Changes in the progressivity of health care financing in Estonia – application of EUROMOD

Andres Võrk, University of Tartu

Magnus Piirits, Ministry of Social Affairs

Kelly Toim, Praxis

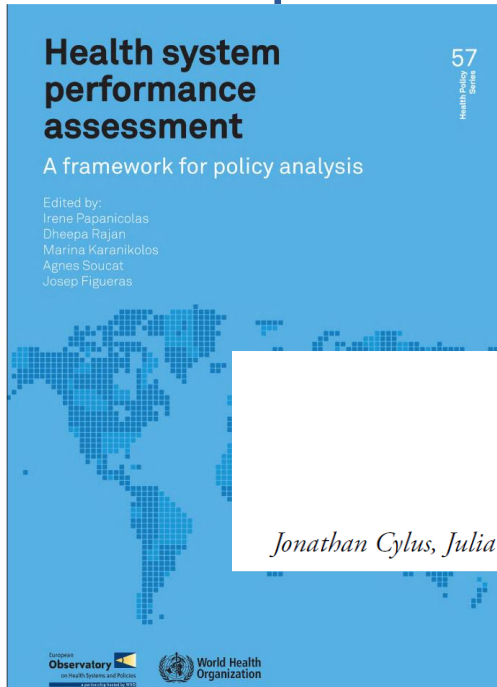**20 Sept 2023, Sevilla**

Structure

1. Motivation
2. Health care financing: from institutions to individuaal taxes
3. EUROMOD – progressivity of individual taxes
4. Synthesis
5. Conclusions and next step

Motivation

- Constant pressure to increase health care financing
  - ✓ Prefinancing: taxes, compulsory insurance, voluntary insurance
  - ✓ Out-of-pocket payments

- Different effects on economic behaviour, health behaviour, impoverishment and redistribution and inequality

Motivation

- Constant pressure to increase health care financing
  - ✓ Prefinancing: taxes, compulsory insurance, voluntary insurance
  - ✓ Out-of-pocket payments

- Different effects on economic behaviour, health behaviour, impoverishment and redistribution and inequality
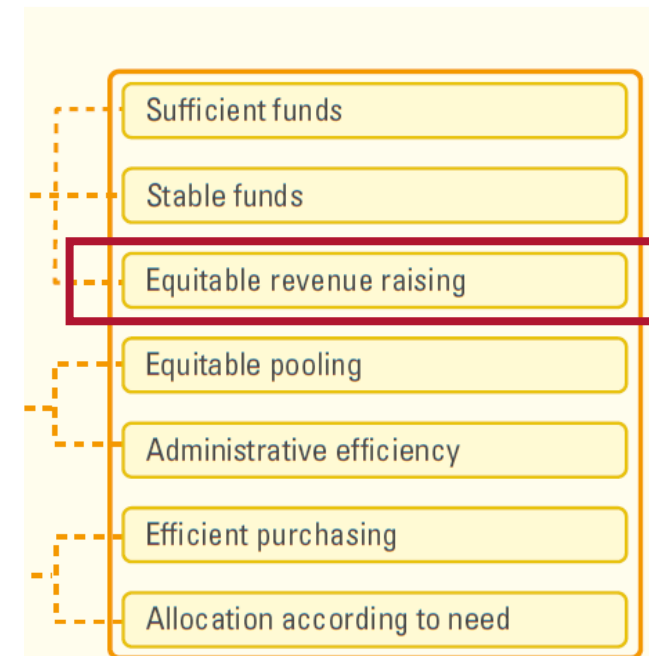
Health system performance assessment
A framework for policy analysis

57
Health Policy Series

Edited by:
Irene Papanicolas
Dheepa Rajan
Marina Karanikolos
Agnes Soucat
Josep Figueras

European Observatory on Health Systems and Policies

World Health Organization

Chapter 6

Financing

Jonathan Cylus, Julia Sallaku, Matthew Jowett

Assessment criteria

- Sufficient funds
- Stable funds
- Equitable revenue raising
- Equitable pooling
- Administrative efficiency
- Efficient purchasing
- Allocation according to need

Previous literature

- Wagstaff, van Doorslaer (1992, 1997); Wagstaff, et al 1999; van Doorslaer et al 1999 on developed countries; ...
  - Decompose the overall income redistributive effect into 3 components: a progressivity, horizontal inequity and reranking component
  - Public finance sources tend to small positive redistributive effect
  - Private financing sources generally have negative redistributive effects

- Expanded to individual countries over the globe: China, Iran, Israel, South Africa …

- EUROMOD
  - Studies on redistributive effects and progressivity of taxes
  - Bouckaert et al (2020) „Health system performance assessment: how equitable is the Belgian health system?" (*3.2 The redistributive effect of public health insurance*)

Ultimate purpose

1. To add an automated indicator to the set of key indicators for health system performance assessment

   (similar to WHO's „catastrophic expenditure", „OOP share in health financing")

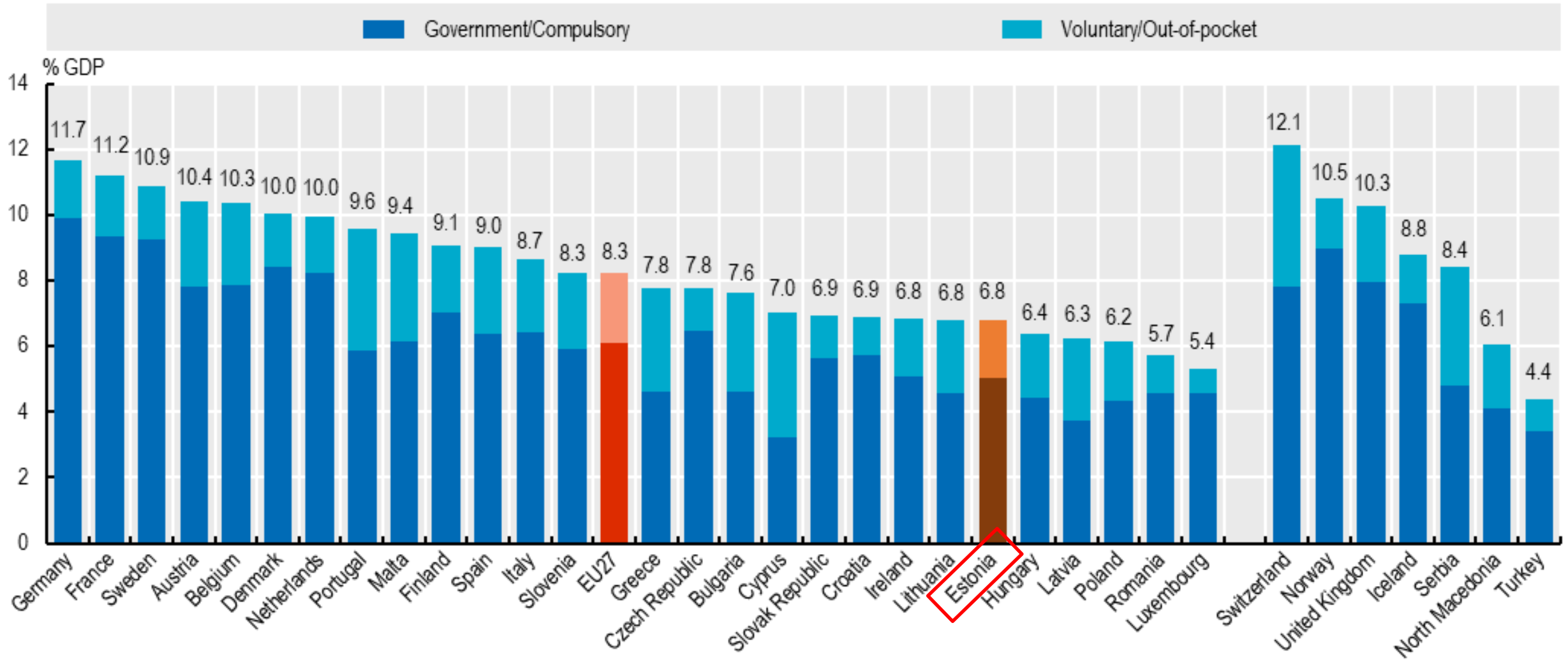2. To provide input for policy debates

   When politicians search for new sources for health care financing, they would not forget redistributive aspects

In brief

1. We find the structure of the sources of health care financing in Estonia
   - From the structure of institutions go to the structure of taxes

2. We use EUROMOD microsimulation model to get progressivity estimates of individual taxes (income tax, health part of social tax, value added tax, excise tax)

