem*).

An employer has to contribute: (i) 3 per cent of the employee's gross wage to sub-fund for sickness and maternity leave, of which 2 per cent is withheld by the employer to make timely payment to the employee; (ii) 1 per cent of the employee's gross wage to sub-fund for work-related injuries and occupational hazard; (iii) 11 per cent of the employee's gross wage to the sub-funds for pension and death gratuity, and the rate increases by 1 percentage point every 2 years since 2010 until it reaches 14 per cent (National Assembly 2006). In addition, employees have to make other contributions, including 3 per cent of gross wage/salary for health insurance, 1 per cent for unemployment insurance, and 2 per cent for trade union fee. Consistent with the social contribution by employees, the contribution by the employer is also calculated with the base being income of employees from formal employment (i.e. *yem*).

Employees may also make voluntary contributions to a social insurance fund if they are of working age. The rate of contribution is fixed at 16 per cent of gross wage of the employee (since 2010, the rate increased by 2 percentage points every 2 years until it reached 22 per cent). The employee may choose to contribute on a monthly, quarterly, or half-yearly basis. Nonetheless, the information on voluntary contribution to social insurance funds is unavailable from the VHLSS data, which makes simulation of this instrument impossible at this stage.

Contributors of unemployment insurance are those with labour contracts without predetermined term or with predetermined term of between 12 and 36 months, and the employers (of at least ten employees). The employee contributes 1 per cent of gross wage to the unemployment insurance fund, the employer contributes another 1 per cent of the employee's gross wages, and the government provides budget-financed support of 1 per cent. Again, information on unemployment insurance contribution hardly suffices from the VHLSS data, thereby preventing microsimulation of this instrument.

In general, informal workers are defined as those without stable employment, guaranteed income or access to public services related to workers' rights.[14] Modelling these aspects is, however, no easy task. In this version of VNMOD, formality of employment is satisfied if the worker has a formal contract and social insurance contribution. As a side note, formality of employment does not in practice guarantee payment for social insurance contribution. Some portion of Vietnamese companies withholds social insurance contribution from employees' wage, but avoid making payment to social security funds, despite formal contract.

2.4 Personal income tax

By law, capital income tax is accrued at the time capital income is paid. Capital income tax is calculated on an individual basis. As discussed later, the rate of capital income tax is constant, which effectively leaves no difference in gross tax payment irrespective of the tax unit being household or individual.

In Viet Nam, capital income tax is only applied to rental of property or investment activities. Income from deposits at credit institutions, foreign bank subsidiaries, life insurance, and from government bonds is exempted from capital income tax. Similarly, remittances are not considered for capital income tax.

2.5 Indirect taxes

The personal income tax is computed on a monthly basis for formal employees (i.e. on the basis of labour income, excluding capital income). At the end of the fiscal year, each taxpayer files a tax declaration with the tax authority, with a description of a full list of income activities and eligible tax exemptions. That tax declaration forms the basis for calculating the tax payable for the whole year. This total payable tax may differ from the total monthly tax payments (if any) of the person, which might lead to: (i) additional payment (if the sum of monthly tax payments is less than the payable tax for the whole year), or (ii) tax credit for the next year (otherwise).

2.5.1 Tax unit

In tax terms, dependent children are defined as: (i) children younger than 18 years; or (ii) disabled children without capability to work; or (iii) children older than 18 years who are studying at universities, technical colleges, professional schools, or vocational schools. Other dependent people include: (i) spouse without capability to work, (ii) parents who have already retired or have no capability to work, and (iii) those that the taxpayers have to support directly.

In the case of Viet Nam, income tax is calculated on an individual basis. At the end of the fiscal year, each income earner has to file his/her own tax declaration, with his/her own items of income and tax-deductible expenses. The income earners in the family also have to decide to whom the dependent children are assigned. As an example, dependent children can be listed in the tax declaration of the mother to reduce taxable income, without caring about the income level of the father. In the present simulation, the authors assume that the dependent children are assigned to the head of the household for tax deduction purposes.

