

# SOUTHMOD

Country report

# Ecuador

ECUAMOD v1.4

2011-18

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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), Uganda (UGAMOD), and Zambia (MicroZAMOD). SOUTHMOD models are updated to recent policy systems using national household survey data. This report documents ECUAMOD, the SOUTHMOD model developed for Ecuador. This work was carried out by the [ISER](#) in collaboration with the Instituto de Altos Estudios Nacionales.

The results presented in this report are derived using ECUAMOD version 1.4 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 ECUAMOD results against external data sources. For further information on access to ECUAMOD and other SOUTHMOD models see the [SOUTHMOD page](#).

The ECUAMOD 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
ENEMDU	National Survey of Employment, Underemployment and Unemployment ( <i>Encuesta Nacional de Empleo, Desempleo y Subempleo</i> )
ENIGHUR	National Survey of Income and Expenditures of Urban and Rural Households ( <i>Encuesta Nacional de Ingresos y Gastos de Hogares Urbanos y Rurales</i> )
HDI	Household disposable income
HDT	Human development transfer ( <i>Bono de Desarrollo Humano</i> )
IESS	Ecuadorian Institute of Social Security ( <i>Instituto Ecuatoriano de Seguridad Social</i> )
INEC	National Institute of Statistics and Census ( <i>Instituto Nacional de Estadística y Censos</i> )
ISD	Tax on international money transfers ( <i>Impuesto a la Salida de Divisas</i> )
ISSPOL	Institute of Social Security of the National Police ( <i>Instituto de Seguridad Social de la Policía Nacional</i> )
ISSFA	Institute of Social Security of the Armed Forces ( <i>Instituto de Seguridad Social de las Fuerzas Armadas</i> )
LRTI	Law of Internal Tax Regime ( <i>Ley de Régimen Tributario Interno</i> )
MIES	Ministry of Social and Economic Inclusion ( <i>Ministerio de Inclusión Económica y Social</i> )
RS	Social Registry ( <i>Registro Social</i> )
SENPLADES	National Planning Secretary ( <i>Secretaría Nacional de Planificación y Desarrollo</i> )
SRI	Internal revenues service (Servicio de Rentas Internas)
SICs	Social insurance contributions
UBS	Unified basic salary
USD	US dollar
VAT	Value-added tax ( <i>Impuesto al valor agregado</i> )

# 1 Basic Information

## 1.1 Basic information about the tax–benefit system

Since January 2000, Ecuador officially adopted the US dollar (USD) as the legal tender in the country (Larrea 2004).

State old-age pension depends on three parameters: one is the cessation of work, second is the minimum age, and third is the number of contributions to the Ecuadorian Institute of Social Security (*Instituto Ecuatoriano de Seguridad Social*, IESS). For example, the minimum age to access retirement pension is 60 years with at least 360 contributions made (meaning 30 years of contribution); another example, there is no age limit to access retirement pension if a worker has 480 contributions or more (i.e. 40 or more years of contribution), there is an institutional table to know all the conditionalities (IESS 2015a).

The minimum legal age for work in Ecuador is 15 years, but children up to 18 years must combine study and work and their employers have to ensure this conditionality. Dependant children for tax and benefit purposes are those aged below 18 years or those older if they are in full-time education, not receiving earnings, or not affiliated to the IESS up to 23 years of age. No age limits apply to children with disabilities.

For the purpose of human development transfer (HDT, *Bono de Desarrollo Humano*), there are three eligibility criteria to access this transfer: the first one is for senior people who do not have any other type of retirement pension in the Ecuadorian system; the second one is directed to people with disability, aged below 65 years, and receiving no pension; and the third criterion is aimed at families who are below the official threshold of the Social Registry (*Resgistro Social*, RS) index, and the cash transfer is made to mothers and only in their absence can fathers receive the cash transfer (Martínez et al. 2017).

In Ecuador, the fiscal year runs from 1 January to 31 December.

There are national and local taxes in Ecuador. National taxes do not differ across regions and are administered by the Internal Revenue Service (*Servicio de Rentas Internas*, SRI) [e.g. personal income tax, value-added tax (VAT, *Impuesto al valor agregado*)]. Local taxes are specific to each municipality and are administered by the local authorities (e.g. property tax). All national taxes are regulated by the Law of Internal Tax Regime (*Ley de Régimen Tributario Interno*, LRTI) (Asamblea Nacional 2014), whereas other regulations apply to local taxes. Social security benefits do not differ across regions and are administered by the IESS in the case of contributory benefits or specific ministries in the case of non-contributory benefits.

Income is taxed individually in Ecuador (see Article 5 of the LRTI).<sup>1</sup>

Different income sources are aggregated for personal income tax calculations, independently of their origin (e.g. capital or labour income).

Withholdings are made for tax payments. According to the LRTI, in case withholdings exceed tax liabilities individuals can request reimbursement (in the case of personal income tax) or a credit (in the case of VAT).<sup>2</sup> In case withholdings are lower than tax liabilities, taxpayers need to fill in a tax form and pay the difference. Individuals with more than one source of income need to fill in a tax form, independent of whether withholdings match tax liabilities.

For the purpose of income tax and pensions, indexation is considered to take account of inflation. The consumer price index (CPI) of 30 November of each year is used to apply indexation to the following tax year.

The information and data contained in the National Survey of Income and Expenditures of Urban and Rural Households (*Encuesta Nacional de Ingresos y Gastos de Hogares Urbanos y*

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1 Under certain conditions, it is possible to make a joint tax declaration. This is the case if the only source of income for a couple comes from single and joint business activity (Articles 70 and 71 of the regulation for enforcement of the LRTI). In practice, this applies to a very limited number of cases.

2 In certain cases (e.g. for the elderly or individuals with disability), it is also possible to request reimbursement of VAT, up to a limit amount according to the regulation of LRTI.

*Rurales*, ENIGHUR) 2011–12 are freely accessible according to the Organic law on transparency and access to public information (Congreso Nacional 2004).

## 1.2 Social benefits

### 1.2.1 Contributory social protection

**Benefit 1** [Old-age pensions (*Jubilación ordinaria por vejez*): Entitlement to contributory old-age pensions is assessed with respect to the age of the person and the number of contributions made. For example, there is no age limit if the person has an equivalent of 40 years of contributions (480 contributions), while an equivalent of at least 10 years of contributions is required for a person aged 70 years or more. The pension amount is based on an average of the five best years of workers' earnings multiplied by a number of contribution coefficient. Ceilings and floors apply to the old-age pension amounts, which are calculated in terms of the unified basic salary (UBS).

**Benefit 2** [Invalidity pensions (*Jubilación por invalidez*): A person is considered eligible for invalidity pension if they are unable to work due to illness or physical and/or mental impairment (IESS 2015c). Invalidity is assessed by means of medical examinations at the IESS health system. Contribution conditions for eligibility for absolute and permanent invalidity pension require that: (i) the active person has paid a minimum of 60 contributions, of which at least six must have been paid immediately and consecutively before invalidity occurs; (ii) the unemployed person has paid a minimum of 120 contributions and is not a beneficiary of another pension from the IESS. They are eligible if invalidity occurs within the 24 months following the termination of their work. The amount of invalidity pensions equals 50 per cent of the usual pay received by a worker in similar labour market activity. Ceilings and floors apply to invalidity pension amounts, which are calculated in terms of the UBS, and depend on the number of years of contributions.

**Benefit 3** [Survivors' pensions (*Montepío*): Survivors' pension is a social insurance payment to widows, widowers, orphans, and/or parents of the person to whom the benefit was attributed (IESS 2015d). The monthly amount of survivors' pension is equal to 40 per cent of the pension received by the insured person (IESS 2006), or 60 per cent in case there is only one family member and they are not affiliated or receiving pension (IESS 2010). The pension amount for orphans and parents equals 20 per cent of the pension received by the insured person. Ceilings and floors apply to the survivors' pension amount.

**Benefit 4** [Occupational risk pensions (*Seguro de riesgos de trabajo*): The occupational risk pension is a social payment to cover accidents or health problems related to work. In addition to provision of medical assistance, surgery, medicine, hospitalization, and rehabilitation (including provision and maintenance of prosthetics and orthotic devices), direct economic provisions are provided to people affiliated with the IESS (2015b). Invalidity resulting from an accident or health problem related to work is classified in four categories, depending on the severity of the injuries: (i) temporary invalidity, (ii) partial permanent invalidity, (iii) total permanent invalidity, and (iv) absolute permanent invalidity. The amount of pension depends on the severity of the injury.

**Benefit 5** [Severance pay insurance benefit (*Seguro de cesantía*): To be eligible for severance pay insurance benefit, a person must: (i) have made at least 24 non-simultaneous contributions to the IESS, (ii) have been unemployed at least 60 days, and (iii) present a certificate of redundancy to the IESS. The amount of severance pay insurance benefit is equal to a lump sum payment of three times the average gross employment income over the last 12 months before unemployment (Asamblea Nacional 2015: Social Security Law, Article 277). Unemployed individuals who are in the process of applying for old-age pension or invalidity pension have the right to claim the total amount saved in their individual severance pay insurance fund. In case of death, the total amount saved in the above fund can be claimed by a relative according to the dispositions specified in the law (Asamblea Nacional 2015: Social Security Law, Article 285).

**Benefit 6** [Rural workers' social insurance pensions (*Seguro campesino*): Rural workers' social insurance benefits are aimed at providing protection in the event of disability, old age, illness, or death of workers in the rural area as well as fishermen. For the purposes of social insurance, a rural worker is a person whose residency is located in the rural area and who works as a fisherman, in the fields as a self-employed worker, or for the community and has not become a permanent employer. Moreover, to be affiliated to the rural workers' social insurance regime the

person should not benefit from compulsory social insurance (Asamblea Nacional 2015: Social Security Law, Article 9).

**Benefit 7** [Unemployment insurance benefit (*Seguro de desempleo*): Unemployment insurance was introduced in March 2016 as an insurance for unemployed people who are affiliated to the general social security regime of the IESS and who have not found a job after 60 days (or two months) of unemployment. Unemployment payments are withdrawn from contributory unemployment insurance fund. The 12-month salary average is paid off in five monthly payments, starting with the first payment that is 70 per cent of the 12-month average; subsequent payments are reduced 5 per cent every month (e.g. first month 70 per cent, second month 65 per cent ... fifth month 50 per cent, etc.).

### 1.2.2 Non-contributory social protection

**Benefit 8** [HDT (*Bono de desarrollo humano*): HDT is the base of other non-contributory social protection programmes (for more details, see Annex A); this establishes a foundation aimed at, on the one hand, protecting families from risks, including the risk of falling into poverty, and, on the other hand, promoting the development of skills that improve social mobility. Eligibility criteria to the HDT is restricted to those households below the official threshold of the RS index, which is a composite index of socioeconomic classification of the RS.<sup>3</sup> The mechanism of RS has been working since 2003,<sup>4</sup> focused on poor and extremely poor households, elderly people, and people with disabilities. However, since 2014 it was focused on extremely poor households only; this means a reduction of around 60 per cent of beneficiaries since then.<sup>5</sup> The benefit amount was USD 35 per month until 2011 and increased to USD 50 per month in 2015. Two types of conditionality apply for families with children receiving the HDT. First, it is required that children aged 6–18 years in the household enrol in school and attend at least 90 per cent of the school days in a month. Second, it is required that children aged below 6 years in the household attend health centres at least twice per year for medical check-ups. The conditionality of the programme also extends to prenatal health controls, sexual and reproductive health consultations, eradication of child labour and mendacity, maintenance of the dwelling, and an annual update of changes in the socioeconomic situation of the household. Although the HDT programme establishes what co-responsibilities families must meet and sanctions for non-compliance, only a process to follow up on co-responsibilities is partially implemented.

