

Implementation of SECO's Macroeconomic Planning and Management Project 2020-2026

Closing Event
11-13 November 2026

ECORYS 90 Years Answering tomorrow's challenges today

Schweizerische Eidgenossenschaft
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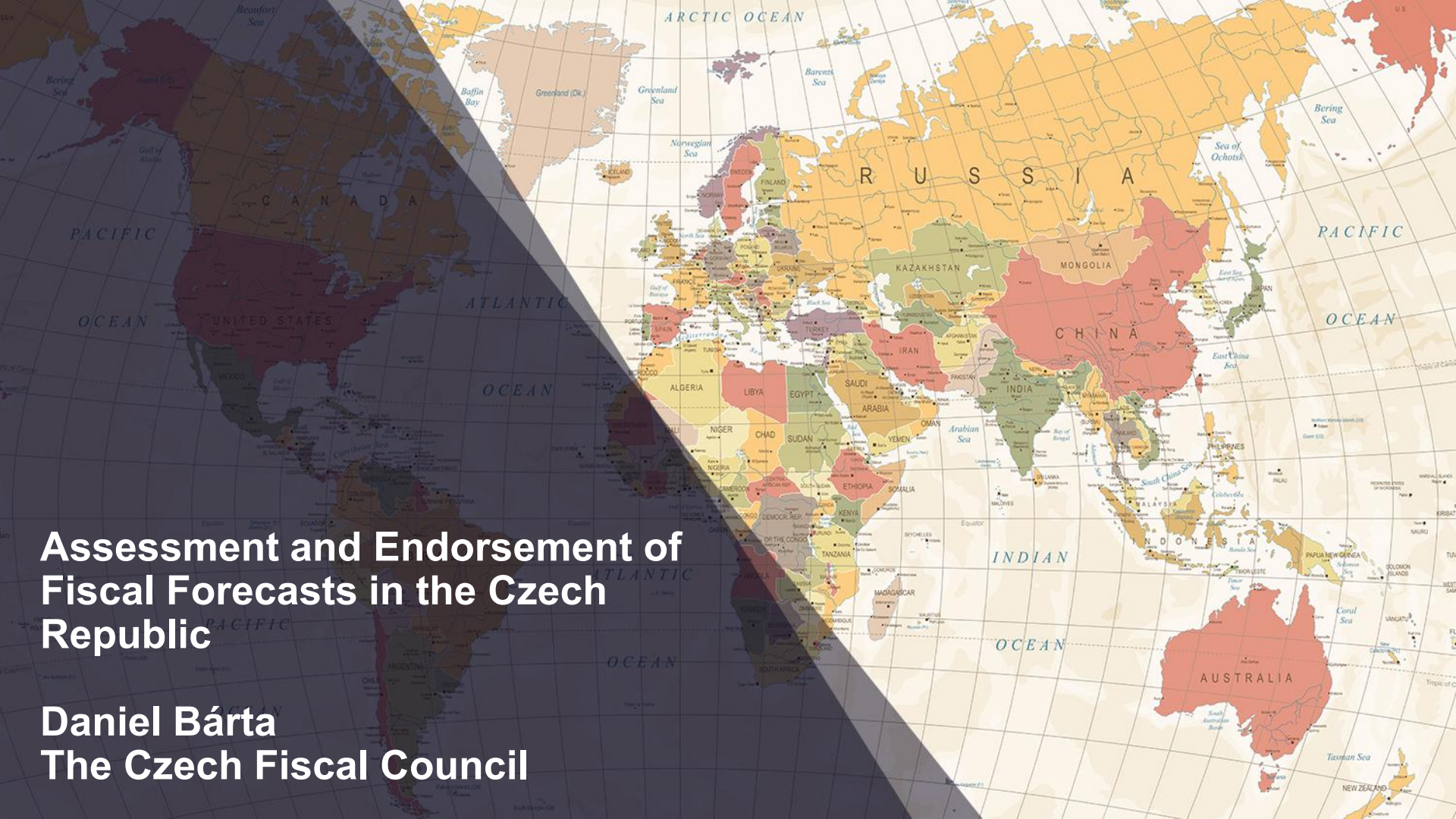
Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

OGResearch



Assessment and Endorsement of Fiscal Forecasts in the Czech Republic

Daniel Bárta
The Czech Fiscal Council

When are the forecasts published?