2.5.2 Exemptions

Following Verbist (2004), we define exemptions as 'income components (that) are part of pre-tax income, but do not have to be declared to the tax authorities, and thus are not included in the concept of taxable income (e.g. child benefits in most countries)'. In the case of Viet Nam, accordingly, such exemptions include:

- income from transfer of real estates between wife and husband, between parent and children (including adopted child), between parent-in-law and daughter-in-law, between parent-in-law and son-in-law, between grandparent and grandson/granddaughter, and between brothers and sisters;

14 For a coverage of informal employment, see International Labour Organization (2011).

- income from transfer of house, land use rights, and other property associated with the land when the seller has only one house or one land use right in Viet Nam;
- income from inheritance or gifts being real estates between wife and husband, between parent and children (including adopted child), between parent-in-law and daughter-in-law, between parent-in-law and son-in-law, between grandparent and grandson/granddaughter, and between brothers and sisters;
- income from transformation of agricultural land to rationalize agricultural production;
- income of households and individuals participating in the production of salt and in aquaculture;
- extra income from working on night-shift or additional working hours (compared with normal working hours) (the information on night-shift or additional working hours is not available from the questionnaires);
- pension paid by Social Security of Viet Nam;
- receipt of scholarship;
- receipts of payment under contracts of life insurance and non-life insurance and for occupational accidents;
- receipts from charity by state organizations and from foreign grants for charity purpose.

2.5.3 Tax allowances

Under the Law on Personal Income Tax in 2007, each income earner has a tax allowance of VND 4 million per month (or VND 48 million per year) while the tax allowances for each dependent child/person are set at VND 1.6 million per month (or VND 19.2 million per year). Under the Law on Personal Income Tax in 2012, which took effect since 1 July 2013, the tax allowance for income earners is set at VND 9 million per month (or VND 108 million per year), and the tax allowance for each dependent child/person is increased to VND 3.6 million per month (or VND 43.2 million per year; see National Assembly 2013).

Since the change applies to half of the year 2013, it is assumed in this paper that the allowances for income earners and dependent children/persons in 2013 are only adjusted by half of the statutory changes (i.e. VND 6.5 million per month for income earners and VND 2.6 million per month for each dependent). From 2014 onwards, the tax allowance is then set at the new statutory level of VND 9 million per month for income earners and VND 3.6 million per month for each dependent child/person.

As income tax is applied on an individual basis, each dependent child/person can only be registered to one income earner in the household for the purpose of deducting tax allowance. As an example, the tax allowance for a child can be deducted from either the income of the mother or the income of the father, but not both.[15] Within VNMOD, it is assumed that the dependent children/persons will be registered for deducting tax allowance from income of household heads. By law, change in registration of dependent child/person is possible, but modelling such change in VNMOD requires additional information (e.g. change in income over time) which may not be practically available.

2.5.4 Tax base

The earnings are defined as all income from economic activities, including formal employment (i.e. *yem*) and self-employed work (i.e. *yse*). In fact, self-employed income may not accrue in certain months of the year. As such, this paper assumes that total self-employed income within the year is distributed equally across the months. On that basis, the labour income tax base is calculated as the remainders of earnings after making social contributions.

2.5.5 Tax schedule

Viet Nam applies seven tax rates for different brackets of labour income. The applicable tax rate is dependent upon *taxable labour income*—defined in Vietnamese law as the remainder of labour income after deducting tax allowances[16] for income earners and dependent children/persons (if any). For taxable labour income of up to VND 5 million per month, the income tax

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15 Supposing that both the mother and the father actively earn income.

16 See Sub-section 2.5.3.

is calculated as 5 per cent of taxable income. For those having taxable income of up to VND 10 million per month, the income tax is equal to VND 250,000 plus 10 per cent of the excess taxable income above VND 5 million. Those earning monthly taxable income up to VND 18 million will have to pay income tax of VND 750,000 plus 15 per cent of the excess taxable income above VND 10 million. For those having taxable income of up to VND 32 million per month, income tax is equal to VND 1,950,000 plus 20 per cent of the excess taxable income above VND 18 million. For taxable income of up to VND 52 million per month, income tax is calculated as VND 4,750,000 plus 25 per cent of taxable income in excess of VND 32 million. For those having taxable income of up to VND 80 million per month, income tax is equal to VND 9,750,000 plus 30 per cent of the excess taxable income above VND 52 million. Finally, for taxable income of above VND 80 million per month, income tax is calculated as VND 18,150,000 plus 35 per cent of taxable income in excess of VND 80 million. An example of the income tax schedule for the case of no dependent children/person is tabulated in Table 2.4.