According to MIES (2018), 12,000 elderly people have a fixed amount of USD 100 for HDT, and it is expected that during 2018 the number of beneficiaries is going to increase up to 30,000. Since January 2018 HDT implementation has a variable component for families. The variable component states that USD 30 will be given for the first child up to 5 years of age. For the second and third child of the same age, USD 27 and USD 24.30 will be given, respectively. An additional sum of USD 10 will be given for the first child between 5 and 18 years of age, and USD 9 and USD 8.10 will be given for the second and third child, respectively, of the same age range. It was established that, during 2018, 74,000 families in extreme poverty received the variable bonus. This figure was taken from the current RS database. The maximum value of the HDT between the fixed and variable components is USD 150 and is conditioned to the fulfilment of responsibilities of the users (Presidencia de la República 2018).

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3 The RS index is a welfare index calculated on the information that characterizes the population, which is stored in a database managed through an information system that, as of August 2017, works in SENPLADES (Presidencia de la República 2017). The RS is also a database that includes a cadastre at a national level that guarantees the identification of families living in poverty. The RS database is used for the identification, selection, targeting, and prioritization of beneficiaries or users of social programmes or state subsidies by the institutions responsible for them, who determine under their responsibility the thresholds in the index with which they will grant the benefit. Any user or beneficiary of social programmes or state subsidies must state, or if not, be registered in the RS database. Currently, information is being collected in a project called RS3, which covers the implementation years of 2018 and 2019 (SENPLADES 2018).

4 Up to 2007 it was called the SELBEN (*Registro de Selección de Beneficiarios de Programas Sociales*) index, and since 2008 this index changed to RS. From 2008 until 10 December 2017 we had two measures or indexes (SENPLADES 2018):(i) The RS1 index from 2008 to 2013 with a coverage of 2,319,820 households, 2,705,087 censal sectors, and 9,427,016 individuals.(ii) The RS2 index from 2013 to 2017 with a coverage of 2,103,332 households, 2,373,748 censal sectors, and 7,816,489 individuals.

5 A total of 748,000 households that received the HDT were excluded between April 2013 and April 2015 (SENPLADES 2018).

**Benefit 9** [Transfer Joaquín Gallegos Lara (*Bono Joaquín Gallegos Lara*): This benefit aims at improving living conditions of people with severe disabilities or illness, who are unable to live independently and who live under critical economic conditions (Presidencia de la República 2010: Executive Decree 422). The benefit is paid to the person responsible for the care of the individual with the disability or illness. In addition to the monetary transfer, medicines and training for the carer are provided, as well as funerary insurance in case of death of the person with the disability.

**Benefit 10** [Housing grant (*Bono de la vivienda*): The aim of the grant is to provide financial assistance to families living in Ecuador to help them complete the financing of either their first property purchase, the construction of a property on their owned land, or the improvement of their current property. Eligible individuals must: (i) be a permanent resident in Ecuador; (ii) be older than 18 years, or, if living alone with no dependants, be older than 50 years; (iii) not own another house in Ecuador in case of first-time buyers and individuals intending to build on their own land; or own only the property that they intend to renew; (iv) have household income below 2.9 times the UBS; (v) intend to purchase or build a property with a maximum value of USD 30,000. The amount of the grant is USD 5,000 in rural areas and USD 20,000 in urban areas.

### 1.2.3 Not strictly benefits

**Not strictly benefit 1** [Free school meals (*Programa de alimentacion escolar*): The programme aims at providing free school meals to children aged 3–14 years in order to reduce the gap in access to universal education and to improve its quality and efficiency in public primary school institutions.

**Not strictly benefit 2** [Free pre-school and elementary school uniforms and textbooks (*Programa Hilando el Desarrollo y textos escolares gratuitos*): The aim of the programme is to reduce the barriers to access education through the distribution of free uniforms and textbooks for children in public schools.

## 1.3 Social contributions

**Social insurance contribution 1** (to the general regime, *Aportaciones al IESS*): Social insurance contributions (SICs) finance pensions and other contributory benefits (e.g. severance pay). Conditions regarding contributions in the past determine eligibility and amount of contributory benefits. SICs are defined according to the sector of work of the person affiliated with the IESS. SICs cover six types of insurances: pension insurance, health insurance, occupational risk insurance, rural worker insurance, severance pay insurance, and disability insurance (since 2014), as well as administration costs. SICs are assessed on gross incomes above the UBS.

**Social insurance contribution 2** (for the armed forces and police, *Aportaciones al ISSFA o ISSPOL*): Members of the armed forces and the national police are affiliated to special regimes of social security with the Institute of Social Security of the Armed Forces (*Instituto de Seguridad Social de las Fuerzas Armadas*, ISSFA) and the Institute of Social Security of the National Police (*Instituto de Seguridad Social de la Policia Nacional*, ISSPOL), respectively. Contribution to these regimes finance contributory benefits such as pension insurance and health.

## 1.4 Taxes

### 1.4.1 National taxes

**Tax 1** [Personal income tax (*Impuesto a la renta de personas naturales*): Personal income tax is assessed at the individual level in Ecuador. Taxable income is composed of earnings from labour, extra pay, capital income, and income from rent. Exemptions apply to the pay for the 13th and 14th months, reserve funds, and deductions for disability and old age. Deductions to taxable income are composed of SICs and deductions from personal and dependant expenditures in five categories: housing, education, alimentation, clothes, and health.<sup>6</sup> The tax base is defined as

<sup>6</sup> The maximum deductible amount for expenses in 2018 is USD 14,651, which can be distributed in the categories of housing, education, alimentation, and clothes up to USD 3,662.75 each and in health up to the maximum USD 14,651 by itself; however, another restriction is that the total deductible value must not exceed 50 per cent of the taxable income.



taxable income minus exceptions, minus deductions. The tax schedule is formed of eight bands and rates between 5 and 35 per cent.

**Tax 2** [Corporate profit tax (*Impuesto a la renta de personas jurídicas*): Until 2011, income from companies was taxed at a flat rate of 25 per cent. Since 2011, the tax rate was progressively decreased by 1 percentage point per year until it reached 22 per cent, when it would be fixed. In 2014, according to Article 37 of the LRTI, income from companies established in Ecuador, as well as branches of foreign companies settled in the country, and permanent establishments of foreign companies without fiscal residence in Ecuador is taxed at a rate of 22 per cent.<sup>7</sup> A higher tax rate of 25 per cent applies in case companies have actionists, partners, constituents, or beneficiaries who are residents, or established in tax havens or regimes with a lower imposition, and who have a direct or indirect participation equal to or higher than 50 per cent of the company's capital. When participation is lower than 50 per cent, the rate of 25 per cent will be applied to the proportion of the tax base equivalent to that participation. A 25 per cent tax rate also applies in case the company fails to inform of changes to company shares by its actionists, partners, constituents, or beneficiaries.

**Tax 3** [Motor vehicle tax (*Impuesto a los vehículos motorizados*): According to the Law of Tax Reform published in the Supplement R.O. 325 of 14 May 2001, each owner of a motor vehicle is liable to an annual tax on the vehicle owned. The tax base corresponds to a valuation of the vehicle by the SRI. For brand new motor vehicles, the valuation is equal to the highest sell public price informed by the sellers. For other vehicles, the valuation corresponds to the highest selling price minus 20 per cent of annual depreciation, but the residual value cannot be lower than 10 per cent of the initial price.

**Tax 4** [Environment tax for car pollution (*Impuesto ambiental a la contaminación vehicular*): In 2012, an environment tax due to motor vehicle pollution was introduced by the Decree of Law published in the Supplement R.O. 583 of 24 November 2011. The tax amount depends on the type of vehicle (regular or hybrid) and the cylinder capacity. Exempted from the tax are vehicles of public institutions and professional drivers, vehicles destined to transport people with disabilities, classic cars, electric vehicles, ambulances, vehicles of international organizations or diplomatic service, vehicles linked to the economic activity of the owner, and vehicles of senior citizens.

**Tax 5** [Tax redeemable on non-returnable plastic bottles (*Impuesto redimible a las Botellas Plásticas no Retornables*): This tax is under the special regime called '*Ley de Fomento Ambiental y Optimización de los Ingresos del Estado*' (2011) and is generated by bottling alcoholic, non-alcoholic, gaseous, and non-carbonated beverages and water in non-returnable plastic bottles (i.e. polyethylene terephthalate, PET, material). The tax is also generated in the case of imported beverages, at the time of customs clearance. It is not generated in the bottling of dairy products and medicines in non-returnable plastic bottles.

**Tax 6** [Tax on international money transfers (*Impuesto a la salida de divisas*): In 2008, a tax on international money transfers (*Impuesto a la Salida de Divisas*, ISD) from Ecuador was introduced by the Law for Tax Equity of 29 December 2007 (Article 155) with the aim to control the flow of capital leaving the country (CEF 2013).<sup>8</sup> Initially, the tax rate was set at 0.5 per cent; it increased to 2 per cent in 2010 and then to 5 per cent in 2012. In 2008, the ISD raised a total revenue of around USD 31 million. The amount rose to more than USD 1,200 million in 2014 (SRI 2015a).

**Tax 7** (VAT): VAT is regulated by the LRTI, and applies to national operations as well as imported ones. Since 2000, the VAT rate has been set at 12 per cent.<sup>9</sup> However, some goods and services considered basic necessities are taxed at a 0 per cent rate, such as food products and basic services like water and electricity. The full list of goods taxed at a 0 per cent rate is specified in Articles 54 and 55 of the LRTI. In 2016, the VAT rate increased to 14 per cent in all provinces except Manabí and Esmeraldas, which were hit by the earthquake of April 2016.

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7 A company has fiscal residence in Ecuador if it is created or established in Ecuadorean territory.

8 There are currently internal discussions about whether to consider this instrument as a direct or indirect tax.

9 The VAT rate changed from 10 per cent to 12 per cent on 1 January 2000 (reform to the LRTI published in the Supplement R.O. 321 of 18 November 1999).

**Tax 8** [Excise duties (*Impuesto a los Consumos Especiales*, ICE)]: Excise duties are applied to luxury goods, such as alcohol, tobacco products, and automobiles, and applies to national operations as well as imported ones. The types of goods to which excise duties apply as well as the specific tax rates for each good have been subject to changes since the introduction of the LRTI in 1989. Article 82 of the LRTI specifies the list of goods to which special consumption tax (or ICE) applies in 2014. The rates vary widely with respect to the type of good, from 5 per cent for motor vehicles (up to 3.5 tonnes of cargo and sale price less than or equal to USD 20,000) to 300 per cent for guns and ammunitions.

**Tax 9** [Simplified tax regime (*Régimen Impositivo Simplificado*)]: This is regulated by the LRTI and is a voluntary registration regime for personal taxes only (does not apply for societies), which replaces the payment of VAT and income tax through monthly instalments and aims to improve the tax culture in the country. Article 97.1 and the following of the LRTI specifies the following requirements to access the scheme: (i) not having income greater than USD 60,000 per year, or, if it is under a dependency ratio, the income for this concept does not exceed the basic fraction of the income tax charged with a 0 per cent rate for each year; (ii) not engaging in any of the restricted activities; and (iii) not have been a withholding agent for the last three years.

#### 1.4.2 Sub-national taxes

**Tax 10** [Property tax (*Impuesto predial*)]: This tax is administered by the municipalities and therefore not regulated by the LRTI. In Ecuador, there are 221 cantons and each has its own municipality, so for the payment of this tax there may be the same number of methodologies. Some general rules to consider are as follows: residential property taxes are based on a percentage of the municipal value of the property; urban and rural properties are taxed at different rates; and homeowners aged 65 years and older are subject to exemptions or reduced rates of property tax.

**Tax 11** [Registration and patents tax (*Impuesto de matrículas y patentes*)]: This tax is administered by the municipalities and therefore not regulated by the LRTI. To execute an economic activity of a commercial or industrial nature, an annual patent must be obtained and paid, with prior registration in the registry maintained by each municipality.

**Tax 12** [Tax on public spectacles (*Impuesto a los espectáculos públicos*)]: This tax is also administered by the municipalities and therefore not regulated by the LRTI. It corresponds to a single tax of 10 per cent on the value of the price of the tickets sold for the public spectacle legally allowed; except in the case of professional sports events that will pay 5% of this value.