3. We calculate weighted average to get results for prefinancing and follow it over time

4. Add progressivity of out-of-pocket payments to get overall effect

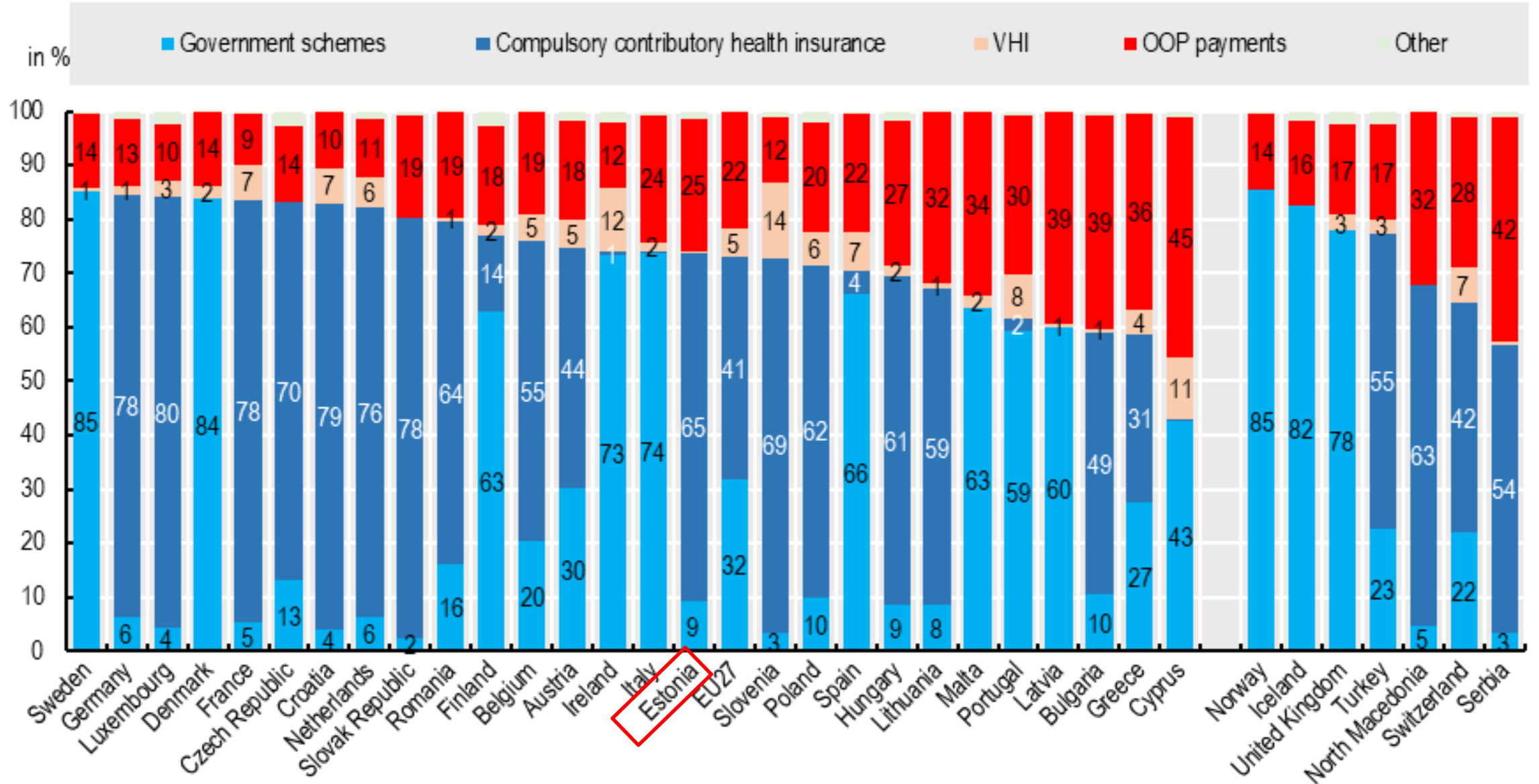# Task 1. Structure of health care financing by source

Health care expenditure in Europe, 2019

Legend: ■ Government/Compulsory ■ Voluntary/Out-of-pocket

% GDP

Country	Total
Germany	11.7
France	11.2
Sweden	10.9
Austria	10.4
Belgium	10.3
Denmark	10.0
Netherlands	10.0
Portugal	9.6
Malta	9.4
Finland	9.1
Spain	9.0
Italy	8.7
Slovenia	8.3
EU27	8.3
Greece	7.8
Czech Republic	7.8
Bulgaria	7.6
Cyprus	7.0
Slovak Republic	6.9
Croatia	6.9
Ireland	6.8
Lithuania	6.8
Estonia	6.8
Hungary	6.4
Latvia	6.3
Poland	6.2
Romania	5.7
Luxembourg	5.4
Switzerland	12.1
Norway	10.5
United Kingdom	10.3
Iceland	8.8
Serbia	8.4
North Macedonia	6.1
Turkey	4.4

Note: The EU average is unweighted.
Source: OECD Health Statistics 2020; Eurostat Database; WHO Global Health Expenditure Database.

Structure of health care financing (2018)

Note: The EU average is unweighted.
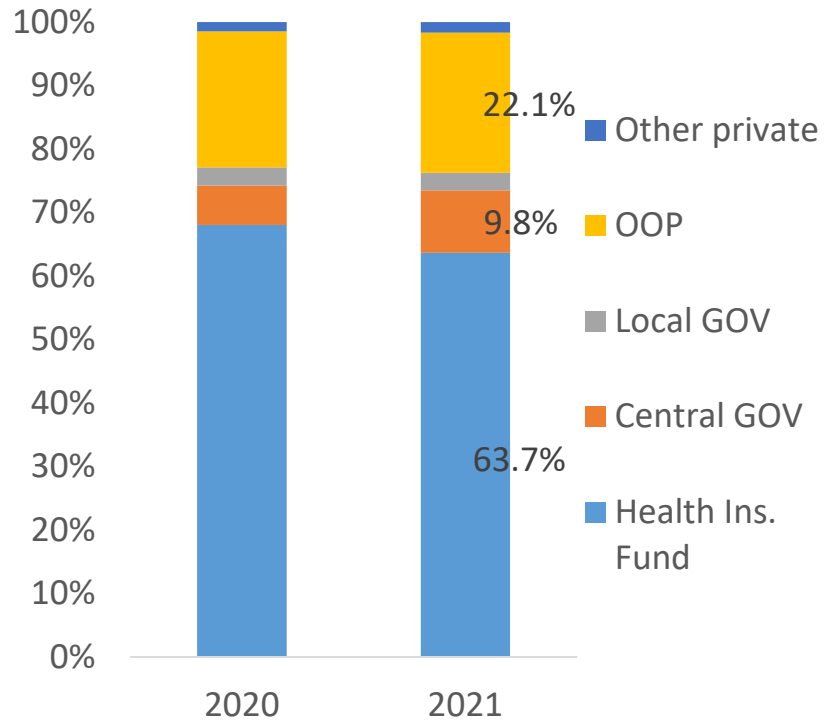Source: OECD Health Statistics 2020; Eurostat Database; WHO Global Health Expenditure Database.

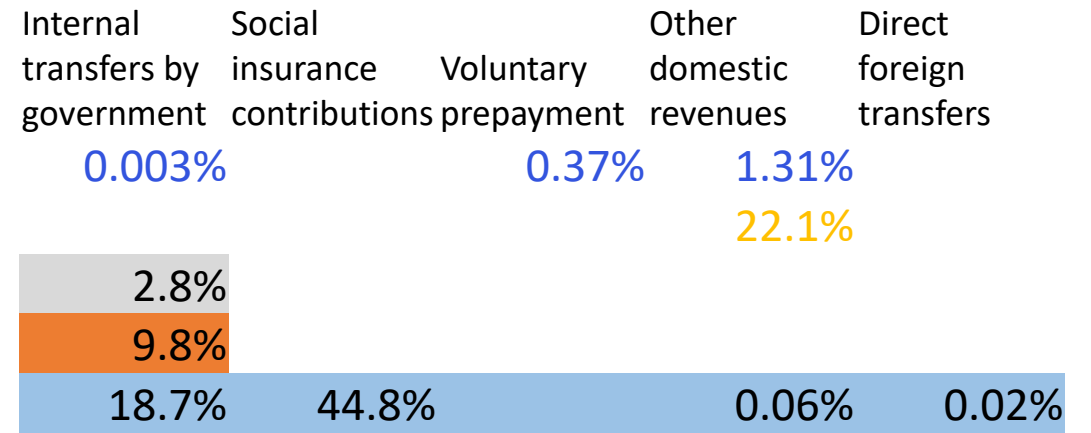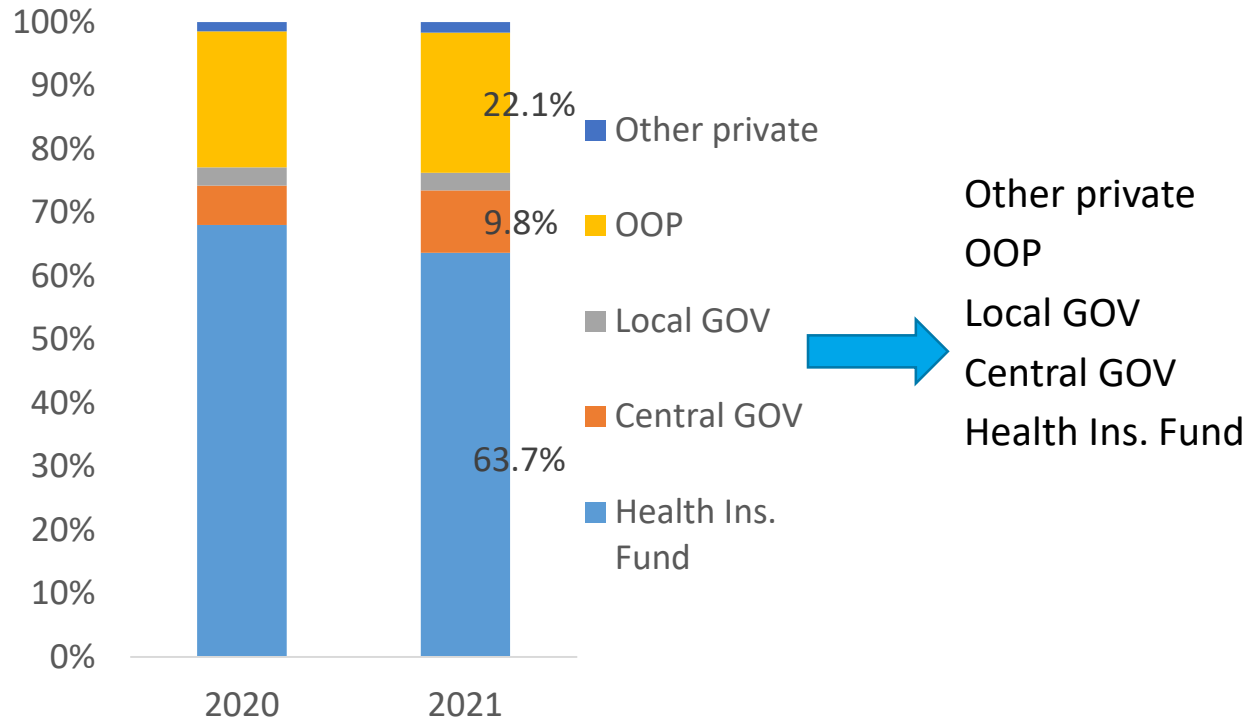# Data for the structure of health care financing