Table 2.4: Marginal tax rate on labour income

Marginal tax rate (%)	2012	2013	2014	2015	2016	2017
0	4.0	6.5	9.0	9.0	9.0	9.0
5	9.0	11.5	14.0	14.0	14.0	14.0
10	14.0	16.5	19.0	19.0	19.0	19.0
15	22.0	24.5	27.0	27.0	27.0	27.0
20	36.0	38.5	41.0	41.0	41.0	41.0
25	56.0	58.5	61.0	61.0	61.0	61.0
30	84.0	86.5	89.0	89.0	89.0	89.0
35	Above 84.0	Above 86.5	Above 89.0	Above 89.0	Above 89.0	Above 89.0

Note: US$1 = VND 22,700 as of 2017. Income threshold is measured in millions of Vietnamese dong. It is assumed that the income earner has no dependent child/person. In the presence of a dependent child/person, the threshold will be increased with the statutory allowance for them (see Sub-section 2.5.3).

Source: Authors' calculations based on National Assembly (2013).

Until 1 July 2013, the brackets for taxable income were fixed, i.e. without indexation to adjust for inflation. Since 1 July 2013, under the amended Law on Personal Income Tax in 2012, the brackets may be subject to change under the authority of the Standing Committee of the National Assembly should the CPI increase by more than 20 per cent. In fact, the CPI rose by 13.7 per cent during July 2013–December 2017, which fails to trigger a consideration of adjustment of income brackets for tax purposes.

2.6 Indirect taxes

2.6.1 VAT

VAT is the ad valorem tax applicable on all goods and services that are produced, sold, and consumed in Viet Nam. Most of the goods and services are subject to the standard rate of 10 per cent. However, a limited number of goods and services are subject to the tax rate of 0 or 5 per cent (see Table 2.5).

Table 2.5: List of products subject to VAT rates of 0 and 5 per cent

Tax rate	Products
0 per cent	Exported goods and services
	Construction and assembly activities in foreign countries and free trade zone
	Outbound transport
5 per cent	Clean water for production and household use
	Fertilizer, ores to produce fertilizer, insecticides and other animal and vegetable-promoting compounds
	Animal feeds and poultry feeds, processed or unprocessed
	Building and draining services for canals, ponds to support agriculture, planting and preventing insects on plants, preliminary processing and storage for agricultural products
	Products of cultivation, breeding, fishery, unprocessed or only preliminarily processed
	Raw rubber
	Threads for fishing nets
	Fresh foodstuff products
	Unprocessed forestry products
	Sugar, additives in sugar production
	Products from bamboo or rattan or similar materials
	Agricultural machinery
	Medical equipment and tools
	Teaching aids
	Cultural, exhibition, sport activities, artistic shows, film
	Children toys
	Science and technology activities
	Sale, lease of social houses under the Law on Housing

Source: Ministry of Finance (2013).

2.6.2 2.6.2 Special sales tax

Special sales tax is the tax applicable only to the sale and import of some special products and services (Table 2.6). There are several reasons for the application of special sales tax. First, the products or services are non-essential to consumers. The consumption of some products—such as wine and cigarettes—is even discouraged. Second, special sales tax applies if the products or services are of large value. This may hold for automobiles, yachts, aircrafts, etc. Third, special sales tax is likely to apply to the products of which the consumption is relatively inelastic to the increase in prices/taxes. In particular, cigarettes, beer, and alcohol are characterized by low elasticities.