**Tax 13** [Tax on 1.5 per thousand on total assets (*Impuesto 1.5 X mil sobre activos totales*)]: This tax is applied to societies and individuals obliged to keep accounts. Taxpayers who carry out activities in more than one canton will present the tax declaration in the canton where they have their principal domicile. They need to specify the percentage of income obtained in each of the cantons where they have branches, and the value of the tax that corresponds to each municipality is determined based on said percentages.

**Tax 14** [Taxes on the transfer of ownership of real estate (*Impuestos a la transferencia de dominio de bienes inmuebles*)]: According to the local ordinances, when generating the transfer of domain of a property, capital gains tax must be paid to the Alcabalas, to the municipal works, and to the provincial council (Alcaldia del MD de Quito 2017).

## 2 Simulation of taxes and benefits in ECUAMOD

### 2.1 Scope of simulation

Tables 2.1 and 2.2 present, respectively, the tax and benefit components included in the model. The tables differentiate between those components that are included in the model but not simulated and those that are simulated in ECUAMOD, and provide reasons why simulation was not feasible.

**Table 2.1: Simulation of taxes and social contributions in ECUAMOD**

	<b>Variable name(s)</b>	<b>Treatment in ECUAMOD (2011–18)</b>	<b>Why not fully simulated?</b>
Personal income tax	<i>tin_s</i>	S	
Property tax	<i>tpr</i>	I	No information on property values in the data
Motor vehicle tax	<i>tca</i>	I	No information on vehicle values in the data
Value added tax (VAT)	<i>tva_s</i>	S	
Special consumption tax (ICE) (excise duties)	<i>tex_s</i>	S	
Employee social insurance contributions (SICs)	<i>tscee_s</i>	S	
Armed forces and police SICs	<i>txcee_s</i>	S	
Self-employed SICs	<i>tscse_s</i>	S	
Employer SICs	<i>tscer_s</i>	S	
Government SICs for armed forces and police	<i>txcer_s</i>	S	

Note: ‘S’ policy is *simulated* although some minor or very specific rules may not be simulated; ‘I’ policy is *included* in the microdata but not simulated.

Source: Authors’ compilation.

**Table 2.2: Simulation of benefits in ECUAMOD**

	<b>Variable name(s)</b>	<b>Treatment in ECUAMOD (2011–18)</b>	<b>Why not fully simulated?</b>
Old-age pension	<i>poa</i>	I	No data on contribution records
Invalidity pension	<i>pdi</i>	I	No data on contribution records
Survivors’ pension	<i>psu</i>	I	No data on contribution records
Human development transfer (HDT)	<i>bsa</i>	S	
Joaquín Gallegos Lara	<i>bdi</i>	PS	No data on severity of disability in the data
Housing grant	<i>bho</i>	I	No information about the price of the property individuals intend to buy nor about the cost of planned remodelling for their current house
Unemployment insurance benefit		E	No data on unemployment benefit in ENIGHUR 2011–12; no data on contribution records or previous earnings to simulate entitlement to unemployment insurance

Notes: ‘I’ policy is included in the microdata but not simulated; ‘S’ policy is simulated although some minor or very specific rules may not be simulated; ‘PS’ policy is partially simulated as some of its relevant rules are not simulated; ‘E’ policy is excluded in the model as it is neither included in the micro-data nor simulated. ENIGHUR, Encuesta Nacional de Ingresos y Gastos de Hogares Urbanos y Rurales (National Survey of Income and Expenditures of Urban and Rural Households).

Source: Authors’ compilation.

There have been no structural changes in the tax–benefit system in Ecuador between 2011 and 2013. Parameter changes during these years are explained in detail in the following sections for the tax–benefit instruments simulated in the model. In 2014, the only structural changes concern the introduction of a disability insurance contribution for employees at a rate of 0.1 per cent and the introduction of a severance pay insurance contribution for the self-employed at a rate of 3 per cent.

### 2.1.1 *Structural changes*

In March 2016, the unemployment insurance benefit was introduced. In order to be eligible for unemployment insurance, the person must have contributed to the social security system over 24 months, the benefit amount is based on the average earnings of the last 12 months in work and decreases over time. The maximum duration is five months. On 1 June 2017, the VAT rate returned to its previous rate from 14 per cent to 12 per cent in all provinces.

In January 2018, the amount of HDT for the elderly was increased to USD 100 but the threshold of the RS index was decreased to the same level of that for families with children.

Since January 2018, a variable HDT benefit amount was introduced in addition to the fixed amount (USD 50) for families with children. The variable component depends on the number of children of different ages in the family. For the first child below 5 years of age, an additional amount of USD 30 is given. For the second and third child of the same age, the variable amount is USD 27 and 24.30, respectively. For the first child aged between 5 and 18 years, there is an additional payment of USD 10, and USD 9 and USD 8.10 are given, respectively, for the second and third child between 5 and 18 years of age. However, the total amount of HDT (fixed plus variable amounts) cannot exceed USD 150 per month and is conditioned to the fulfilment of responsibilities of the users (Presidencia de la República 2018).

## 2.2 **Order of simulation and interdependencies**

Table 2.3 shows the order in which the policies in ECUAMOD are simulated. The order is the same for all years.

Minimum wage is simulated first, as the simulation of this policy affects employment income that is subsequently an input to SICs, personal income tax, and means-tested benefits. National minimum wage is also known as UBS (defined earlier) and it represents the basis for the calculation of floors and ceilings of contributory pensions and benefits. The UBS was fixed at USD 264 in 2011, USD 292 in 2012, USD 318 in 2013, USD 340 in 2014, USD 354 in 2015, and USD 366 in 2016 and by 2017 it was increased to USD 375. Note, however, that minimum wage is turned off in all years.

SICs are simulated first as they are deducted from taxable income in the simulation of personal income tax. HDT and the disability carer benefit are not taxable and are therefore simulated after income tax. VAT is simulated at the end.

**Table 2.3: ECUAMOD spine: Order of simulation**

Policy	EC_2011	EC_2012	EC_2013	EC_2014	EC_2015	EC_2016	EC_2016	EC_2017	EC_2018	Description of the instrument and main output
Uprate_ec	On	On	On	On	On	On	On	On	On	DEF: Uprating factors
ConstDef_ec	On	On	On	On	On	On	On	On	On	DEF: Constants
llsdef_ec	On	On	On	On	On	On	On	On	On	DEF: Standard income concepts
lldef_ec	On	On	On	On	On	On	On	On	On	DEF: Income concepts
TUDef_ec	On	On	On	On	On	On	On	On	On	DEF: Assessment units
yem_ec	Off	Off	Off	Off	Off	Off	Off	Off	Off	DEF: Minimum wage
neg_ec	On	On	On	On	On	On	On	On	On	DEF: Recode negative self-employment income to zero
tscee_ec	On	On	On	On	On	On	On	On	On	SIC: Employee Social Insurance Contributions (Aportaciones personales IESS asalariados)
txcee_ec	On	On	On	On	On	On	On	On	On	SIC: Armed Forces and Police Social Insurance Contributions (Aportaciones personales ISSFA o ISSPOL)
tscse_ec	On	On	On	On	On	On	On	On	On	SIC: Self-employed Social Insurance Contributions
tscer_ec	On	On	On	On	On	On	On	On	On	SIC: Employers Social Insurance contributions (Aportaciones patronales IESS)
txcer_ec	On	On	On	On	On	On	On	On	On	SIC: Government Social Insurance Contributions for armed forces and police (Aportaciones patronales ISSFA/ISSPOL)
tin_ec	On	On	On	On	On	On	On	On	On	TAX: Personal Income Tax (Impuesto a la renta de personas naturales)
bsa_ec	On	On	On	On	On	On	On	On	On	BEN: Human Development Transfer (Bono de Desarrollo Humano)
bcrdi_ec	On	On	On	On	On	On	On	On	On	BEN: Disability carer benefit (Bono Joaquín Gallegos Lara)
tva_ec	On	On	On	On	On	On	On	On	On	TAX: Value-added tax (IVA)
tex_ec	On	On	On	On	On	On	On	On	On	TAX: Special Consumption Tax—excise and ad valorem (Impuesto a los Consumos Speciales)
output_std_ec	On	On	On	On	On	On	On	On	On	DEF: Standard output individual level
output_std_hh_ec	Off	Off	Off	Off	Off	Off	Off	Off	Off	DEF: Standard output household level

Notes: DEF, definitional policy; SIC, social insurance contribution policy; BEN, benefit policy.

Source: Authors' compilation.

## 2.3 Social benefits

### 2.3.1 Human Development Transfer (bsa\_s)

#### Definitions

The objective of HDT is to improve human capital and avoid the persistency of poverty by means of direct monetary transfers to poor families aiming at: (i) guaranteeing a minimum level of income to families, (ii) introducing co-responsibilities oriented to investment in health and education, and (iii) protecting elderly adults and people with disabilities.

#### Eligibility conditions

Three population subgroups are eligible for HDT:

- Families with children younger than 18 years;
- Elderly adults who do not receive any pension;
- Persons with disability.

#### Income test

HDT is a proxy means-test benefit. The proxy means test is based on the composite index of socioeconomic classification of the RS. The index is based on a series of variables containing information on household characteristics, characteristics of the head of the household, housing, living conditions, assets, and territory (Fabara 2009).

In order to be eligible for HDT, families (a couple or single adult with children aged 0–18 years, where children aged 5–18 years must be enrolled and attending education) of children aged 18 years or below need to belong to the poorest population according to the composite index; that is, they need to fall below the poverty line established by the Ministry of Social Development Coordination (*Ministerio de Coordinación de Desarrollo Social*). Elderly adults and persons with disability (with 40 per cent or higher degree of disability) need to be in vulnerability conditions (as defined by the Ministry of Social Development Coordination) and cannot be affiliated with any type of social security institutions.

#### Conditionality

Two types of conditionality apply for mothers with children receiving HDT. First, it is required that children aged 6–18 years in the household enrol in school and attend at least 90 per cent of the school days in a month. Second, it is required that children aged below 6 years in the household attend health centres at least twice per year for medical check-ups. Additionally, the conditionality of the programme extends to prenatal health controls, sexual and reproductive health consultations, eradication of child labour and mendacity, maintenance of the dwelling, and an annual update of changes in the socioeconomic situation of the household.

#### Benefit amount

In 2011, the benefit amount for HDT was USD 35 per month. The amount was increased to USD 50 per month in 2013 (Presidencia de la República 2009, 2013). Since January 2018, the amount for HDT was increased to USD 100 for elderly adults, and the amount for families consists of a basic component of USD 50 and a variable component that depends on the age and number of children in the family. For the first child below 5 years of age, an additional amount of USD 30 is given. For the second and third child of the same age, the variable amount is USD 27 and 24.30, respectively. For the first child aged between 5 and 18 years, there is an additional payment of USD 10; for the second and third child between 5 and 18 years of age, USD 9 and USD 8.10 are given, respectively. However, the total amount of HDT (fixed plus variable amounts) cannot exceed USD 150 per month and is conditioned to the fulfilment of responsibilities of the users (Presidencia de la República 2018).

#### ECUAMOD notes

In order to simulate eligibility for HDT, a pseudo composite index was generated in the input data. Our pseudo index and the official index are likely to have different distributions as they are based on different samples and variables. Therefore, we determine the threshold for eligibility

as the value of the pseudo index below which we identify the same number of individuals as the official index. In 2014, the official threshold was revised for families with children. The new threshold for our pseudo index is determined in the same way, that is, the value below which we identify the same number of individuals as with the official threshold.

### 2.3.2 Transfer Joaquín Gallegos Lara (bcrdi\_s)

#### Definitions

In 2010, the transfer Joaquín Gallegos Lara was introduced with the aim of improving living conditions of people with severe disability or illness, who are unable to live independently and who live under critical economic conditions (Presidencia de la República 2010: Executive Decree 422).