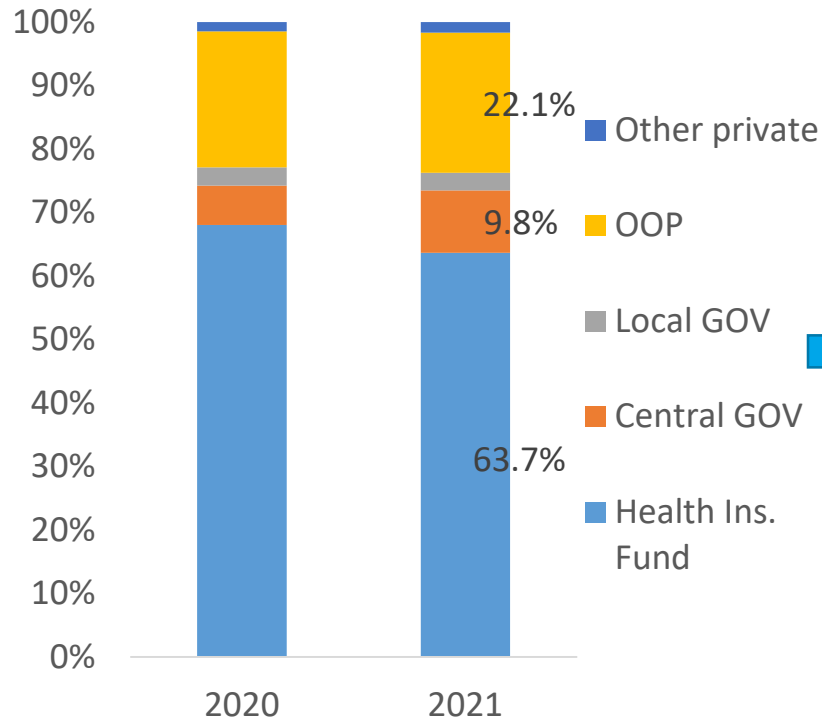1) National Health Accounts (follows OECD System of Health Accounts)

- *Current health expenditure by financing scheme and revenues of health care financing schemes*
- *Earmarked taxes for health financing*

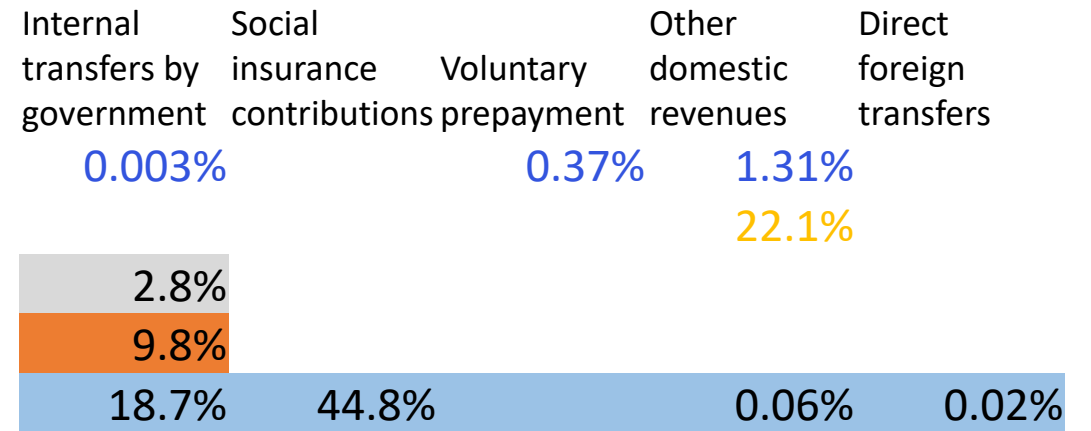2) Taxes and social contributions in National Accounts (ESA 2010)

- Role of individual taxes in state and local budgets
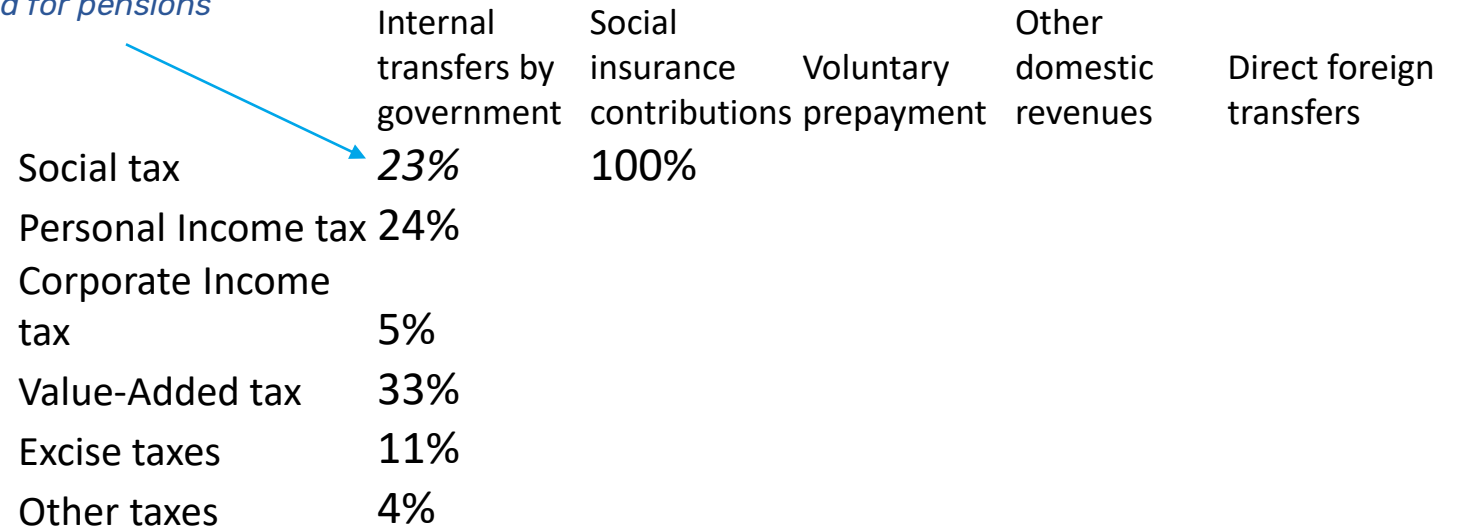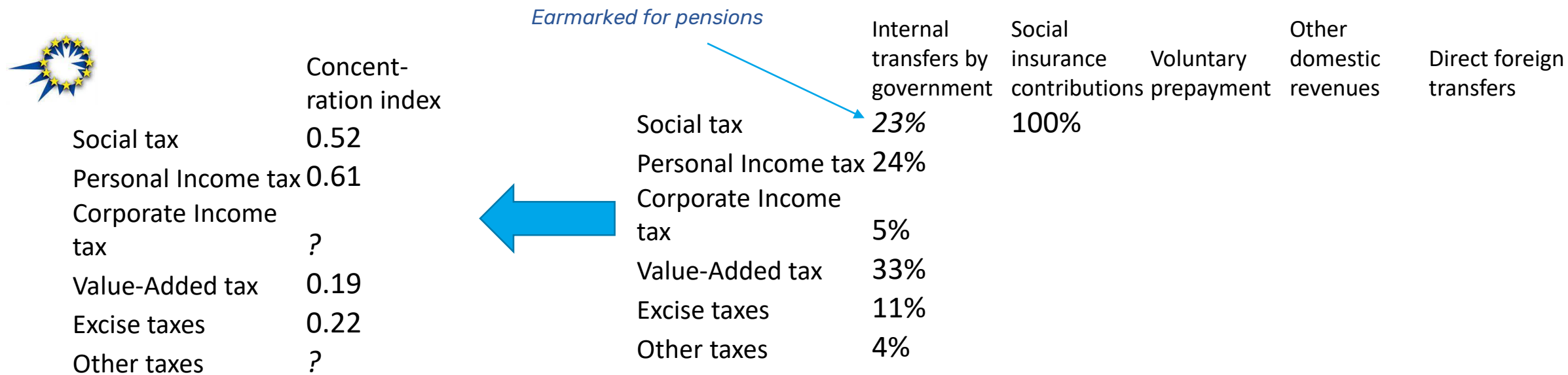- Ad hoc constraints (e.g., for earmarked taxes)