Table 2.6: List of products subject to special sales tax, 2012–15

No.	Products and services	Tax rate (%)
A	Products	
1	Cigarettes, cigars and other products from tobacco leaves	65
2	Alcohol	
	(a) Concentration of at least 20 degrees	
	Till the end of 2012	45
	2013–15	50
	(b) Concentration of up to 20 degrees	25
3	Beer	
	Till the end of 2012	45
	2013–15	50
4	Automobiles of up to 24 seats	
	(a) Passenger motor vehicles of up to 9 seats	
	Cylinder of up to 2,000 cm3	45
	Cylinder of between 2,000 and 3,000 cm3	50
	Cylinder of over 3,000 cm3	60
	(b) Passenger automobiles of 10–16 seats, except those in groups (e), (f), and (g)	30
	(c) Passenger automobiles of 16–24 seats, except those in groups (e), (f), and (g)	15
	(d) Automobiles for both passengers and goods, except those in groups (e), (f), and (g)	15
	(e) Hybrid cars, of which the use of petrol is up to 70% of consumed energy	70% of corresponding rates for groups (a), (b), (c), and (d)
	(f) Automobiles using bio-diesel	50% of corresponding rates for groups (a), (b), (c), and (d)
	(g) Electric car	
	Up to 9 seats (passenger)	25
	10–16 seats (passenger)	15
	16–24 seats (passenger)	10
	For both passengers and goods	10
5	Motorcycles with cylinder of over 125 cm3	20
6	Aircrafts	30
7	Yachts	30
8	Petrol and other products to produce petrol	10
9	Air conditioners (capacity of lower than 90,000 BTU)	10
10	Playing cards	40
11	Joss paper	70
B	Services	
1	Bar, discotheque	40
2	Massage, karaoke	30
3	Casino	30
4	Gambling	30
5	Golf	20
6	Lottery	15

Source: Authors' calculations from various legal documents.

Since 2016, special sales tax rates are adjusted under the revised Law on Special Sales Tax (Table 2.7). These adjustments are applied to some products such as cigarettes, beer, and alcohol. More importantly, the adjustments reflect the roadmap to increase special sales tax rates for these products till 2018 and beyond. For instance, the special sales tax rate on cigarettes, cigars, and products from tobacco leaves is set to increase to 70 per cent during 2016–18, and 75 per cent after 2018. Similarly, the special sales tax rate on beer rises to 55 per cent in 2016, 60 per cent in 2017–18, and 65 per cent after 2018.

Table 2.7: Amended special sales tax rates for some products, 2016–17

No.	Products and services	Tax rate (%)
1	Cigarettes, cigars, and other products from tobacco leaves	
	2016–18	70
	After 2018	75
2	Alcohol	
	(a) Concentration of at least 20 degrees	
	2016	55
	2017	60
	Since 2018	65
	(b) Concentration of up to 20 degrees	
	2016–17	30
	Since 2018	35
3	Beer	
	2016	55
	2017	60
	Since 2018	65

Source: Authors' calculations from various legal documents.

Incorporation of special sales tax in VNMOD is no straightforward task, largely due to the issue of classification. For instance, it is very hard to distinguish passenger motor vehicles purchased by households/individuals by number of seats. Therefore, the model assumes that the purchase of automobiles is completely for transportation of the buyer and/or their family, rather than for any other type of commercial purpose. In this regard, passenger motor vehicles of up to nine seats are chosen as representatives for automobiles. Similarly, alcohol of at least 20 degrees in concentration is assumed to be representative of alcohol products consumed by the households.

2.7 Poverty line

Viet Nam has officially used a multi-dimensional measure of poverty. For the purpose of modelling, nevertheless, we rely on a General Statistics Office (GSO)-adapted monetarized poverty line—stipulated poverty lines for urban and rural areas, which are measured at current Vietnamese dong-denominated prices (Table 2.8). As a note, alternatives to these measures include the World Bank's internationally comparable poverty line of US$1.90 per day (in purchasing power parity terms, 2011).

Table 2.8: Poverty line in Viet Nam (in VND 1,000 per month)

	2012	2013	2014	2015	2016
Urban areas	660	710	750	760	780
Rural areas	530	570	605	615	630

Source: Authors' compilation from GSO data.

3 Data

3.1 General description

VHLSS is used as the input data for VNMOD. It is a sample-based survey, not a census one. This survey is carried out on a biennial basis since 2002. To date, the survey has been conducted in the years of 2002, 2004, 2006, 2008, 2010, 2012, 2014, and 2016. As of December 2017, data for the survey in 2016 (scheduled for publication in 2017) remain unavailable. The most recent data are thus available only for the years 2012 and 2014.

VHLSS aims to collect information as background for assessing the living standard, poverty incidence, and the income gap, which in turn serve as inputs for the policy-making process of the Government of Viet Nam. Surveyees of VHLSS include: (i) households, (ii) members of surveyed households, and (iii) communal governments of surveyed households. The survey is designed to cover 63 provinces and cities directly under the central government. For the years 2012 and 2014, the surveys were conducted at four points in time, namely: March, June, September, and December. At each point in time and in each surveyed locality, the survey took 1 month (Table 3.1).