#### Eligibility conditions

The following categories are eligible for the benefit:

- Individuals with severe disability (at least 75 per cent level of physical disability or 65 per cent of mental disability);
- Individuals with catastrophic or rare illnesses, who are not affiliated with or receiving pensions from the IESS, ISSFA, or ISSPOL;
- Children below the age of 14 years living with HIV/AIDS;
- Orphans.

#### Income test

There is no income test, but rather a medical/institutional certification.

#### Benefit amount

The amount of the benefit is USD 240 per month and it is paid to the person responsible for the care of the individual with a disability or illness. In addition to the monetary transfer, medicines and training for the carer are provided, as well as funerary insurance in case of death of the person with a disability. Also, the carer can have access to a life insurance of USD 500.

#### ECUAMOD notes

The transfer Joaquín Gallegos Lara is only partially simulated in ECUAMOD, meaning that eligibility to the benefit is based on whether individuals are observed receiving the benefit in the data. Full simulation (simulation of eligibility) is not possible because information about the degree of disability is not available in the data.

## 2.4 Social contributions

SICs in Ecuador are defined according to the sector of work of the person affiliated with the IESS. The number of categories related to specific sectors of employment has changed over time. The following categories have been defined since 2011:

- Category A: private sector employees and secular clergy members
- Category B: bank employees, employees of municipal and decentralized public institutions, notaries, and property and commercial registrars
- Category C: civil servants, including public education teachers and employees in the judiciary system, or other dependencies providing public services
- Category D: foreign service officers living abroad
- Category E: temporary workers in the sugar industry
- Category F: self-employed workers
- Category G: voluntary affiliates to the IESS.

The following sub-sections describe SICs for employees, employers, and the self-employed according to the definition of the different categories presented above for the period 2011–18. In particular, we are able to distinguish between five of the categories for the simulations in

ECUAMOD: A, B, C, F, and G. The other categories cannot be distinguished in the data and represent only a small proportion of the workforce; so, it is assumed that for these other categories social contributions are paid in line with the rules for the main category (A).

#### 2.4.1 Employee social contributions (tscee\_s)

##### Liability to contributions

All employees are liable to pay SICs based on their labour income.

##### Income base used to calculate contributions

The contribution base is defined as gross employment income. Contributions are not paid in the event that employment income drops below the UBS.

##### Contribution rates

In 2011, employees were liable to four types of social contributions: pension insurance, rural worker insurance, severance pay insurance, and administrative costs. Since 2014, an additional SIC for disability was implemented (IESS 2014a). In 2016, contributions to health insurance were introduced but they were abolished in 2017, except for category C for which they have been retained.

Contribution rates in Table 2.4 apply to workers under category A for years 2011–18.

**Table 2.4: Employee SIC rates for category A (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	6.64	6.64	6.64	6.64	6.64	5.76	6.64	6.64
Rural worker social insurance	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Severance pay insurance	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Disability insurance	—	—	—	0.10	0.10	0.10	0.10	0.10
Health insurance	—	—	—	—	—	0.88	—	—
Administration costs	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Total	9.35	9.35	9.35	9.45	9.45	9.45	9.45	9.45

Source: IESS (2011a, 2011b, 2014a, 2014b, 2015f, 2016b).

Workers under category B are subject to contribution rates as shown in Table 2.5 for years 2011–18.

**Table 2.5: Employee SIC rates for category B (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	8.64	8.64	8.64	8.64	8.64	7.76	8.64	8.64
Rural worker social insurance	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Severance pay insurance	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Disability insurance	—	—	—	0.10	0.10	0.10	0.10	0.10
Health insurance	—	—	—	—	—	0.88	—	—
Administration costs	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Total	11.35	11.35	11.35	11.45	11.45	11.45	11.45	11.45

Source: IESS (2011a, 2011b, 2014a, 2014b, 2015f, 2016b).

Workers under category C are subject to contribution rates as shown in Table 2.6 for the years 2011–18.



**Table 2.6: Employee SIC rates for category C (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	8.64	8.64	8.64	8.64	8.64	5.76	6.64	6.64
Rural worker social insurance	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Severance pay insurance	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Disability insurance	—	—	—	0.10	0.10	0.10	0.10	0.10
Health insurance	—	—	—	—	—	2.88	2.00	2.00
Administration costs	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Total	11.35	11.35	11.35	11.45	11.45	11.45	11.45	11.45

Source: IESS (2011a, 2011b, 2014a, 2014b, 2015f, 2016b).

Finally, since 2009, pensioners also contribute to social insurance at a rate of 2.76 per cent of their pension income.

### ECUAMOD notes

Employee SICs of worker categories A–C are simulated in ECUAMOD according to the information available in the data. The categories that cannot be distinguished in the data represent only a small proportion of the workforce and are assumed to pay social contributions in line with the rules for the main category (A).

#### 2.4.2 Employer social contributions (tscer\_s)

##### Liability to contributions

All employers are liable to pay SICs on gross employment income.

##### Income base used to calculate contributions

The contribution base is defined as gross employment income. Contributions are not paid in the event that employment income is lower than the UBS.

##### Contribution rates

Employers are liable to six types of SICs: pension insurance, health insurance, occupational risk insurance, rural worker insurance, severance pay insurance, and administrative costs.

For workers under categories A and B, contribution rates in Table 2.7 apply.

**Table 2.7: Employer SIC rates for categories A and B (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	3.10	3.10	3.10	3.10	3.10	0.10	0.16	0.16
Health insurance	5.71	5.71	5.71	5.71	5.71	9.06	9.00	9.00
Occupational risk insurance	0.55	0.55	0.55	0.55	0.55	0.20	0.20	0.20
Rural worker insurance	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Severance pay insurance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Administration costs	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Total	11.15	11.15	11.15	11.15	11.15	11.15	11.15	11.15

Source: IESS (2011a, 2011b, 2014b, 2015f, 2016b).

For category C, contribution rates in Table 2.8 apply.

**Table 2.8: Employer SIC rates for category C (2011–17)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	1.10	1.10	1.10	1.10	1.10	0.10	0.16	0.16
Health insurance	5.71	5.71	5.71	5.71	5.71	7.06	7.00	7.00
Occupational risk insurance	0.55	0.55	0.55	0.55	0.55	0.20	0.20	0.20
Rural worker insurance	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Severance pay insurance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Administration costs	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Total	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15

Source: IESS (2011a, 2011b, 2014b, 2015f, 2016b).

### ECUAMOD notes

Employer SICs of three worker categories A–C are simulated in ECUAMOD according to the information available in the data. The categories that cannot be distinguished in the data represent only a small proportion of the workforce and are assumed to pay social contributions in line with the rules for the main category (A).

### 2.4.3 Self-employed social contributions (tscse\_s)

#### Liability to contributions

Self-employed workers can contribute to SICs on a voluntary basis.

#### Income base used to calculate contributions

Self-employed workers contribute to social insurance based on their declared gross self-employment income with specific rates. Contributions are not paid in case self-employment income drops below the UBS.<sup>10</sup>

#### Contribution rates

In 2009, a single category regrouping all self-employed groups and individuals voluntarily affiliated to the IESS was defined (IESS 2009). In 2011, the category was split into two separate categories: self-employed workers (category F) and voluntary affiliated workers (category G) (IESS 2011a, 2011b, 2016b). The contribution rates for these categories are presented in Tables 2.9 and 2.10.

**Table 2.9: Self-employed SIC rates for category F (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	9.74	9.74	9.74	9.74	9.74	5.86	6.80	6.80
Health insurance	5.71	6.06	6.06	5.71	5.71	9.94	9.00	9.00
Occupational risk insurance	0.55	0.55	0.55	0.55	0.55	0.20	0.20	0.20
Severance pay insurance	—	—	—	3.00	3.00	3.00	3.00	3.00
Rural worker insurance	0.70	0.35	0.35	0.70	0.70	0.70	0.70	0.70
Disability insurance	—	—	—	—	—	0.10	0.10	0.10
Administration costs	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Total	17.50	17.50	17.50	20.50	20.50	20.50	20.60	20.60

Source: IESS (2011a, 2011b, 2014b, 2015f, 2016b).

<sup>10</sup> In the case of housewives, the contribution is fixed at 2 USD per month. ECUAMOD does not simulate these cases, which represent only 0.37 per cent of the sample.

**Table 2.10: Voluntary affiliates SIC rates for category G (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Pension insurance	9.74	9.74	9.74	9.74	9.74	5.86	6.80	6.80
Health insurance	5.71	6.61	6.61	5.71	5.71	9.94	9.00	9.00
Occupational risk insurance	0.55	—	—	0.55	0.55	0.20	0.20	0.20
Severance pay insurance	—	—	—	3.00	3.00	3.00	3.00	3.00
Rural worker insurance	0.70	0.35	0.35	0.70	0.70	0.70	0.70	0.70
Disability insurance	—	—	—	—	—	0.10	0.10	0.10
Administration costs	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Total	17.50	17.50	17.50	20.50	20.50	20.50	20.60	20.60

Source: IESS (2011a, 2011b, 2014b, 2016b).

An additional category of workers included in the simulation of self-employed SICs is rural workers, who are affiliated to the special rural worker social security regime (*Seguro Campesino*). In order to be member of the rural worker social security regime a person must: (i) have a residency in the rural area or be an artisanal fisherman, (ii) not be affiliated to the general social security regime, (iii) not receive remuneration from an employer, and (iv) not be a permanent employer. The amount of SICs paid by members of the rural worker social security regime is equal to 2.5 per cent of 22.5 per cent of the UBS.

### ECUAMOD notes

Self-employed SICs of two worker categories F and G are simulated in ECUAMOD according to the information available in the data.

#### 2.4.4 Armed forces and police social contributions (txcee\_s and txcer\_s)

Members of the armed forces or the national police contribute to special regimes of social insurance. Members of the armed forces are affiliated to the ISSFA, whereas members of the national police are affiliated to the ISSPOL.

The information available in the input data for ECUAMOD allows us to distinguish those individuals who are affiliated to the IESS from those who are affiliated to the ISSFA or ISSPOL (but not to each of them). For this reason, in addition to SICs to the IESS, ECUAMOD simulates contributions made by members of the armed forces or the national police, as well as government contributions to these regimes (employer contributions).

The rate of SICs for members of the ISSFA is 23 per cent, whereas the rate for members of the ISSPOL is 23.10 per cent. For both regimes, the government contribution is 26 per cent of earnings.

### ECUAMOD notes

The level of detail in the input data for ECUAMOD does not allow distinguishing whether an individual is affiliated to the ISSFA or the ISSPOL. For this reason, we simulate jointly SICs to these regimes, with a contribution rate fixed at 23.05 per cent of earnings.

## 2.5 Personal income tax (tin\_s)

Personal income tax is regulated by the LRTI. Major reforms to this tax were introduced by the Law of Tax Equity (*Ley Reformatoria para la Equidad Tributaria*) of 2007 (Asamblea Constituyente 2007), which entered into force in 2008 and aimed to increase progressivity of personal income tax and to improve tax collection.

### 2.5.1 Tax unit

Personal income tax in Ecuador is assessed at the individual level.

### 2.5.2 Taxable income

Since 2008, taxable income is composed of earnings from labour (employment and self-employment income) plus contributions to social security, plus extra pay, plus utilities participation (Asamblea Constituyente 2007: Equity Tax Reform Act, Articles 16 and 17).<sup>11</sup> Before the introduction of the Law of Tax Equity, the pay for the 13th and 14th months and the reserve funds were also part of taxable income.

### 2.5.3 Exemptions

Until 2007, the main income tax exemptions for personal income concerned pension income from the IESS. One of the reforms introduced in 2008 exempted taxes to the 13th and 14th months salaries, reserve funds, and deductions for old age and disability (Asamblea Constituyente 2007: Equity Tax Reform Act, Article 9, numerals 11, 12, and 15). The 13th month salary is equal to one-twelfth of the accumulated earnings received during the calendar year. The pay for the 14th is equal to one UBS, equal to USD 375 in 2017 (see Section 3.1). According to the Labour Code, Article 196, the reserve fund is equal to one additional salary that is paid to the IESS for every worked year and can be accumulated or disbursed with the monthly wage. Deductions for disability were equal to three times the basic exempted tax band until 2012, and two times since 2013. Deductions for old age are equal to two times the basic exempted band.