	2020	2021
Other private		
OOP		22.1%
Local GOV		9.8%
Central GOV		63.7%
Health Ins. Fund		

	Internal transfers by government	Social insurance contributions	Voluntary prepayment	Other domestic revenues	Direct foreign transfers
Other private	0.003%		0.37%	1.31%	
OOP				22.1%	
Local GOV	2.8%				
Central GOV	9.8%				
Health Ins. Fund	18.7%	44.8%		0.06%	0.02%

Earmarked for pensions

	Internal transfers by government	Social insurance contributions	Voluntary prepayment	Other domestic revenues	Direct foreign transfers
Social tax	*23%*	100%			
Personal Income tax	24%				
Corporate Income tax	5%				
Value-Added tax	33%				
Excise taxes	11%				
Other taxes	4%				

Bar chart (2020, 2021):
- Other private
- OOP — 22.1%
- Local GOV
- Central GOV — 9.8%
- Health Ins. Fund — 63.7%

	Internal transfers by government	Social insurance contributions	Voluntary prepayment	Other domestic revenues	Direct foreign transfers
Other private	0.003%		0.37%	1.31%	
OOP				22.1%	
Local GOV	2.8%				
Central GOV	9.8%				
Health Ins. Fund	18.7%	44.8%		0.06%	0.02%

Earmarked for pensions

	Internal transfers by government	Social insurance contributions	Voluntary prepayment	Other domestic revenues	Direct foreign transfers
Social tax	23%	100%			
Personal Income tax	24%				
Corporate Income tax	5%				
Value-Added tax	33%				
Excise taxes	11%				
Other taxes	4%				

	Concentration index
Social tax	0.52
Personal Income tax	0.61
Corporate Income tax	?
Value-Added tax	0.19
Excise taxes	0.22
Other taxes	?

Structure: NHA   =>   Structure: Taxes

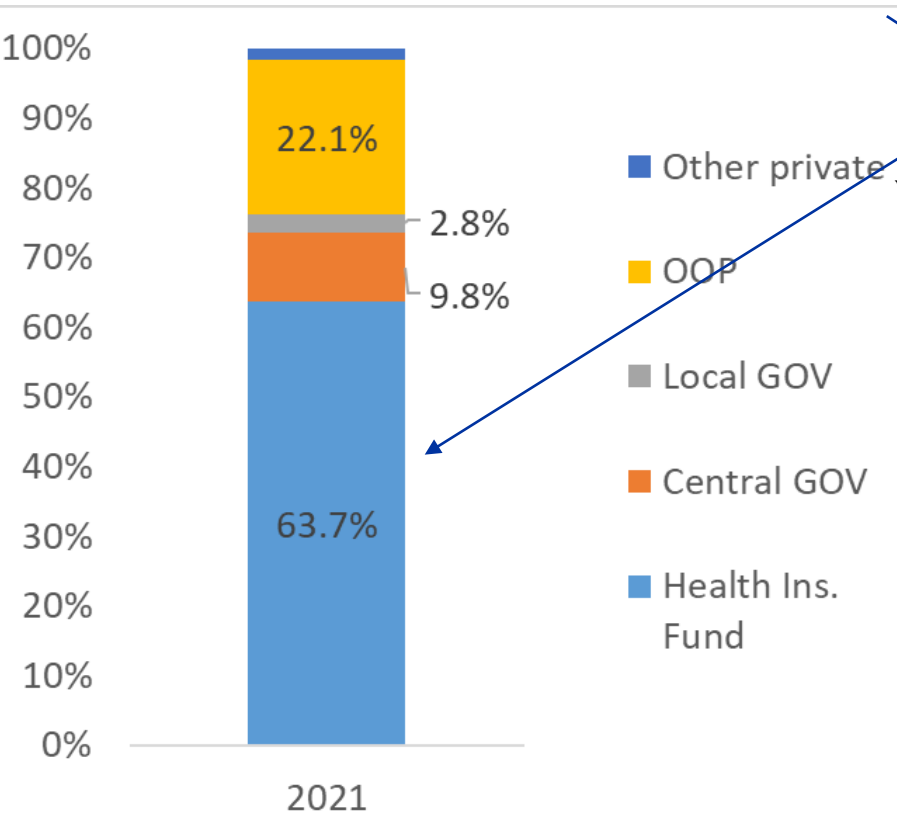$$s_i = \sum_{j=1}^{3} w_j \times f_{ij}$$