The surveyed information seeks to reflect the living standard of the households, and includes:

- household income, including level of income and income disaggregated by source (wage, salary; self-employed activities in agriculture, forestry, and fishery; production and business activities in non-agriculture-forestry-fishery areas; other proceedings);
- household expenditure, including level of expenditure and expenditure items (food, clothes, accommodation, transport, education, health, culture, etc.); and
- other information on the household and members of the household to help analyse the causes and differences of living standards, including key demographic aspects (age, gender, ethnicity, marital status); education level; sickness, diseases, and use of health services; employment; use of facilities (electricity, water, sanitary condition); participation in hunger eradication and poverty reduction; and impacts of migration on household income.

As for the communal units, the surveyed information seeks to identify factors affecting households' living standard, including: (i) general demographic and ethnic information; (ii) key aspects of socio-economic infrastructures, such as electricity, road, school, medical station, post office, and water source; (iii) economic situation, covering agricultural production (land, trends and reasons for variations of key crops, other conditions such as irrigation and agricultural promotion), and non-agricultural job opportunities; and (iv) some information on social order, environment, credit, and savings.

Table 3.1: Allocation of VHLSS sample, 2012

Timing of data collection	Survey sample on income and expenditures (household)	Survey sample on income (household)	Total	
			Households	Localities
Total	9,399	37,596	46,995	3,133
Of which:				
March	2,352	9,408	11,760	784
June	2,349	9,396	11,745	783
September	2,349	9,396	11,745	783
December	2,349	9,396	11,745	783

Source: GSO (2011).

To ensure consistency in the simulation of various tax instruments, the current model used data from the survey on household income and expenditures. As such, the sample size for 2012 was 9,399 households. The number of individuals under this survey was 36,655. For 2014, the survey covered 9,399 households and 36,081 individuals (Table 3.2).

Table 3.2: VNMOD database description

VNMOD database	2012	2014
Original name	Viet Nam Household Living Standard Survey	Viet Nam Household Living Standard Survey
Provider	General Statistics Office	General Statistics Office
Years of collection	2012	2014
Period of collection	1 year	1 year
Income reference period	2012	2014
Sample size	9,399 households/36,655 individuals	9,399 households/36,081 individuals
Response rate	100%	100%

Source: Authors' compilation.

3.2 Data adjustment

From the investigation of data, all the required information on income and expenditures was available for all observations. As such, the research team dropped no observation at the household level.

At the individual level, two individuals were recorded with more than one partner in the VHLSS data for 2012. For the survey in 2014, the same issue arose with one individual. By the law of Viet Nam, one person can get married to only one partner at any point in time. No further information was available from the survey data to identify the current legitimate partner of the mentioned individuals. Therefore, the team decided to keep the observations associated with the individuals, and assigned the first recorded partner as the legitimate partner. The variable on identity of partner was valued accordingly.

3.3 Updating

To account for any time inconsistencies between the input dataset and the policy year, uprating factors are used. Each monetary variable (i.e. each income component) is updated so as to account for changes in the non-simulated variables that have taken place between the year of the data and the year of the simulated tax-benefit system. Uprating factors are generally based on changes in the average value of an income component between the year of the data and the policy year.

As a rule, uprating factors are provided for both simulated and non-simulated income components present in the input dataset. However, in the case of simulated variables, the actual simulated amounts are used in the baseline rather than the uprated original variables in the dataset. Uprating factors for simulated variables are provided so as to facilitate the use of the model in cases when the user wishes to turn off the simulation of a particular variable. The list of uprating factors as well as the sources used to derive them can be found in Table 3.3. As a difference to the original version (using year-end CPI inflation), the current model adopts the inflation rates calculated based on average CPI.