### 2.5.4 Tax deductions

Deductions for taxable income are composed of contributions to social security and, since 2008, deductions from personal expenditures (Asamblea Constituyente 2007: Equity Tax Reform Act, Article 10, numerals 9 and 16). Deductions from personal expenditures are equal to expenditure in food, clothing, education, health, and housing. They cannot be higher than 50 per cent of taxable income (sum of monthly earnings from labour, contributions to social security, extra pay, and utilities participation) or 1.3 times the basic exempted band. Additionally, there are individual limits for each type of expenditure. Expenditure in food, housing, education, and clothing cannot exceed 0.325 times the basic exempted band for each category. Expenditure in health cannot exceed 1.3 times the basic exempted band.

### 2.5.5 Tax base

The tax base for personal income tax calculations is defined as taxable income minus exemptions, minus deductions.

### 2.5.6 Tax schedule

The tax schedule applied to the tax base was formed from five tax bands and rates between 5 per cent and 25 per cent until 2007. The tax schedule was modified as part of the reforms introduced in 2008. As a result of the tax reforms, since 2008, the tax schedule is more progressive, with eight tax bands and rates between 5 and 35 per cent. Table 2.11 presents the tax schedule for the years 2011–18.

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<sup>11</sup> Utilities participation is a benefit for employees, where 15 per cent of a firm's utilities are distributed among all employees in the firm.

**Table 2.11: Personal income tax schedule (2011–18)**

Per cent	2011	2012	2013	2014	2015	2016	2017	2018
0	0–9,210	0–9,720	0–10,180	0–10,410	0–10,800	0–11,170	0–11,290	0–11,270
5	9,210–11,730	9,720–12,380	10,180–12,970	10,410–13,270	10,800–13,770	11,170–14,240	11,290–14,390	11,270–14,360
10	11,730–14,670	12,380–15,480	12,970–16,220	13,270–16,590	13,770–17,210	14,240–17,800	14,390–17,990	14,360–17,950
12	14,670–17,610	15,480–18,580	16,220–19,920	16,590–19,470	17,210–20,670	17,800–21,370	17,990–21,600	17,950–21,550
15	17,610–35,210	18,580–37,160	19,920–38,830	19,470–39,830	20,670–41,330	21,370–42,740	21,600–43,190	21,550–43,100
20	35,210–52,810	37,160–55,730	38,830–58,390	39,830–59,730	41,330–61,980	42,740–64,090	43,190–64,770	43,100–64,630
25	52,810–70,420	55,730–74,320	58,390–77,870	59,730–79,660	61,980–82,660	64,090–85,470	64,770–86,370	64,630–86,180
30	70,420–93,890	74,320–99,080	77,870–103,810	79,660–106,220	82,660–110,190	85,470–113,940	86,370–115,140	86,180–11,890
35	93,890–	99,080–	103,810–	106,200–	110,190–	113,940–	115,140–	114,890–

Source: SRI (2015b, 2016, 2017a, 2017b).

## ECUAMOD notes

Personal income tax is simulated under the assumption of full compliance. Simulation of some sort of tax evasion could be included in future versions of the model, based on certain assumptions about people who might be evading tax payments.

## 2.6 Indirect taxes

### 2.6.1 VAT (tva\_s)

VAT is regulated by the LRTI. Since 2000, the VAT rate has been set at 12 per cent. In 2016, the VAT rate was increased to 14 per cent in all provinces except those hit by the earthquake in April 2016. Some goods and services considered basic necessities are taxed at a 0 per cent rate, such as food products and basic services like water and electricity. The full list of goods taxed at a 0 per cent rate is specified in Articles 54 and 55 of the LRTI. By 1 June 2017, VAT was scaled back to 12 per cent.

### 2.6.2 Special consumption tax (tex\_s)

The ICE represents a form of excise duty that applies to specific products and services, such as alcohol, tobacco products, and automobiles.

Five groups of goods are subject to ICE according to Article 82 of the LRTI:

#### Group 1

- Tobacco products and tobacco substitutes
- Soda drinks
- Perfumes and eaux de toilet
- Video games
- Firearms, sporting weapons, and ammunition. except those acquired by the public force
- Incandescent lights except those used as inputs, automotive stoves, heaters and boilers for domestic use that work fully or partially with gas.

#### Group 2

- Motorized vehicles of up to 3.5 tonnes of cargo
- Hybrid or electric vehicles of up to 3.5 tonnes of cargo
- Airplanes and helicopters except those intended for commercial transport of passengers, cargo, and services; jet skis; tricars; quads; yachts; and recreation boats.

### Group 3

- Paid television services
- Casinos, gambling rooms (bingo—mechanics), and other games of chance.

### Group 4

- Fees, membership, affiliations, and others that charge their members and users of the social clubs, to provide their services, when the amount exceeds USD 1,500 per year.

### Group 5

- Cigarettes
- Alcoholic drinks, including beer

According to Article 75 of the LRTI, three different types of tariffs may apply to goods and services subject to ICE: (i) specific tariffs, which are levied as a fixed charge per unit of good; (ii) ad valorem tariffs, which are levied as a fixed percentage of the value of the good or service; and (iii) mixed tariffs, which are a combination of both previous tariffs.

ICE for four types of goods is considered in our simulations based on the number of observations in data for which consumption of these goods is observed. In particular, we simulate ICE for alcoholic drinks including beer, cigarettes, soda drinks, and perfumes. Table 2.12 presents the tariffs applied to these goods for the years 2011–18.

**Table 2.12: Special consumption tax tariffs (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Specific tariffs								
Cigarettes (USD per unit)	0.08	0.08	0.081	0.0862	0.0925	0.16	0.16	0.16
Beer (USD per litre of pure alcohol)	6.2	6.08	6.93	6.93	7.1	12	12	12
Wine and spirits (USD per litre of pure alcohol)	6.2	6.08	6.93	6.93	7.1	7.24	7.24	7.22
Ad valorem tariffs (in %)								
Beer	75	75	75	75	75	75	75	75
Wine and spirits	75	75	75	75	75	75	75	75
Perfumes	20	20	20	20	20	20	20	20
Soda drinks	10	10	10	10	10	10	10	18

Note: The 20 per cent tariff on perfumes is applied to the tax base, which is calculated applying an increment to the ex-customs price or total production price. The range of the increment applied to the ex-customs price or total production costs is: (i) 150 per cent if the price is between USD 0.00 and USD 1.50; (ii) 180 per cent if the price is between USD 1.51 and USD 3.00; (iii) 240 per cent if the price is between USD 3.01 and USD 6.00; and (iv) 300 per cent if the price is USD 6.01 or above.

Source: Authors' compilation based on SRI (2017a, 2017b).

### ECUAMOD notes

In order to calculate the specific part of ICE for beers and alcoholic drinks, the following degrees of alcohol per litre are assumed: 4 per cent for beers, 2 per cent for light beers, 15 per cent for wine, and 35 per cent for all other spirits. For simplicity, the ad valorem part of ICE is applied to all expenditures on beer and alcoholic drinks after VAT has been deducted. This corresponds to applying the ad valorem tariff based on the sale price, whereas the tax base is based on the ex-fabric or ex-customs price.

## 3 Data

### 3.1 General description

ENIGHUR is a nationally representative cross-sectional survey on income and expenditures of households in Ecuador (ANDA 2012). The survey is conducted approximately every eight years. The latest ENIGHUR is for years 2011–12 and contains information for 39,617 households (Table 3.1). The survey follows a probabilistic two-stage sample design in nine self-represented cities and a three-stage design in the rest of the country.<sup>12</sup>

**Table 3.1: ECUAMOD database description**

<b>ECUAMOD database</b>	EC_2011_a4
<b>Original name</b>	ENIGHUR 2011–12
<b>Provider</b>	National Institute of Statistics and Census (Instituto Nacional de Estadística y Censos. INEC)
<b>Year of collection</b>	2011/2012
<b>Period of collection</b>	04-2011/03-2012
<b>Income reference period</b>	2011/2012
<b>Sample size</b>	39,617 households/153,341 individuals
<b>Response rate</b>	96.79%

Source: Authors' compilation.

The sampling unit is the dwelling defined as the persons or group of people living in the same housing structure (dwelling), sharing meals, and who depend on a common budget. Information about the household and each member of the household occupying the dwelling is collected. The survey contains information on personal and household characteristics, labour and non-labour income, taxes and SICs, public and private transfers, and consumption.

Employment and self-employment income refer to gross monthly incomes before taxes. Contributions to social security and taxes are available directly in the data. In-kind income, income from capital, private transfers, income from remittances, and cash transfer programmes (HDT, Joaquín Gallegos Lara, and housing grant) are also available in the survey. Income from property, other rents, and pensions are also available in the survey. Contributory pensions, however, are not disaggregated.

### 3.2 Data adjustment

Adjustments to the data and variables are kept to a minimum. Individuals recorded as domestic employees in a household have been dropped together with their children, as information about their own household (e.g. total number of children, expenditures) is not available. In total, 103 individuals (0.07 per cent of the sample) were dropped from the original sample but no households were dropped. No adjustments to the weights were made as a result of these drops.

Some data cleaning has been done to ensure that the relationship between household members is consistent. In particular, partner's identifiers had to be generated based on information about identifiers of mothers and fathers, relationship to the head of the household, gender, and age of individuals. Such adjustments concern mostly households where multiple couples are observed.

Imputations were made for a small number of observations which had inconsistent information between expenditure and quantities following the calculation of excise duties in the data preparation and which resulted in excise duties larger than the expenditure amount. In those cases, mean quantity was used to compute the corresponding excise duties and remove them from expenditure data.

<sup>12</sup> The nine self-represented cities are: Cuenca, Machala, Esmeraldas, Guayaquil, Loja, Manta, Quito, Ambato, and Santo Domingo.

### 3.3 Imputations and assumptions

#### 3.3.1 Time period

Information about demographic variables in ENIGHUR refers to the time of data collection. Information on earnings refers to the last pay period. Similarly, information about pensions and benefits refers to receipts in the most recent relevant period (e.g. month, last 3 months, last 12 months, etc.) before the interview. Self-employment income is based on the last 6 months. Investment income is based on the last 3-month receipt. For expenditures, information is collected differentiating between daily, monthly, 3-month, 6-month, and yearly expenditures.

All monetary amounts in ENIGHUR are expressed in monthly terms, as required for the ECUAMOD database. In the ECUAMOD calculations, it is implicitly assumed that income is received at the same rate throughout the year. However, it should be remembered that this may not be the case and, in particular, that income tax (based on annual income) simulations do not take account of changes that may happen during the year.

#### 3.3.2 Gross incomes

The ENIGHUR dataset contains information about gross monetary incomes.

#### 3.3.3 Disaggregation of harmonized variables

The ENIGHUR dataset includes a single variable covering all pension payments. This variable includes contributory old-age, disability, and survivors' pensions as well as severance pay and alimony for divorce and children. This single variable is split into five in the ECUAMOD database. One variable corresponds to old-age pension, where disaggregation is based on the individual's age (attributed if individuals are 60 years or older). The second variable is disability pension, attributed to individuals reporting to be disabled in the data. The third variable is survivors' pension, attributed to widows or widowers as well as orphans. The fourth variable is severance pay, attributed to unemployed individuals who are affiliated to national social insurance according to the data. Finally, for individuals who do not match any of the characteristics used to split the previous four variables, the amount observed in the aggregated variable is recorded under a variable for alimony.