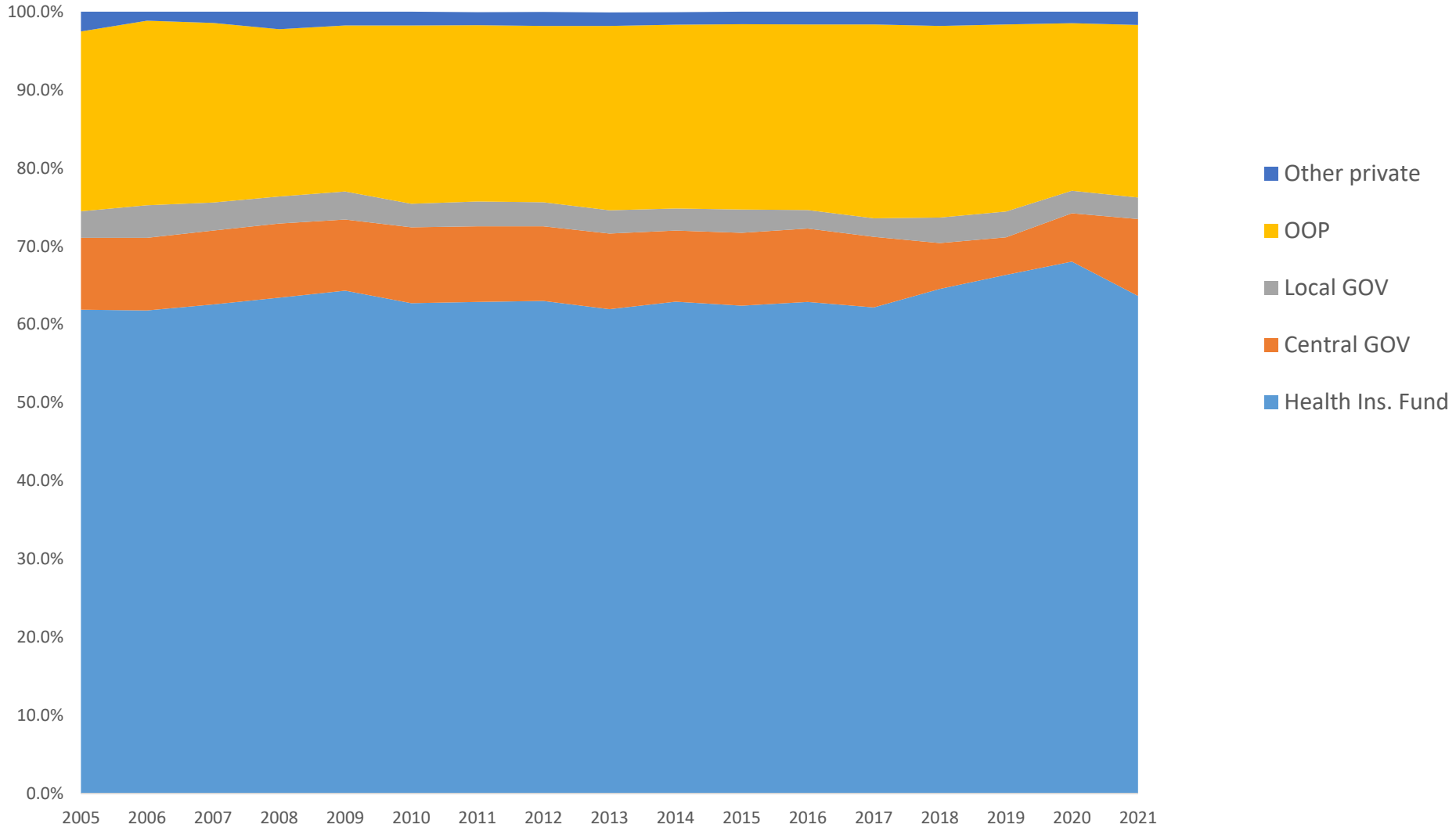# Structure: NHA   =>   Structure: Taxes

$$s_i = \sum_{j=1}^{3} w_j \times f_{ij}$$

weights

Share of tax i in
the budget of
institution j
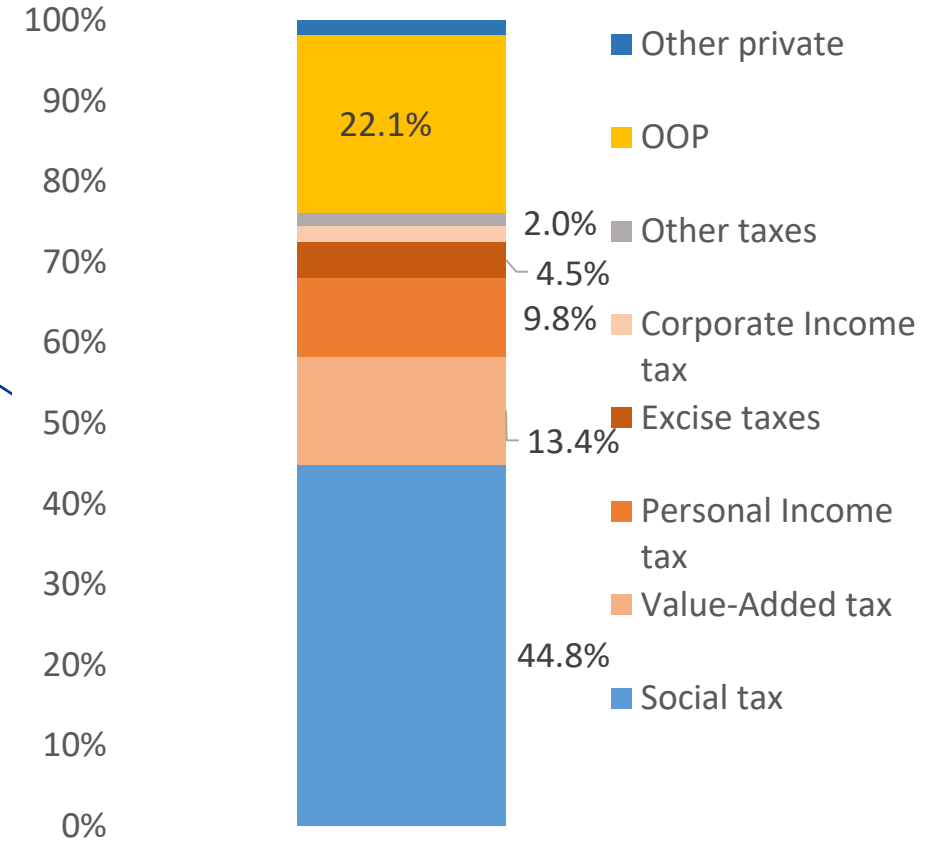
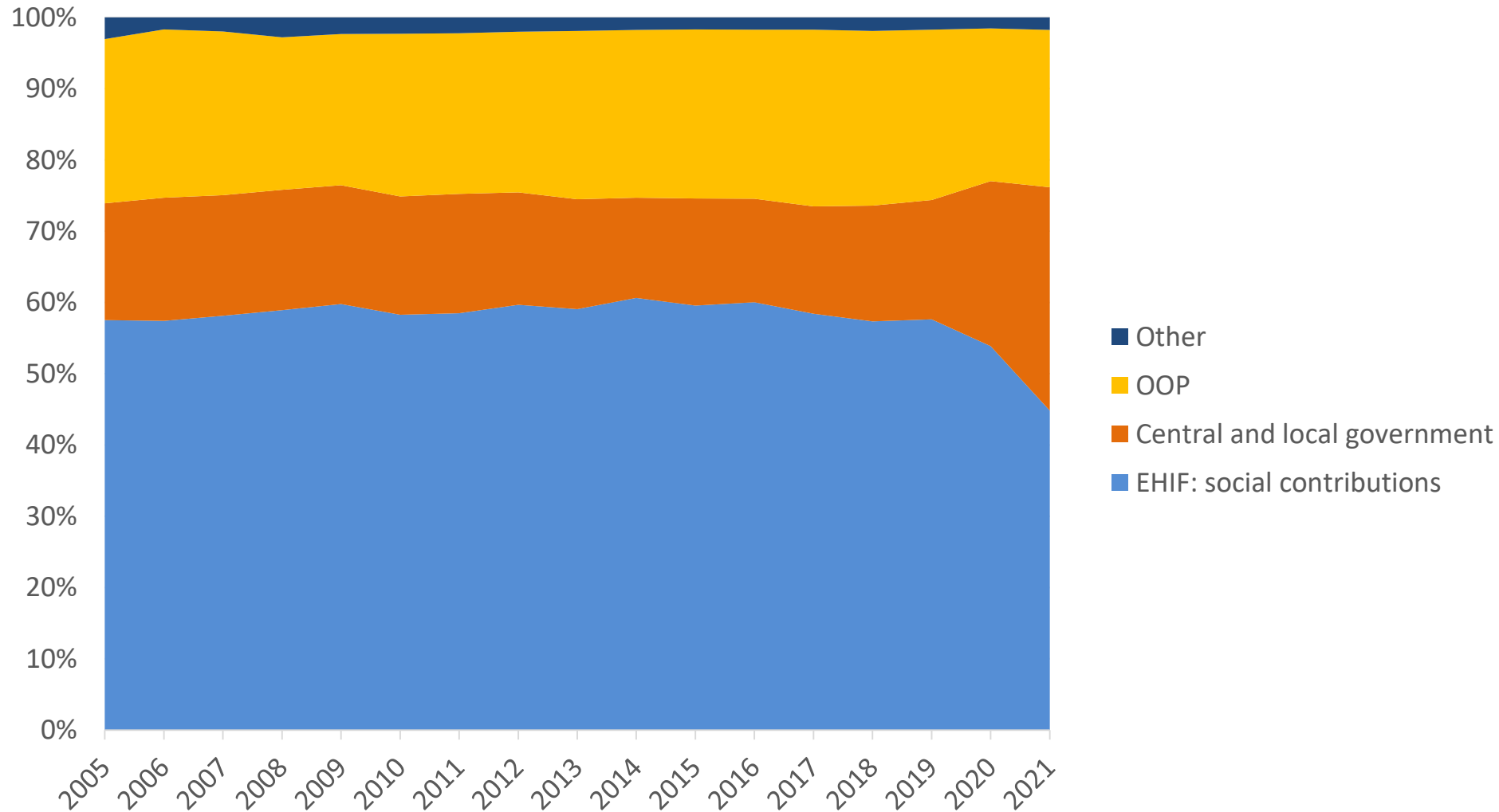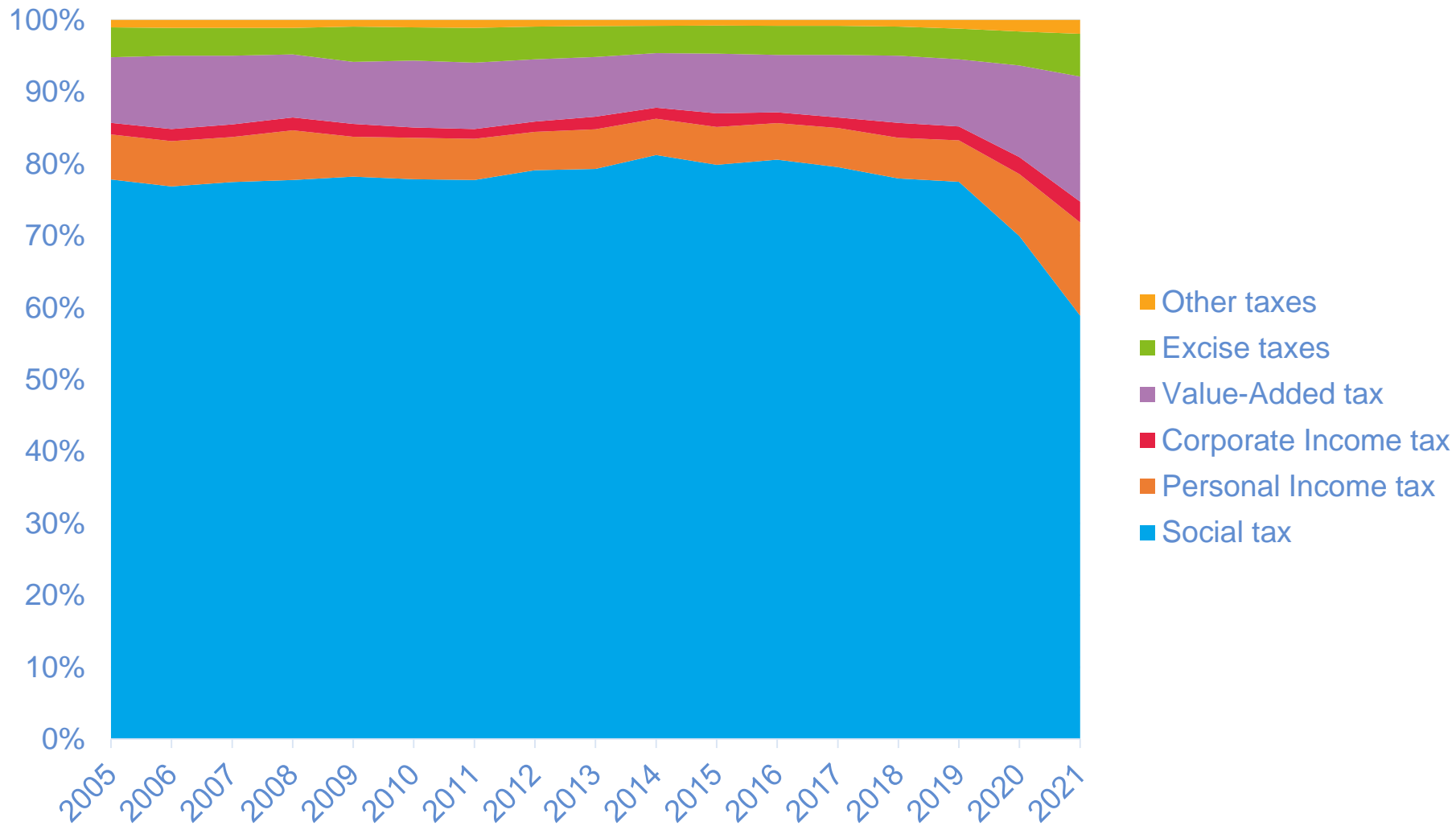# Structure of health care financing by institution