Table 3.3: Raw indices for deriving VNMOD uprating factors

Index	Constant name	Value of the raw indices						Components uprated by the index	Notes
		2012	2013	2014	2015	2016	2017		
Composite index of consumer prices for all products	*CPI_total*	118.58	129.50	138.05	143.69	144.60	148.45	All income components	Base value of 100 in 2010
Composite index of consumer prices for food products	*CPI_food*	126.49	136.76	140.43	146.04	148.20	151.70	Expenditure on food	Base value of 100 in 2010
Composite index of consumer prices for non-food products	*CPI_nonfood*	113.32	124.68	136.47	142.13	142.56	146.60	Expenditure on non-food items	Base value of 100 in 2010
Composite index of housing prices	*CPI_housing*	119.66	132.39	138.64	143.83	141.50	145.03	Expenditure on housing	Base value of 100 in 2010

Source: Authors' compilations from GSO data.

3.4 System of weights

The GSO provides a system of household weights for VHLSS in 2012 and 2014. There is no individual-based weight in the dataset. To collect the individual-based weight for validating against the population, the authors multiplied the GSO-provided household weights with the number of members in each household. This multiplication also helps ensure consistency with the individuals being a tax unit as per Viet Nam's regulations. Due to unavailability of household data and weights for 2013 and 2015–17, the individual-based weights for these years were uprated using corresponding population growth rates. The final weight of each household for each year was the sum of weights of all individuals registered in that household.

For simulating and validating capital income tax, VAT, and special sales tax, however, the original GSO-provided household weights were used. This is because capital income and expenditures were surveyed and compiled at the household level rather than at the individual level. To maintain consistency with other simulation-based analysis, the used household weights were also uprated in 2013–16 using the corresponding year-on-year population growth rate (Table 3.4).

Table 3.4: Year-on-year population growth rate, 2013–17

	2013	2014	2015	2016	2017
Population growth rate	1.07	1.08	1.08	1.07	1.07

Source: Authors' calculations from GSO data.

4 Validation

4.1 Aggregate validation

VNMOD results have been validated against external benchmarks. Detailed comparisons of the number of people receiving a given income component and total yearly amounts are shown in the Annex. Both market incomes and non-simulated taxes and benefits in the input dataset as well as simulated taxes and benefits are validated against external official data. The main discrepancies between VNMOD results and external benchmarks are discussed in the following sub-sections. Factors that may explain the observed differences are also discussed.

4.1.1 Validation of incomes inputted into the simulation

Table A1 in the Annex compares the statistics on population from GSO (as external source) and VNMOD simulations. As the system of individual-based weights is based on population growth and household weights assigned by GSO, these statistics only differ marginally. Compared with the VHLSS data for 2012, however, the total weights in the VHLSS data for 2014 are less close to the population. This explains the further gaps in 2015–17, notwithstanding common growth factors on both actual and simulated statistics.

Table A2 in the Annex illustrates that the labour statistics under VNMOD simulations differ from official sources. Again, the gap between external statistics and VNMOD results in terms of economically active labours of at least 15 years of age is rather small, of 1.2 per cent for 2013, although increasing to 2.4 per cent in 2016. However, the corresponding gap for total labour force aged 15 years or older is significantly larger. This may be explained by the fact that VNMOD is unable to identify whether or not a person aged at least 15 years is actively seeking jobs (i.e. participation in labour force).

In particular, the simulated unemployment rates for 2012–16 are well above actual statistics provided by the GSO. Three factors may explain part of this large and seemingly consistent discrepancy. First, one is unable to distinguish from the VNMOD dataset whether or not an economically inactive person attempts to seek a job. Accordingly, the unemployment from VNMOD results are calculated by approximating the number of people actively seeking jobs (without finding ones) with the number of economically inactive persons. Second, official unemployment statistics in Viet Nam are often claimed to be artificially low.[17] Due to the nature of work in Viet Nam, a number of people being laid-off in the manufacturing sector could return to the rural areas with income-earning activity in agriculture. As a third possibility, the sizeable informal sector in Viet Nam also enhanced access to economic activity, although there is no concrete justification as to whether the people in this sector should be recorded as being employed or unemployed.

Due to the unavailability of detailed external statistics on income, the authors can hardly have a benchmark to compare the number of recipients and annual amounts of various types of market income in the input dataset and external statistics.

4.1.2 4.1.2 Validation of outputted (simulated) incomes

In the absence of statistics on number of taxpayers, the authors refrain from making comparisons on the number of simulated taxpayers under VNMOD.