### 3.4 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 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 3.2.



**Table 3.2: Raw indices for deriving ECUAMOD uprating factors**

Index	Constant name	Value of raw indices								Source	Income component uprated by the index
		2011	2012	2013	2014	2015	2016	2017	2018		
CPI, World Bank	<i>\$HICP</i>	104.47	109.8	112.81	116.84	121.48	123.58	124.09	124	<a href="http://data.worldbank.org/indicator/FP.CPI.TOTL?locations=EC">http://data.worldbank.org/indicator/FP.CPI.TOTL?locations=EC</a>	
GDP deflator, World Bank	<i>\$f_gdp_wb</i>	130.12	136.61	140.84	145.10	141.49	142.78	144.87	144.47	<a href="http://data.worldbank.org/indicator/NY.GDP.DEFL.ZS?end=2015&amp;locations=EC&amp;start=1998">http://data.worldbank.org/indicator/NY.GDP.DEFL.ZS?end=2015&amp;locations=EC&amp;start=1998</a>	
GDP deflator	<i>\$f_gdp</i>	130.12	136.61	140.84	145.10	141.37	144.18	146.99	145.49	Central Bank of Ecuador	<i>yiy, ydv, yil, yro, ypr</i>
CPI	<i>\$f_cpi</i>	105.41	109.80	112.76	116.90	120.85	122.94	123.45	123.03	Central Bank of Ecuador	<i>amrrm, amrtn, ate, aco, aca, afc, bed, bfa, tpr, tscee, tscse, tscer, tin, tis, tva, tseot, twl, tprtf, tca, xmp, xpp, xhc, xhcrt, xhcmomi, xhcot, xca, xcd, xfd, xcl, xdf, xhs, xhl, xtr, xpt, xcm, xle, xleot, xed, xrs01, xrs02, xog, xot, ypp</i>
CPI: alcohol and tobacco	<i>\$f_cpi_at</i>	191.10	227.30	245.20	253.60	282.90	325.85	332.52	334.58	Central Bank of Ecuador	<i>xal, xtbo1, xtbo2</i>
Average wage (monthly), USD	<i>\$f_yem</i>	307.83	340.47	370.82	396.52	412.90	426.92	437.44	450.26	Central Bank of Ecuador	<i>bun, bhl, kfb, kivho, yivwg, yem, yse, ypt, yot, yemre, yemnr, ysere, ysenr, yemxp, yemsv, yembo, yemot, yxp, ybo, ypv, yaj, yab, ycd, ywl, ysv, yseag, yotoc</i>
UBS (monthly) USD	<i>\$f_minwage</i>	264	292	318	340	354	366	375	386	Statutory parameter	<i>bsa, bho, bcrdi, pdi, poa, psu</i>
Unity index	<i>\$f_unit</i>	1	1	1	1	1	1	1	1		

Notes: Uprating indices for 2018 are calculated based on growth of CPI from December 2017 to September 2018, using statistics from the Central Bank of Ecuador, except for alcohol and tobacco, in which case the CPI for this specific category is used as of August 2018.

Source: Authors' compilation, based on Central Bank of Ecuador (2018).

## 4 Validation

### 4.1 Aggregate validation

ECUAMOD 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 Annex B. 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 ECUAMOD 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 B1 in Annex B shows the number of employed and unemployed in the dataset used for EUROMOD simulations against external benchmarks. The database underrepresents the number of people in work compared with information from the Survey on Employment, Underemployment and Unemployment (*Encuesta Nacional de Empleo, Desempleo y Subempleo*, ENEMDU), whereas there is a more important overestimation of the number of people in unemployment.

Table B2 in Annex B compares the number of recipients of either employment or self-employment income in ECUAMOD's input database with the corresponding information obtained from the number of people in employment and self-employment based on ENEMDU in 2011. No adjustment is made to reflect employment/self-employment trends in subsequent years. The number of recipients of employment income in ECUAMOD represents well the number of people in employment according to ENEMDU, with only a slight overestimation. The number of persons receiving self-employment income is also well represented in the input dataset compared with external information. However, self-consumption has not been considered as part of self-employment income but as a separate income component in ECUAMOD's input data.

Table B3 in Annex B presents the aggregate amount of employment and self-employment income obtained with ECUAMOD. Comparable external statistics are not available to validate these results.

Tables B4 and B5 report the validation of benefits included in ECUAMOD but not simulated. A comparison of the total number of recipients of three pension types is shown in Table B4 in Annex B. It is worth reminding that pension payments in ENIGHUR are recorded in a single variable. Therefore, the total number of recipients of specific pension types is the result of our disaggregation of pension payments. Our disaggregation results in a good representation of the number of old-age pensioners in 2011 (the baseline year) compared with external data. However, the total number of recipients of disability and survivors' pension is underestimated in all years, highlighting the difficulties of disaggregating information for this type of pensions.

Table B5 in Annex B presents a comparison of aggregate amounts of non-simulated benefits, as derived from the input database and as reported by the IESS. Following the same pattern as the number of recipients, the aggregate amount of old-age pension is comparable, but over time we observe some underestimation. On the other hand, disability and survivors' pensions are underestimated as it was the case for the number of recipients of this type of pensions. Finally, the aggregate amount of housing grant derived from the input data is also underestimated compared with information from the Ministry of Urban Development and Housing.

#### 4.1.2 Validation of outputted (simulated) incomes

The numbers of recipients of simulated benefits and payers of simulated taxes and contributions are compared with external benchmarks in Table B6 in Annex B. The external statistics provide information about recipients of social assistance (HDT) and the disability carer benefit (Joaquín Gallegos Lara), as well as number of members to social security and payers of income tax.

Table B6 shows that for HDT, there is an underestimation of around 20 per cent of recipients in 2011. In order to assess eligibility for HDT, we replicated the index of the Social Register with the input data and fixed the threshold of eligibility by identifying the same number of people below the official threshold. The underestimation of recipients of the HDT could be related to

discretion as to who is eligible for the transfer, which cannot be captured in our simulations. Results for the disability carer benefit, which are also based on actual benefit receipt in the data, are underestimated compared with external sources. Disability carer benefit is only partially simulated as eligibility depends on the severity of disability and this information is unavailable in the data.

The number of tax payers and employee SIC payers is underestimated compared with data from the IESS and the SRI, as shown in Table B6. The underestimation is important for payers of armed forces and police SICs and even more so for payers of self-employed contributions. It is important to note that external statistics of number of SIC payers disaggregated between employees and self-employed are only available in 2011 and 2012. Aggregate information on total payers of SICs is disaggregated for other years based on the shares of employees and self-employed payers in 2012.

Tables B7a and B7b in Annex B present a set of figures related to aggregate annual expenditure in social benefits and revenue from taxes and SICs. Results for aggregate expenditures on benefits follow the same pattern as number of recipients of the benefits. The underestimation of amounts of simulated social assistance in comparison to both the input data and external statistics is around 7 per cent in 2011 (Table B7b). The underestimation of disability carer benefit compared with external sources follows a very similar pattern to that observed for the number of recipients (Table B7b).

Tables B7a and B7b further show simulated aggregate amounts of personal income tax and SICs by type of payer. Our simulations overestimate the amount of taxes and SICs with respect to those obtained with the original data (Table B7a). This is probably related to the difficulties of recording this type of deductions in surveys. On the other hand, compared with external sources, we observe an underestimation of tax and social contribution amounts (Table B7b). The underestimation follows the pattern observed in terms of number of tax payers and social insurance contributors. The underestimation of income tax and employee SICs is not too severe, with a gap of around 20 per cent. The underestimation of self-employed and armed forces SICs is more important, in line with the underestimation of the number of payers. The underestimation of income tax and SICs is likely to be related to the fact that, in general, surveys fail to properly capture the top of the income distribution and this is particularly the case for developing countries such as Ecuador. As it was the case for the number of payers, external statistics of SIC amounts disaggregated between employees and self-employed are only available in 2011 and 2012. Aggregate information on total SICs is disaggregated for other years based on the shares of employees and self-employed contributions in 2012.

Additionally, Table B7b provides a comparison of aggregate amount of VAT and excise duties on certain products. Compared with external statistics, VAT and excise duties are in general underestimated by around 50 per cent. However, it is worth reminding that official statistics on VAT include payments by firms, whereas our simulation results are based on consumption of households only. Excises on cigarettes present an important underestimation, with our simulated aggregate amounts representing only about 18 per cent of the aggregate amount of official statistics. On the other hand, excises on perfumes are overestimated by around 36 per cent in 2011.

## 4.2 Income distribution

The results presented in this section focus on income inequality and poverty. The results are computed for individuals according to their household disposable income (HDI) equalized by the number of people in the household. HDI is calculated as the sum of all income sources of all household members net of income tax and SICs. Equalizing HDI by the number of members of the household is the approach used by the National Institute for Statistics and Census (*Instituto Nacional de Estadística y Censos*, INEC) to calculate income poverty.

Additionally, for the case of relative income poverty we provide results based on HDI equalized by the 'modified OECD equivalence scale', which is the approach used to calculate poverty in developed economies. The weights in the scale are: first adult = 1, additional people aged 14 years and above = 0.5, and additional people aged below 14 years = 0.3.

The comparison of poverty and inequality results needs to be treated with care because the definitions of household income used in ECUAMOD and those used by INEC are not completely

comparable. In particular, the approach taken by INEC, based on ENEMDU, is to add back the deductions from SICs and income tax to employment income. Moreover, some social benefits are not included in the income concept used by INEC, as they are not available in ENEMDU. These are compensations from accidents, scholarships, housing grants, and termination payments. Finally, income information in ENIGHUR is recorded at a more disaggregated level than in ENEMDU, which could improve the precision of income information. In addition to inequality and poverty statistics from INEC, we also compare ECUAMOD results to those obtained directly from ENIGHUR for 2011, using a definition of HDI similar to that of ECUAMOD.

#### 4.2.1 Income inequality

Table B8 in Annex B compares income inequality from ECUAMOD results and official statistics based on ENEMDU, using as an inequality measure the Gini coefficient. Income inequality obtained with ECUAMOD slightly underestimates the official estimates, based on ENEMDU. A similar underestimation is observed when ECUAMOD results are compared with those obtained directly from ENIGHUR data in 2011.

#### 4.2.2 Poverty rates

Table B8 also presents statistics on poverty and extreme poverty in Ecuador, derived using ECUAMOD simulations and those published by INEC. Two issues are worth highlighting. First, the official poverty estimates from Ecuador use the concept of absolute poverty. Second, the official estimates are based on ENEMDU. As previously mentioned, the income concept used for the calculation of poverty is not exactly the same as that used in ECUAMOD, and ENIGHUR contains much more detailed information on certain income components. The absolute poverty lines used for the indicators are presented in Table 4.1.

**Table 4.1: Poverty and extreme poverty lines in monthly US dollars (2011–18)**

	2011	2012	2013	2014	2015	2016	2017	2018
Poverty	72.87	76.34	78.1	81.04	83.79	84.68	84.49	84.72
Extreme poverty	41.06	43.02	44.01	45.67	47.22	47.72	47.62	47.74

Source: Authors' compilation based on INEC (2016a, 2018).

Table B8 shows that compared with official poverty estimates, ECUAMOD results underestimate poverty by around 27 percentage points, whereas the underestimation of extreme poverty is more important (around 50 percentage points). The discrepancy is mainly driven by the fact that ENIGHUR, on which ECUAMOD input data are based, contains more detailed income information than ENEMDU, which is used to calculate the official poverty estimates. In fact, ECUAMOD results match better those obtained directly from ENIGHUR data in 2011, with poverty and extreme poverty rates only slightly underestimated. Poverty and extreme poverty estimates are also compared for urban and rural populations, and for three age groups. In all cases, poverty is underestimated in ECUAMOD compared with official statistics based on ENEMDU, whereas a better fit is observed with respect to ENIGHUR data.

Table B9 in Annex B provides information about relative poverty rates calculated with ECUAMOD but now for HDI equalized using the modified OECD equivalence scale. The aim of Table B9 is to provide a representation of poverty rates with a similar methodology as that used for developed countries. Relative poverty rates obtained at the usual 60 per cent median threshold are relatively similar to those obtained with the absolute poverty threshold, whereas those obtained with a 40 per cent median threshold are 3 percentage points higher than those of absolute extreme poverty. ECUAMOD relative poverty rates are only slightly underestimated, compared with those from ENIGHUR data in 2011.