Structure of health care financing by final institution

Health Financing by final source

Legend:
- Other
- OOP
- Central and local government
- EHIF: social contributions

Structure of health care financing by taxes

Structure of prefinancing of health care by taxes

Task 2.

Apply results of EUROMOD to get inequality measures of individual taxes

Microsimulation

- EUROMOD tax-benefit microsimulation model
- Direct Taxes:
  - Version 3.6.2, policy rules I4.18
- Indirect Taxes
  - ITTv3 for years 2004-2019
  - ITTv4 for 2020-2022
  - (*large discrepancies in case of excise taxes*)
- Calculate Kakwani indeces for 2005–2022 using income (gross income + payroll taxes) as a base

$$K = Concentration\ index - Gini\ index$$

- K>0 – rich pay more; K<0 – poor people pay more
- Aggregate Kakwani indeces using weights from revenue shares
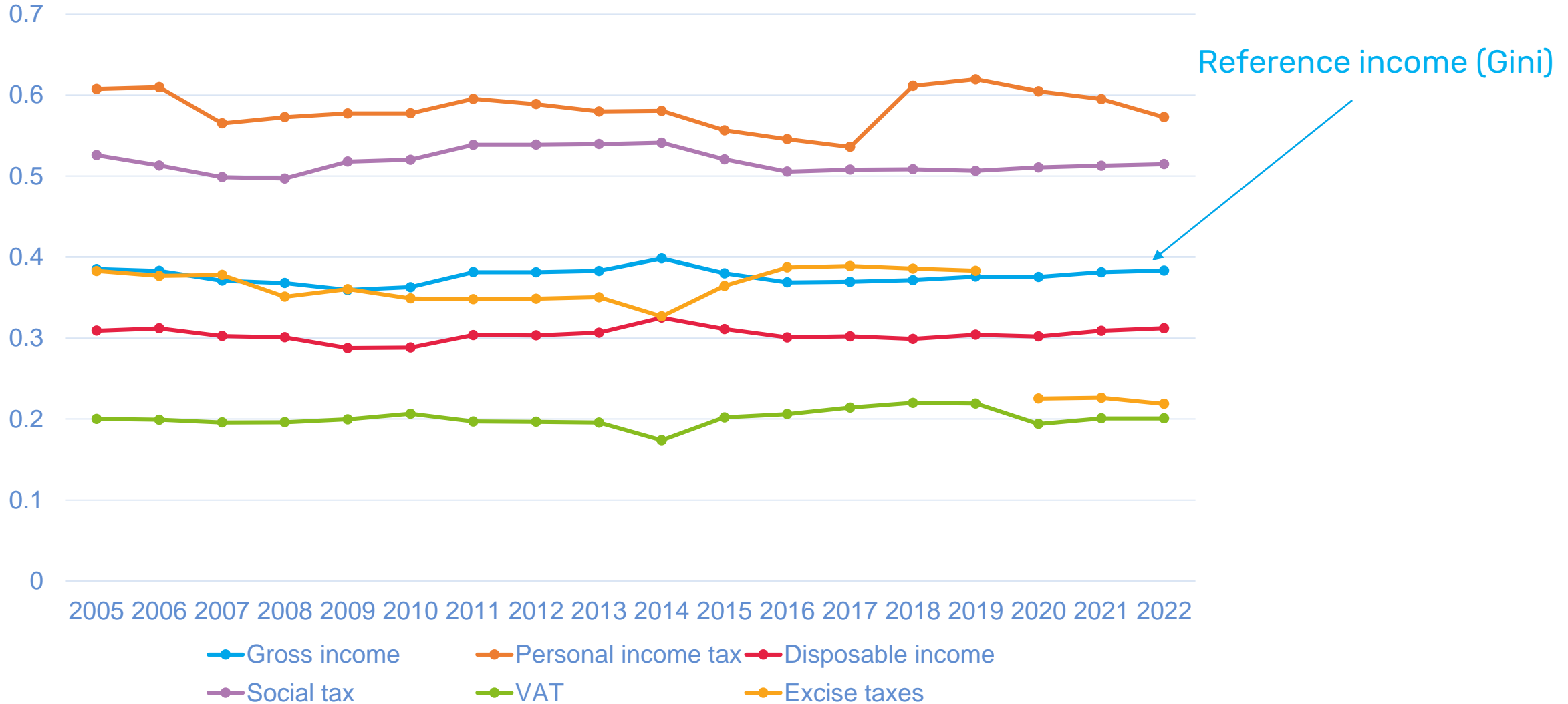
Kakwani indeces