The focus is on comparing simulated statistics on tax revenues with official ones (Table A3 in the Annex). As can be seen, the simulated values of VAT and special sales tax revenues are consistently and significantly smaller than external ones. However, simulated personal income tax revenues are significantly larger than actual figures for all years. More importantly, the gap between simulated and actual figures appears to get smaller over time. There are several reasons for this. First, the CPI as an uprating factor may consistently fail to closely reflect the improvement of individual income over time (Table A3). Second, accounting for VAT revenues in practice is subject to a number of issues, such as incidences of tax fraud by firms and VAT refund on imports for certain producers. Finally, official statistics on special sales tax revenues are available only for domestically produced products and not for imported products. At the same

17 For details, see Vietnam Beer Alcohol and Beverage Association (2018).

time, the firms pay certain amount for special sales tax and VAT in their expenses, while there is no disaggregated data on those tax instruments in household expenditures.

4.2 Income distribution

4.2.1 Poverty rates

In the absence of external data on household income[18] and related distribution indicators, the authors are unable to validate the results on income inequality from VNMOD. However, comparing official and simulated statistics on poverty rate yields remarkable results (Table A4). Simulated statistics on poverty are consistently smaller than official ones, the latter of which are based on biennial VHLSS with small-survey-based update for other non-VHLSS years. While official statistics on poverty trend downwards during 2014–16, the simulated statistics increase over time. In addition, the gap between official and simulated statistics widened in 2016 relative to 2014.

There are two possible explanations for the above validations results. First, as mentioned above, CPI—as the best alternative available for uprating income[19]— still consistently fails to closely reflect increase in income. Second, certain income is sourced from the informal sector which is excluded from simulation results, while actually helping reduce poverty incidence.

4.3 Summary of 'health warnings'

There are a number of 'health warnings' to take into account when using VNMOD and interpreting its results. First, as the data are always one or more years older than the policy year of interest, the model adjusts the incomes with an uprate index (for VNMOD the CPI is used). Notwithstanding the poor availability and/or poor representation of data on uprating factor, investing in finding uprating factors and checking robustness should be worthwhile.

Second, data and results on unemployment status should be treated with care. The importance of the above-mentioned informal sector, and the migration towards rural areas during certain periods, give rise to difficulties in simulating formal employment, tax payments, and social contribution. At the same time, identifying change in status of surveyed individuals over time—especially in terms of labour participation, employment, health, work capacity, or productivity—is virtually impossible in the absence of extra information.

Finally, as VNMOD is a static model and therefore only models the changes in mechanical effects in tax or social contribution policies, it does not pick up the effects that stem from institutional and behavioural changes that accompany the tax-benefit changes. Hence, the before-and-after approach with VNMOD simulation—by design—produces results that differ from actual ex-post statistics that capture the joint effects of various policies.

It should be acknowledged that VNMOD is subject to certain assumptions. First, income is assumed to be earned uniformly across months of the year. This may not hold in practice due to the possibly short-term nature of contract, seasonal variation, etc. Second, income effect on consumption is assumed to be invariant across all products. More restrictively, such income effect is assumed to exactly offset the substitution effects due to price increase. Third, the increase in income of any individual is assumed not to crowd out income of others, although the income effect on expenditure of that individual can increase demand and revenues for others' sales. Finally, the changes in policies are fully complied with by the people and enterprises, without compliance costs.

18 More updated data on the VHLSS are not available at the time of finalizing this report.

19 In the absence of data series on average earnings.

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Annex

Table A1: Population statistics, 2012–17 (in 1,000 persons)

	2012	2013	2014	2015	2016	2017
Population (external statistics) (*a*)	88,809.30	89,759.50	90,728.90	91,709.80	92,695.10	93,686.94
Population (VNMOD) (*b*)	89,267.50	90,222.60	89,935.90	90,907.20	91,879.90	92,863.02
Ratio (*b/a*)	1.005	1.005	0.991	0.991	0.991	0.991

Notes: Simulated data for 2012–13 are based on the VHLSS data for 2012; simulated data for 2014–17 are based on the VHLSS data for 2014.

Source: Authors' compilation based on GSO data and authors' calculations.