### 4.3 Statistics Presenter

A series of variables and income lists have been created in ECUAMOD for the use of the Statistics Presenter tool in the EUROMOD platform. This section describes the elements implemented in the model for the use of the tool

Two constants have been created in the model to define the values of the poverty line (*sp*) and extreme poverty line (*sp01*) in Ecuador, according to the values in Table 4.1.

A variable defining the size of the household (*ses*) has been created in the model to be used as equivalence scale for the household, in line with the methodology used by INEC, where poverty and inequality are calculated based on disposable income per capita. The variable is attributed to the head of the household as defined in the survey (*dhh*), whereas for all other household members the value zero is attributed.

The following income lists have been created in the model for the use of the Statistics Presenter tool:

- *ils\_taxind*: indirect taxes, containing VAT and special consumption tax (ICE)
- *ils\_sic*: social security contributions by employees, self-employed, and employers
- *ils\_bch*: child-related benefits; this income list is empty in ECUAMOD as there are no specific child-related benefits in Ecuador
- *ils\_bsa*: social assistance-related benefits, containing the human development transfer and housing grants
- *ils\_bsu*: orphan and widowhood-related benefits, containing survivors' pensions (montepío)
- *ils\_bdi*: disability-related benefits, containing disability pensions and the Joaquín Gallegos Lara transfer
- *ils\_bun*: unemployment-related benefits, containing severance payment
- *ils\_tistn*: contains income tax, employee and self-employed social security and turnover tax as recorded in the data; turnover tax is set to zero in ECUAMOD
- *ils\_dispy2*: disposable income with imputed values for own produce (food and non-food); in ECUAMOD, this income list is identical to *ils\_dispy*, which already contains own produce (*kivoto1* and *kivoto2*) as these variables are part of original income (*ils\_origy*)
- *ils\_bendata*: benefits that are collected in the data and also simulated in the model, containing the human development transfer and the Joaquín Gallegos Lara transfer
- *ils\_xhh\_s*: simulated consumption, which is defined as: household expenditure as recorded in the data (*xhh*) minus simulated taxes (*ils\_taxsim*), minus simulated employee SICs (*ils\_sicse*), minus simulated self-employed SICs (*ils\_sicse*), plus direct taxes from the data (*ils\_tistn*), plus simulated benefits (*ils\_bensim*), minus benefits in the data (*ils\_bendata*).

#### 4.4 Summary of 'health warnings'

Pension payments in ENIGHUR are recorded in a single variable. In order to provide specific information on different types of pension income (e.g. old-age pensions, disability pensions, survivors' pensions), the information from ENIGHUR was disaggregated based on personal characteristics of the recipients of pension payments. Therefore, there will be inevitably some bias due to benefit splitting.

There is underrepresentation of people with higher incomes in the ENIGHUR survey, which are likely to result in an underestimation of personal income tax and SICs.

The comparison of poverty and inequality results should be taken with care. Income information in ENIGHUR is much more detailed than that of ENEMDU, which is used to calculate official poverty and inequality estimates. Using the original ENIGHUR data, poverty estimates are considerably lower than those obtained with ENEMDU. Due to the discrepancies between both data sources, ECUAMOD results underestimate poverty and inequality compared with ENEMDU.

The household income concept used for calculations of official poverty statistics also differs from the concept of HDI used in ECUAMOD. For instance, taxes and SICs are not deducted from the measure of income used for poverty and inequality calculations.

Extreme poverty rates are importantly underestimated in ECUAMOD compared with official statistics based on ENEMDU, but only a minor underestimation is observed compared with statistics from ENIGHUR data in 2011.

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## Annex A: Institutions and social programmes related to HDT

Institutions	Programmes
Ministerio de Inclusión Económica y Social (MIES)	HDT Mothers ( <i>Bono de Desarrollo Humano - BDH</i> ) HDT Elderly ( <i>Pensión para Adultos Mayore</i> ) HDT Disabilities ( <i>Pensión para Personas con Discapacidad</i> ) Pension for Senior People: 'My best years' ( <i>Pensión para Adultos Mayores "Mis mejores años"</i> ) Emergency bonus ( <i>Bono de Emergencia para desastres</i> ) Life insurance that includes funeral expenses ( <i>Seguro de vida que incluye gastos funerarios para titular del BDH</i> ) Human Development Credit ( <i>Crédito de Desarrollo Humano</i> ) Family Plan ( <i>Plan Familia</i> ) Joaquín Gallegos Lara bonus ( <i>Bono Joaquín Gallegos Lara - BJGL</i> )
Secretaría de Educación Superior, Ciencia, Tecnología e Innovación – SENESCYT	National Scholarship Programme 'Eloy Alfaro' ( <i>Programa de Becas Nacionales 'Eloy Alfaro'</i> )
Instituto de Fomento al Talento Humano – IFTH	Financing and complementary scholarships according to socioeconomic conditions ( <i>Financiamiento - Y becas complementarias según condiciones socioeconómica</i> )
Ministerio de Salud Pública – MSP	Contingency coverage for humanitarian assistance ( <i>Cobertura de contingencias para la atención humanitaria</i> )
Ministerio de Desarrollo Urbano y Vivienda – MIDUVI	Housing Bonus ( <i>El Bono de Vivienda</i> )
Secretaría Técnica "Plan Toda una Vida" – STPTV	Home for Everyone Programme ( <i>Programa Casa para Todos</i> ) 'Las Manuelas' Mision ( <i>Misión 'Las Manuelas'</i> ) 'Toda una Vida' Mision ( <i>Misión Toda una Vida</i> )
Corporación Nacional de Telecomunicaciones CNT	Mobile prepaid promotional plan ( <i>Plan Promocional Prepago Mi Compañerito</i> )
Super-market chains: Tía, Akí y Mi Comisariato	8% discount on food and basic necessities/goods for once every month in purchases of up to US\$60 ( <i>Descuento de 8% en alimentos y productos de primera necesidad por una vez al mes en compras de hasta US\$ 60</i> )

Source: Authors' compilation, based on SENPLADES (2018).

## Annex B: Macrovalidation tables

**Table B1: Number of employed and unemployed (in thousands)**

	ECUAMOD	External								Ratio							
	2011	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Number of employed	5,727.3	6,304.8	6,424.8	6,664.2	6,921.1	7,140.6	7,463.6	7,639.7	7,648.8	0.91	0.89	0.86	0.83	0.80	0.77	0.75	0.75
Number of unemployed	318.9	276.8	276.2	288.7	273.4	357.9	410.4	403.7	330.10	1.15	1.15	1.10	1.17	0.89	0.78	0.79	0.97

Note: The population of reference of INEC statistics is working age population aged 15 years or more.

Source: ECUAMOD calculations and INEC (2016b).

**Table B2: Market income in ECUAMOD: number of recipients (in thousands)**

	ECUAMOD	External								Ratio							
	2011	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Employment income	3,840.5	3,656.8	3,816.4	4,158.5	4,304.9	4,420.1	4,396.0	4,499.8	4,505.1	1.05	1.01	0.92	0.89	0.87	0.87	0.85	0.85
Self-employment income	2,588.4	2,648.0	2,608.5	2,505.8	2,616.2	2,720.6	3,067.5	3,139.9	3,143.6	0.98	0.99	1.03	0.99	0.95	0.84	0.82	0.82

Note: The population of reference of INEC statistics is working age population aged 15 years or more.

Source: ECUAMOD calculations and INEC (2016b, 2016c).

**Table B3: Market income in ECUAMOD: annual amounts (in millions)**

	ECUAMOD								External								Ratio							
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Employment income	17,588	19,452	21,187	22,655	23,591	24,392	24,993	25,725	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Self-employment income	9,495	10,501	11,437	12,230	12,735	13,168	13,492	13,888	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: N/A = not available.

Source: ECUAMOD calculations.

**Table B4: Tax–benefit instruments included but not simulated in ECUAMOD: number of recipients/payers (in thousands)**

Benefits	ECUAMOD	External								Ratio							
	2011	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Old-age pensions <sup>a</sup>	291.6	298.3	302.9	331.8	362.7	393.1	426.0	446.4	N/A	0.98	0.96	0.88	0.80	0.74	0.68	0.65	N/A
Disability pensions <sup>a</sup>	11.0	21.2	23.1	24.9	27.7	30.0	32.5	34.6	N/A	0.52	0.48	0.44	0.40	0.37	0.34	0.32	N/A
Survivors' pensions <sup>a</sup>	23.8	110.2	115.9	121.4	127.8	138.5	150.1	154.7	N/A	0.22	0.21	0.20	0.19	0.17	0.16	0.15	N/A
Housing grant	9.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: N/A = not available.

Source: ECUAMOD calculations; <sup>a</sup>IESS (2015e).

**Table B5: Tax–benefit instruments included but not simulated in ECUAMOD: annual amounts (in millions)**

Benefits	ECUAMOD								External								Ratio							
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	2011	2017	2013	2014	2015	2016	2017	2018
Old-age pensions <sup>a</sup>	1,184	1,310	1,427	1,525	1,588	1,642	1,682	1,732	1,152	1,361	1,736	2,108	2,400	2,724	3,049	N/A	1.03	0.96	0.82	0.72	0.66	0.60	0.55	N/A
Disability pensions <sup>a</sup>	33	37	40	43	45	46	47	49	63	73	86	103	115	128	142	N/A	0.53	0.51	0.47	0.42	0.39	0.36	0.33	N/A
Survivors' pensions <sup>a</sup>	56	62	67	72	75	77	79	82	218	249	277	315	345	377	409	N/A	0.26	0.25	0.24	0.23	0.22	0.21	0.19	N/A
Housing grant <sup>b</sup>	38	42	46	49	51	53	54	56	119	168	162	104	126	121	116	N/A	0.32	0.25	0.28	0.47	0.40	0.44	0.47	N/A

Note: N/A = not available.

Source: ECUAMOD calculations; <sup>a</sup>IESS (2015e); <sup>b</sup>Ministry of Finance (2015).

**Table B6: Tax–benefit instruments simulated in ECUAMOD: number of recipients/payers (in thousands)**

	ECUAMOD								ENIGHUR	Ratio	External								Ratio								
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2011	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	
Benefits																											
Social assistance benefits <sup>a</sup>	1,542	1,542	1,541	1,118	1,118	1,118	1,118	999	1,681	0.92	1,854	1,910	1,717	1,120	1,099	1,023	N/A	N/A	0.82	0.80	0.89	1.00	1.02	1.09	N/A	N/A	
Disability carer benefit <sup>b</sup>	9	9	9	9	9	9	9	9	9	1.00	14	17	18	20	23	21	N/A	N/A	0.62	0.52	0.48	0.44	0.39	0.36	N/A	N/A	
Taxes and social insurance contributions (SICs)																											
Income tax <sup>c</sup>	334	371	406	446	450	451	473	503	204	1.64	472	494	503	510	492	511	N/A	N/A	0.70	0.75	0.80	0.87	0.91	0.88	N/A	N/A	
Employee SIC <sup>d</sup>	2,134	2,134	2,134	2,134	2,134	2,134	2,134	2,134	1,836	1.16	2,510	2,763	2,944	3,113	3,517	3,659	N/A	N/A	0.82	0.74	0.71	0.67	0.59	0.57	N/A	N/A	
Armed forces and police SIC	56	56	56	56	56	56	56	56	56	1	84	87	90	93	87	92	101	N/A	0.67	0.64	0.62	0.60	0.64	0.61	0.55	N/A	
Self-employed <sup>d</sup> SIC	255	255	255	255	255	255	255	255	74	3.46	341	397	432	464	505	N/A	N/A	N/A	0.75	0.64	0.59	0.55	0.51	0.34	N/A	N/A	
Employers SIC	1,997	1,997	1,997	1,997	1,997	1,997	1,997	1,997	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Government SIC for armed forces and police	56	56	56	56	56	56	56	56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Note: External statistics of SIC payers disaggregated between employees and self-employed are only available in 2011 and 2012. Aggregate information on total payers of SICs is disaggregated for other years based on the shares of employees and self-employed payers in 2012. N/A, not available.