Kakwani indeces
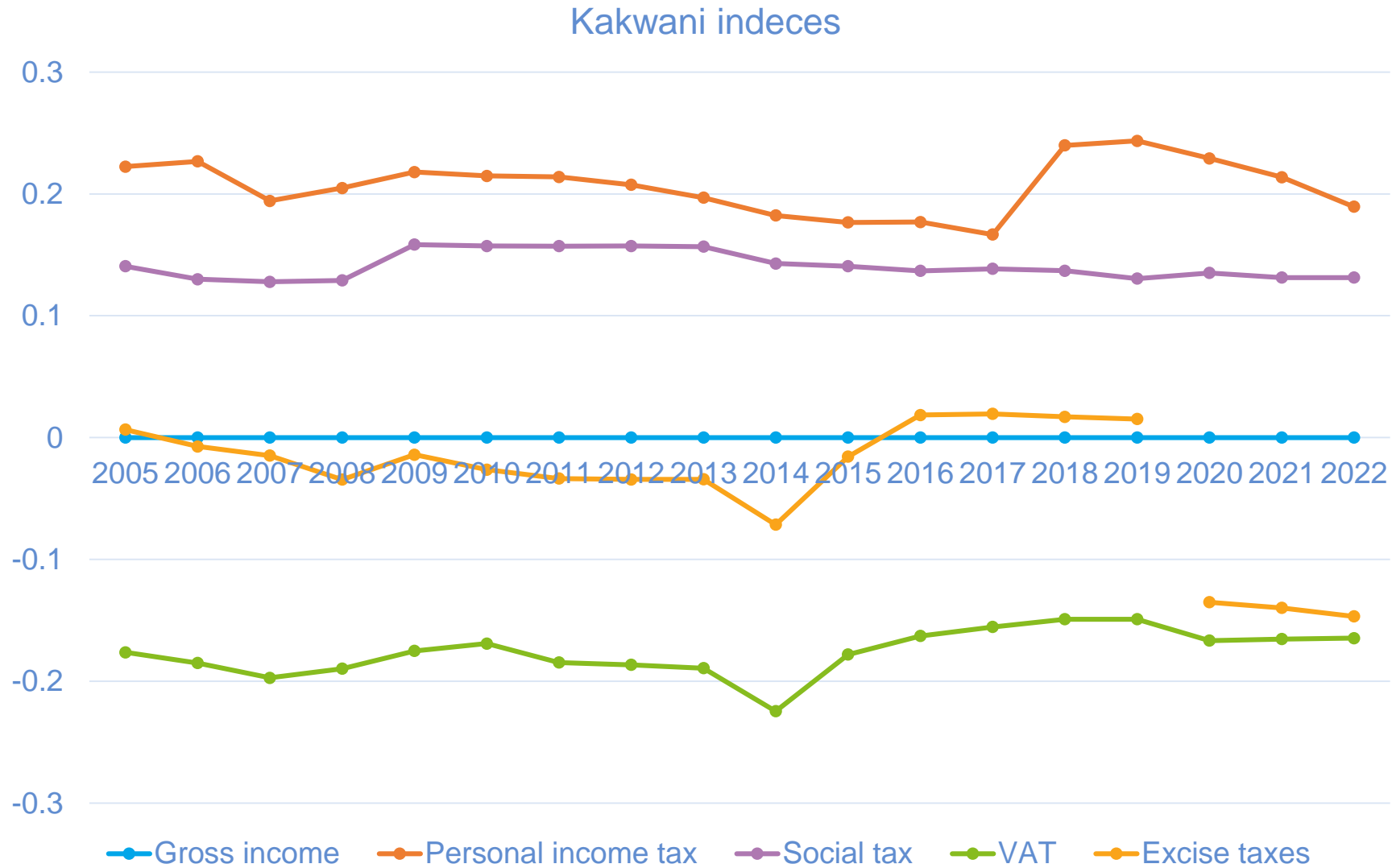
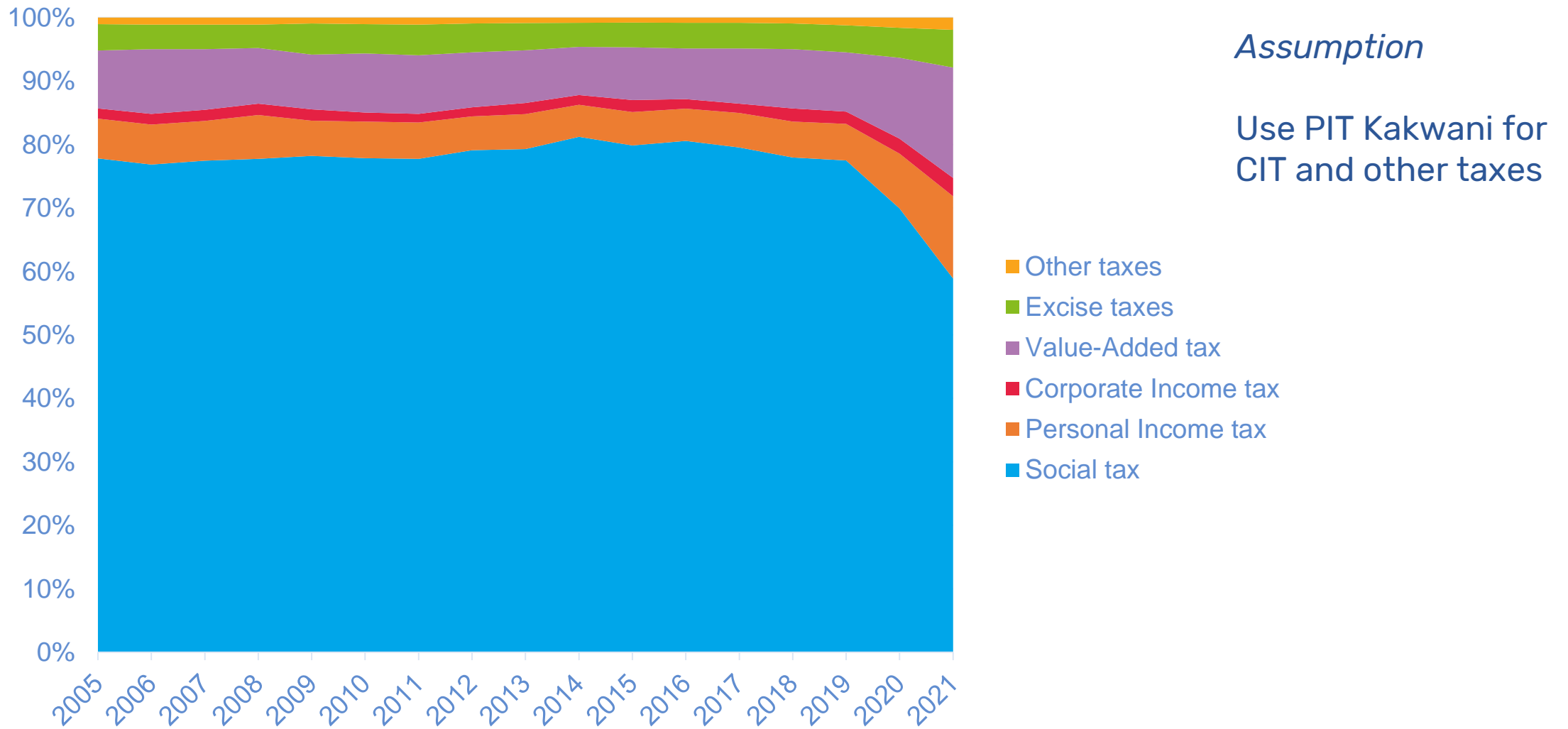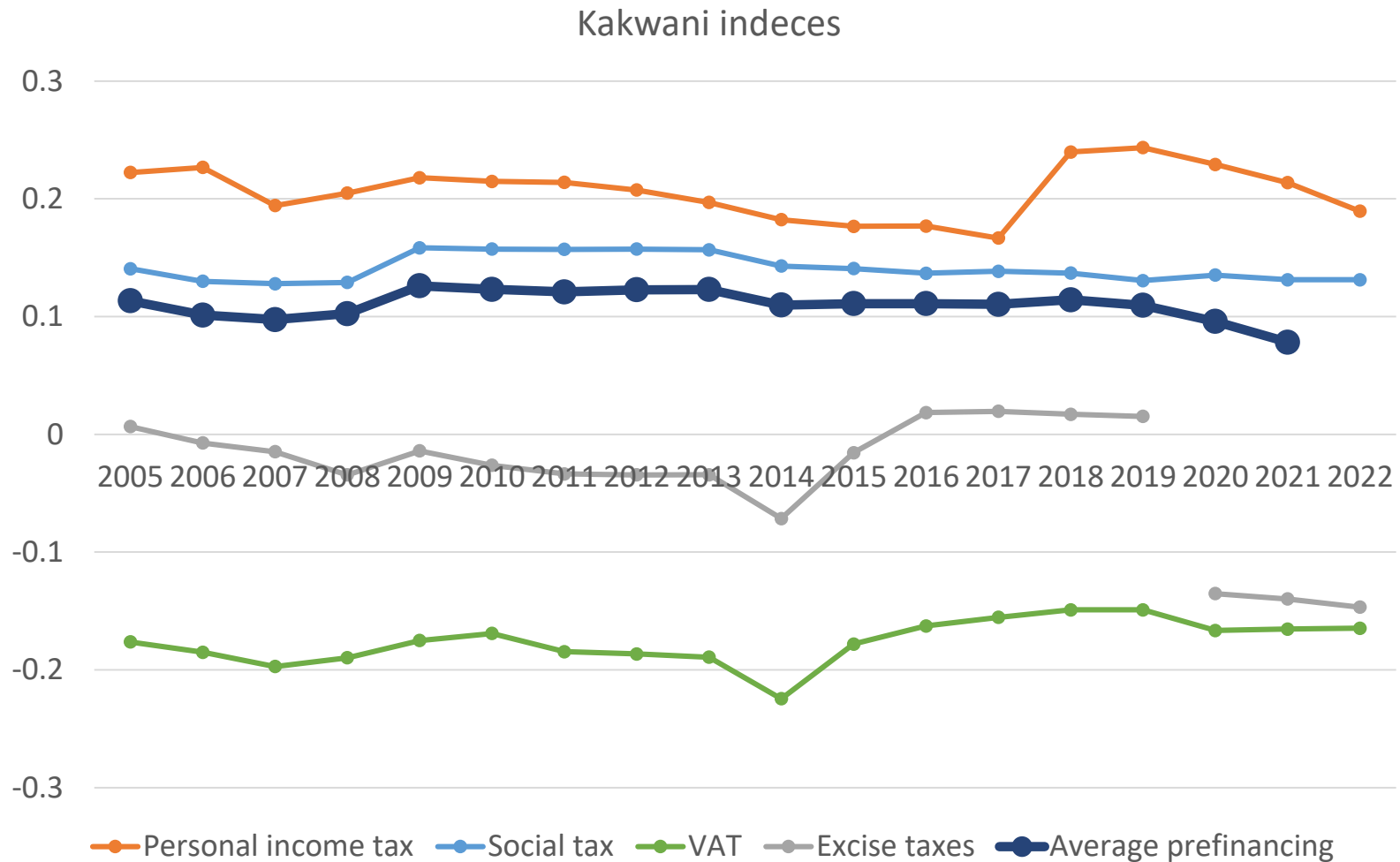# Task 3.
Combine to get results