Table A2: Labour statistics, 2012–16 (in 1,000 persons)

	2012	2013	2014	2015	2016
Official statistics (from GSO)					
Total labour force, 15 years or older (1,000 persons) (*a1*)	52,348.00	53,245.60	53,748.00	53,984.20	54,445.30
Number of economically active labour, 15 years or older (1,000 persons) (*a2*)	51,422.40	52,207.80	52,744.50	52,840.00	53,302.80
Unemployment rate (%) (*a3*)	1.8	1.9	1.9	2.1	2.3
Statistics from VNMOD					
Total labour force, 15 years or older (persons) (*b1*)	68,445.70	68,855.28	69,598.92	68,855.28	71,096.30
Ratio (*b1/a1*)	1.308	1.293	1.295	1.275	1.306
Number of economically active labour, 15 years or older (persons) (*b2*)	52,497.40	52,851.06	53,421.86	53,993.47	54,571.20
Ratio (*b2/a2*)	1.021	1.012	1.013	1.022	1.024
Unemployment rate (%) (*b3*)	23.3	23.2	23.2	21.6	23.2
Ratio (*b3/a3*)	12.944	12.233	12.233	10.278	10.106

Notes: Unemployment rate here is approximated by the share of people being economically inactive (rather than the share of people being unable to find jobs despite active job-seeking efforts). Simulated data for 2012–13 are based on the VHLSS data for 2012; simulated data for 2014–17 are based on the VHLSS data for 2014.

Source: Authors' compilation based on calculations from VNMOD results.

Table A3: Official and simulated tax statistics, 2014–17

	2014	2015	2016	2017
Official statistics—value (billion VND)				
Personal income tax (*a1*)	47,853	56,723	65,239	82,045
VAT (*a2*)	241,103	251,558	269,627	315,861
SST (for domestically produced products) (*a3*)	55,472	66,653	85,853	91,578
Growth (%, from official statistics)				
Personal income tax (*a4*)	2.8	18.5	15.0	25.8
VAT (*a5*)	15.62	4.3	7.2	17.1
SST (for domestically produced products) (*a6*)	2.39	20.2	28.8	6.7
Simulated revenues (billion VND, from VNMOD)				
Personal income tax (*b1*)	12,180	12,528	13,622	15,161
VAT (*b2*)	127,447	129,611	134,485	140,725
SST (from household consumption) (*b3*)	37,179	37,810	40,019	41,875
Simulated growth (%, from VNMOD)				
Personal income tax (*b4*)	-5.57	2.9	8.7	11.3
VAT (*b5*)	2.94	1.7	3.8	4.6
SST (from household consumption) (*b6*)	2.94	1.7	5.8	4.6
Ratio				
Revenues	-5.57	2.9	8.7	11.3
Personal income tax (*b1/a1*)	2.94	1.7	3.8	4.6
VAT (*b2/a2*)	2.94	1.7	5.8	4.6
SST (*b3/a3*)				
Growth rate				
Personal income tax (*b4/a4*)	0.255	0.221	0.209	0.185
VAT (*b5/a5*)	0.529	0.515	0.499	0.446
SST (*b6/a6*)	0.670	0.567	0.466	0.457

Notes: VND, Vietnamese dong; VAT, value-added tax; SST, special sales tax. Official statistics for 2014 and 2015 are final figures. Statistics for 2016 are second estimates. Statistics for 2017 are first estimates.

Source: Authors' compilation based on calculations from VNMOD results.

Table A4: Poverty rate (%)

	2014	2015	2016
External statistics			
Overall (*a1*)	8.4	7.0	5.8
Urban (*a2*)	3.0	2.5	2
Rural (*a3*)	10.8	9.2	7.5
Simulated statistics			
Overall (*b1*)	8.5	8.7	8.7
Urban (*b2*)	3.5	3.6	3.6
Rural (*b3*)	10.8	11.0	11.0
Ratio			
Overall (*b1/a1*)	1.01	1.25	1.49
Urban (*b2/a2*)	1.17	1.44	1.80
Rural (*b3/a3*)	1.00	1.20	1.46

Notes: The poverty line for 2014–16 is adjusted by GSO as follows: 2014: VND 605,000/month/person for rural areas and VND 750,000/month/person for urban areas. 2015: VND 615,000/month/person for rural areas and VND 760,000/month/person for urban areas. 2016: VND 630,000/month/person for rural areas and VND 780,000/month/person for urban areas.

Source: Authors' compilation based on calculations from VNMOD results. Official statistics are from GSO.