Source: ECUAMOD calculations; <sup>a</sup>*Registros del Programa Bono de Desarrollo Humano* – MIES (n.d.a); <sup>b</sup>*Informe de Gestión* – MIES; <sup>c</sup>estimates have been supplied by Nicolás Oliva and Nestor Villacreses based on administrative data using the personal income tax calculator of the Internal Revenue Service (SRI); <sup>d</sup>IESS (2013, 2014c).

**Table B7a: Tax–benefit instruments simulated in ECUAMOD: annual amounts (in millions)**

	ECUAMOD								ENIGHUR								Ratio							
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Benefits																								
Social assistance benefits	662	662	946	686	686	686	686	1,092	706	780	850	909	946	978	1,002	1,032	0.94	0.85	1.11	0.75	0.72	0.70	0.68	1.06
Disability carer benefit	26	26	26	26	26	26	26	26	24	26	29	31	32	33	34	35	1.07	0.97	0.89	0.83	0.80	0.77	0.76	0.73
Taxes and SICs																								
Income tax	639	738	835	929	966	1,000	1,049	1,059	171	178	182	189	196	199	200	199	3.75	4.16	4.57	4.91	4.94	5.03	5.25	5.32
Employee SIC	1,478	1,635	1,781	1,923	2,002	2,070	1,970	2,028	1,322	1,377	1,414	1,466	1,516	1,542	1,548	1,543	1.12	1.19	1.26	1.31	1.32	1.34	1.27	1.31
Armed forces and police SIC	218	241	263	281	293	302	310	319	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Self-employed SIC	332	367	399	427	445	460	471	485	268	279	286	297	307	312	313	312	1.24	1.32	1.40	1.44	1.45	1.47	1.50	1.55
Employers SIC	1,417	1,568	1,707	1,826	1,901	1,966	2,014	2,073	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Government SIC for armed forces and police	246	272	296	317	330	341	350	360	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VAT	1,708	1,779	1,827	1,894	1,958	2,295	2,003	1,999	592	617	634	657	679	691	694	691	2.88	2.88	2.88	2.88	2.88	3.32	2.89	2.89

Note: N/A = not available.

Source: ECUAMOD calculations and ENIGHUR.

**Table B7b: Tax–benefit instruments simulated in EUROMOD: annual amounts (in millions)**

	ECUAMOD								External								Ratio							
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018
Benefits																								
Social assistance benefits <sup>a</sup>	662	662	946	686	686	686	686	1,092	724	755	1,026	812	635	609	N/A	N/A	0.94	0.85	1.11	0.75	0.72	0.70	N/A	N/A
Disability carer benefit <sup>b</sup>	26	26	26	26	26	26	26	26	41	49	57	58	62	62	N/A	N/A	0.62	0.52	0.44	0.44	0.41	0.41	N/A	N/A
Taxes and SICs																								
Income tax <sup>c</sup>	639	738	835	929	966	1,000	1,049	1,059	784	856	935	1,022	1,019	1,114	N/A	N/A	0.82	0.86	0.89	0.91	0.95	0.90	N/A	N/A
Employee SIC <sup>d</sup>	1,478	1,635	1,781	1,923	2,002	2,070	1,970	2,028	1,508	1,799	2,071	2,326	2,498	2,470	2,547	N/A	0.98	0.91	0.86	0.83	0.80	0.84	0.77	N/A
Armed forces and police SIC <sup>d</sup>	218	241	263	281	292	302	310	319	416	442	472	505	528	559	730	N/A	0.52	0.55	0.56	0.56	0.55	0.54	0.42	N/A
Self-employed SIC <sup>d</sup>	332	367	399	427	445	460	471	485	176	212	244	298	353	380	1,207	N/A	0.57	0.53	0.51	0.51	0.50	0.64	0.54	N/A
Employers SIC	1,417	1,568	1,707	1,826	1,901	1,966	2,014	2,073	1,557	1,842	2,114	2,338	2,488	2,455	2,505	N/A	0.91	0.85	0.81	0.78	0.76	0.80	0.80	N/A
Government SIC for armed forces and police <sup>d</sup>	246	272	296	317	330	341	350	360	455	471	502	459	488	491	497	N/A	0.54	0.58	0.59	0.69	0.68	0.69	0.70	N/A
VAT <sup>e</sup>	1,708	1,779	1,827	1,894	1,958	2,295	2,003	1,999	3,073	3,455	4,096	4,513	4,778	4,375	4,669	N/A	0.56	0.51	0.45	0.42	0.41	0.52	0.43	N/A
ICE alcohol <sup>e</sup>	10	10	11	11	12	12	12	12	24	34	43	45	44	35	38	N/A	0.43	0.31	0.26	0.25	0.27	0.34	0.32	N/A
ICE beer <sup>e</sup>	48	49	52	53	55	64	65	64	135	152	170	166	188	194	237	N/A	0.36	0.32	0.30	0.32	0.29	0.32	0.27	N/A
ICE cigarettes <sup>e</sup>	22	22	23	24	26	45	45	45	149	156	176	178	195	158	126	N/A	0.15	0.14	0.13	0.14	0.13	0.28	0.235	N/A
ICE soda drinks <sup>e</sup>	20	21	22	22	23	24	24	42	43	51	57	53	59	109	103	N/A	0.47	0.41	0.38	0.42	0.39	0.22	0.23	N/A
ICE perfume <sup>e</sup>	27	28	28	30	31	31	31	31	20	14	8	19	44	323	24	N/A	1.36	1.93	3.76	1.51	0.70	1.34	1.27	N/A

Note: External statistics of SIC payers disaggregated between employees and self-employed are only available in 2011 and 2012. Aggregate information on total payers of SICs is disaggregated for other years based on the shares of employees and self-employed payers in 2012. N/A = not available.

Source: ECUAMOD calculations; <sup>a</sup>*Registros del Programa Bono de Desarrollo Humano* – MIES (n.d.b); <sup>b</sup>*Informe de Gestión* – MIES (n.d.b); <sup>c</sup>the estimates have been supplied by Nicolás Oliva and Nestor Villacreses based on administrative data using the personal income tax calculator of the SRI; <sup>d</sup>IESS (2013, 2014c); <sup>e</sup>SRI (2015a).

**Table B8: Absolute poverty rates and income inequality**

	ECUAMOD								ENIGHUR	Ratio	External (ENEMDU)								Ratio								
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2011	2011	2012	2013	2014	2015	2016	2017	2018	2011	2012	2013	2014	2015	2016	2017	2018	
Poverty																											
Total	20.8	18.9	15.7	15.7	15.6	15.0	14.2	11.4	21.6	0.96	28.6	27.3	25.6	22.5	23.3	22.9	21.5	24.5	0.73	0.69	0.61	0.70	0.67	0.65	0.66	0.47	
Urban	12.5	10.9	8.6	8.8	8.6	8.2	7.6	6.3	13.2	0.94	17.4	16.1	17.6	16.4	15.7	15.7	13.2	15.9	0.72	0.68	0.49	0.54	0.55	0.52	0.58	0.40	
Rural	37.6	35.0	29.9	29.6	29.6	28.8	27.4	21.7	38.5	0.98	50.9	49.1	42.0	35.3	39.3	38.2	39.3	43.0	0.74	0.71	0.71	0.84	0.75	0.75	0.70	0.51	
0–18 years	26.8	24.4	20.3	20.4	20.2	19.5	18.3	14.9	28.1	0.96	37.3	36.2	34.7	30.0	31.0	31.9	28.9	32.7	0.72	0.67	0.58	0.68	0.65	0.61	0.63	0.46	
19–64 years	15.5	13.9	11.4	11.5	11.3	10.8	10.2	8.5	16.1	0.96	22.8	21.7	19.9	17.6	18.3	18.8	16.9	19.3	0.68	0.64	0.57	0.65	0.62	0.58	0.60	0.44	
65+ years	25.8	24.5	20.8	20.7	21.0	20.4	19.5	13.8	25.3	0.97	29.7	27.4	20.9	18.2	20.1	18.0	17.6	20.6	0.87	0.90	0.99	1.14	1.05	1.13	1.11	0.67	
Extreme poverty																											
Total	5.7	5.3	4.0	4.0	4.1	3.9	3.7	2.6	6.1	0.95	11.6	11.2	8.6	7.7	8.5	8.7	7.9	9.0	0.49	0.48	0.46	0.53	0.48	0.45	0.47	0.29	
Urban	2.3	2.0	1.5	1.5	1.5	1.5	1.4	1.2	2.6	0.85	5.0	5.0	4.4	4.5	4.4	4.5	3.3	4.7	0.45	0.41	0.33	0.34	0.35	0.32	0.42	0.25	
Rural	12.7	11.9	9.0	9.1	9.1	8.8	8.4	5.6	13.3	0.98	24.6	23.3	17.4	14.3	17.0	17.6	19.7	18.1	0.52	0.51	0.52	0.64	0.54	0.50	0.43	0.31	
0–18 years	7.3	6.7	5.1	5.3	5.3	5.1	4.9	3.2	8.1	0.93	15.6	15.1	12.4	10.9	11.8	11.9	11.5	12.7	0.47	0.44	0.41	0.48	0.45	0.45	0.42	0.25	
19–64 years	4.0	3.7	2.9	2.9	2.9	2.8	2.7	1.9	4.2	0.98	8.8	8.3	6.5	5.7	6.4	6.8	5.9	6.9	0.45	0.44	0.44	0.51	0.45	0.41	0.45	0.28	
65+ years	9.5	9.4	5.2	5.3	5.4	5.2	5.1	5.1	8.6	0.99	13.0	12.9	5.0	4.6	5.7	6.3	4.8	5.7	0.73	0.73	1.03	1.15	0.94	0.83	1.06	0.90	
Inequality																											
Gini	46.1	46.2	45.7	46.1	46.2	46.2	46.3	45.6	47.3	0.97	47.3	47.7	48.5	46.7	47.6	46.6	45.9	47.2	0.98	0.97	0.94	0.99	0.97	0.99	1.01	0.97	

Notes: Computed for individuals according to their household income equalized by the number of household members. ECUAMOD household income corresponds to household disposable income (HDI) calculated as the sum of all income sources of all household members net of income tax and SICs. INEC household income corresponds to the sum of all income sources (available in ENEMDU) of all household members but using employment income before taxes and SICs. <sup>a</sup>Data are up to June 2018.

Source: ECUAMOD calculations and ENIGHUR; external figures come from INEC (2016a), based on ENEMDU.

**Table B9: Relative poverty rates by region and age**

	ECUAMOD								ENIGHUR	Ratio
	2011	2012	2013	2014	2015	2016	2017	2018	2011	2011
Relative poverty (different thresholds)										
40% of median HDI	8.9	9.0	8.5	8.8	8.9	9.0	9.1	7.6	9.3	0.98
50% of median HDI	14.5	14.7	14.0	14.6	14.6	14.7	14.8	13.4	15.1	0.99
60% of median HDI	21.4	21.6	20.9	21.6	21.7	21.1	21.8	20.5	22.2	0.99
70% of median HDI	29.1	29.3	28.8	29.1	29.2	29.3	29.3	28.3	29.6	1.00
Relative poverty by subgroups (60% median HDI)										
Urban	12.7	12.8	12.4	13.2	13.2	13.2	13.2	12.9	13.6	0.96
Rural	39.0	39.5	38.0	38.6	38.7	38.8	38.9	35.8	39.6	1.00
0–18 years	25.5	25.8	24.8	25.9	26.0	26.0	26.1	24.0	26.1	1.02
19–64 years	17.9	17.9	17.6	17.9	18.0	18.0	18.0	17.1	17.5	1.04
65+ years	16.1	16.3	15.7	16.4	16.4	16.4	16.5	15.5	34.5	0.48

Notes: Computed for individuals according to their HDI equalized by the modified OECD equivalence scale. HDI is calculated as the sum of all income sources of all household members net of income tax and SICs. <sup>a</sup>Data are up to June 2018.

Source: ECUAMOD calculations and ENIGHUR.