Structure of health care financing by taxes

Structure of prefinancing of health care by taxes

Assumption

Use PIT Kakwani for CIT and other taxes

- Other taxes
- Excise taxes
- Value-Added tax
- Corporate Income tax
- Personal Income tax
- Social tax

Prefinancing becomes less progressive

Kakwani indeces

Legend: Personal income tax, Social tax, VAT, Excise taxes, Average prefinancing

Add regressive OOP => overall financing becoming less progressive

Kakwani indeces

Prefinancing — Out-of-pocket — Average
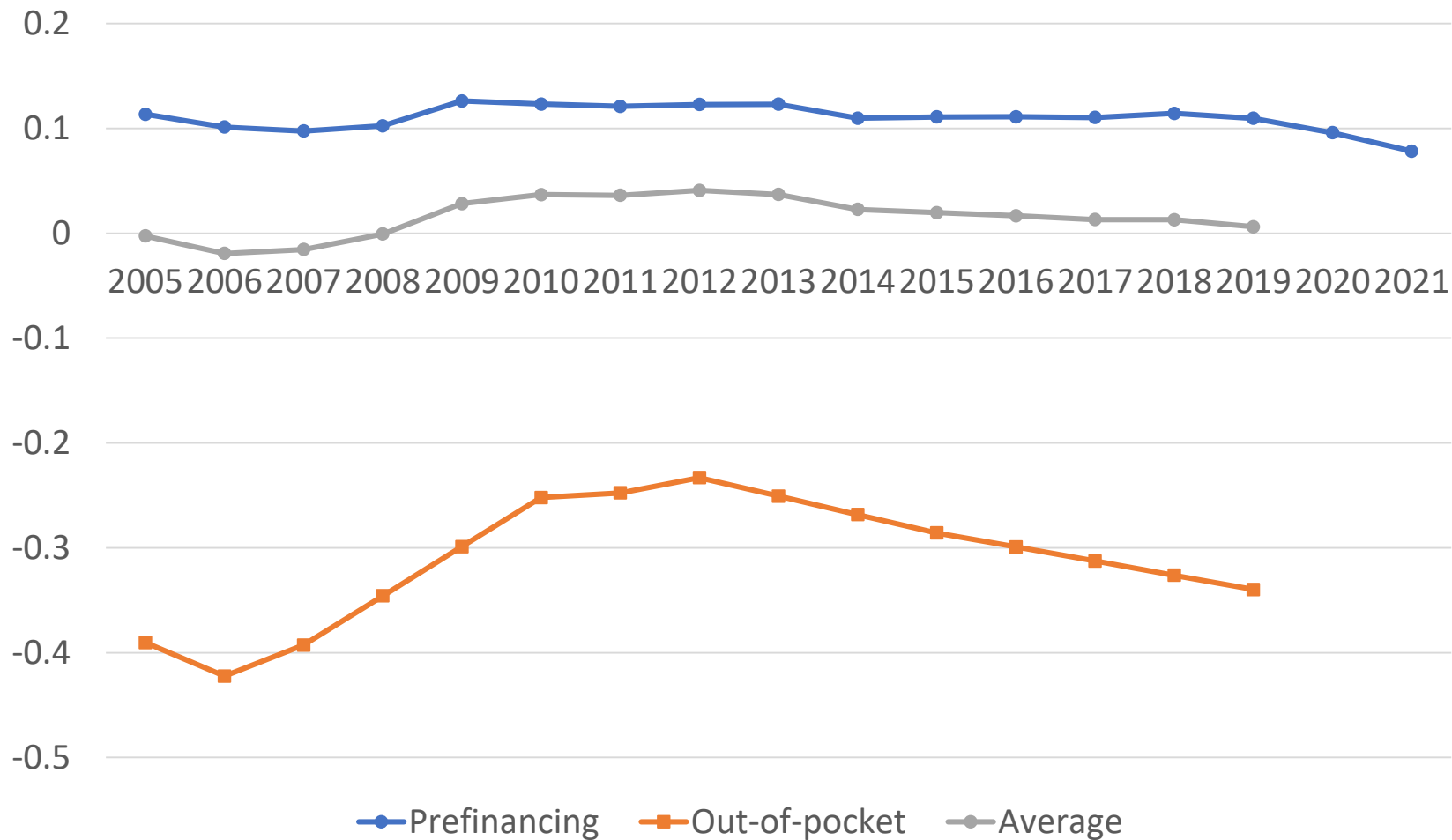
Add regressive OOP => overall financing becoming less progressive
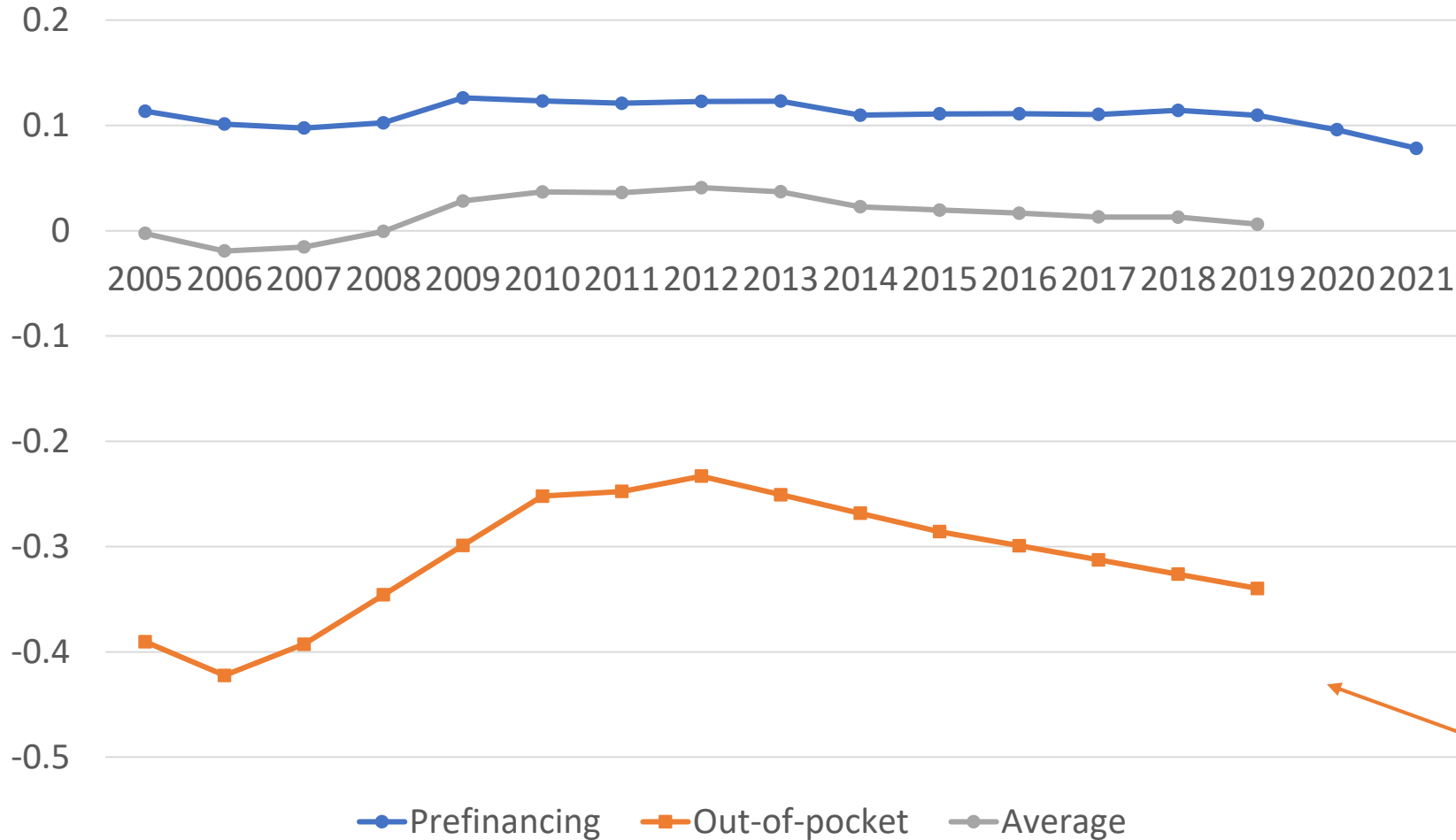
Kakwani indeces

- HBS survey data: OOP & expenditure

- Ad hoc correction of Kakwani indexes using results from Võrk, Saluse, Habicht (2009)

- Interpolation of missing years

To sum up

- Using above approach, it is relatively easy to set up a pipeline to follow the dynamics of progessivity of health care prefinancing and overall financing

- In Estonia, overall prefinancing of health care is progressive, but decreasing:
  - ✓ Transfers from the state budget increase
  - ✓ High share of consumption taxes in the budget

- High role of OOP reduces total progressivity further

- Further plans: polish the calculations and assumptions

- Add indicators of redistribution

UNIVERSITY OF TARTU

Andres Võrk

andres.vork@ut.ee

unitartu

tartuuniversity