- Ministry of Finance (MoF) publishes 4 „Macroeconomic Forecasts“ per year (January, April, August, November)
- Revenue forecast is part of 2 „Macroeconomic Forecasts“ per year (April, August)
- Ministry of Finance (MoF) publishes 2 „Fiscal Outlooks“ per year (May, November)

- In April: MoF sets expenditure frameworks for the next year

- Revenue forecast + maximum allowable deficit = binding expenditures 100 + 50 = 150

- In August: MoF updates expenditure frameworks based on the new revenue forecast 105 + 50 = 155

Independent fiscal institution (IFI) in Czechia

- **The Czech Fiscal Council (1)**
- evaluates whether the general government complies with the rules of budgetary responsibility
- submits to the Chamber of Deputies a Report on the Long-term Sustainability of Public Finances
- issues opinions which serve as inputs for the government, the Chamber of Deputies and local authorities so that they can plan and implement fiscal and budgetary policies as accurately and responsibly as possible. The outputs are also useful for the general public and press.

- **The Committee on Budgetary Forecasts (2)**
- endorse macroeconomic and fiscal forecasts prepared by the MoF, particularly in terms of their likelihood of fulfilment
- 7 members, appointed by the government on a proposal of the Czech Fiscal Council
- **committee member must be actively involved in the production of publicly published macroeconomic or fiscal forecasts on a long-term and regular basis (chief economists of banks…)**


The Czech Fiscal Council
The Committee on Budgetary Forecasts
Ministry of Finance

Independent fiscal institution (IFI) in Czechia

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- endorse macroeconomic and fiscal forecasts prepared by the MoF, particularly in terms of their likelihood of fulfilment
- 7 members, appointed by the government on a proposal of the Czech Fiscal Council
- **committee member must be actively involved in the production of publicly published macroeconomic or fiscal forecasts on a long-term and regular basis (chief economists of banks…)**

- The Committee issues a statements on whether the forecasts (macro and fiscal separately) are based on a

  conservative, **realistic**, or **optimistic** scenario.

- The MoF is obliged to disclose the Committee's assessment and reflect it in its forecasts.

So, what do we (Czech Fiscal Council) do?

- We prepare our own simple fiscal forecast (4 times a year when new macro forecast is released)
- We check:
  - **whether the official revenue forecast is somewhat accurate (2 times a year)**
  - **whether the revenue forecast changes with new macro forecast (2 times a year)**
- More of a homework exercise = to contribute with something to the roundtable discussion (picture above)

- <u>We prepare forecast for 94 % of tax revenues</u>
- Social security contributions (45 % of tax revenues)
- Value Added Tax (21 % of tax revenues)
- Personal Income Tax (11 % of tax revenues)
- Corporate Income tax (11 % of tax revenues)
- Excise Duties on fuels, cigarettes, alcohol (6 % of tax revenues)

But we also check:
- Emission Allowances (EU ETS)
- EU funds
- Toll revenue
- …

Our approach is very simple (but effective)

1. We are looking for a robust econometric relationship in historical data series between

- the revenue of a given tax category (VAT, PIT…)
- the macroeconomic base(s) (compensation of employees, consumption of households…)

- Revenue data series should be adjusted for rate changes and discretionary measures
- The macroeconomic base should be forecasted by either the MoF or the CNB

  (gross operating surplus X entrepreneurial income)

  (sometimes not possible so we need to forecast the base)

- Based on forecast of macro base for year t, t+1, t+2 … we forecast a tax revenue for year t, t+1, t+2

Our approach is very simple (but effective)

1. **We are looking for a robust econometric relationship in historical data series between**
   - the revenue of a given tax category
   - the macroeconomic base(s)
2. **Or we forecast the tax category revenue as the % of GDP**
   - we either maintain a constant % of GDP from previous years, if the data suggests so
   - or increase/decrease it (as % GDP) based on trends

Value Added Tax

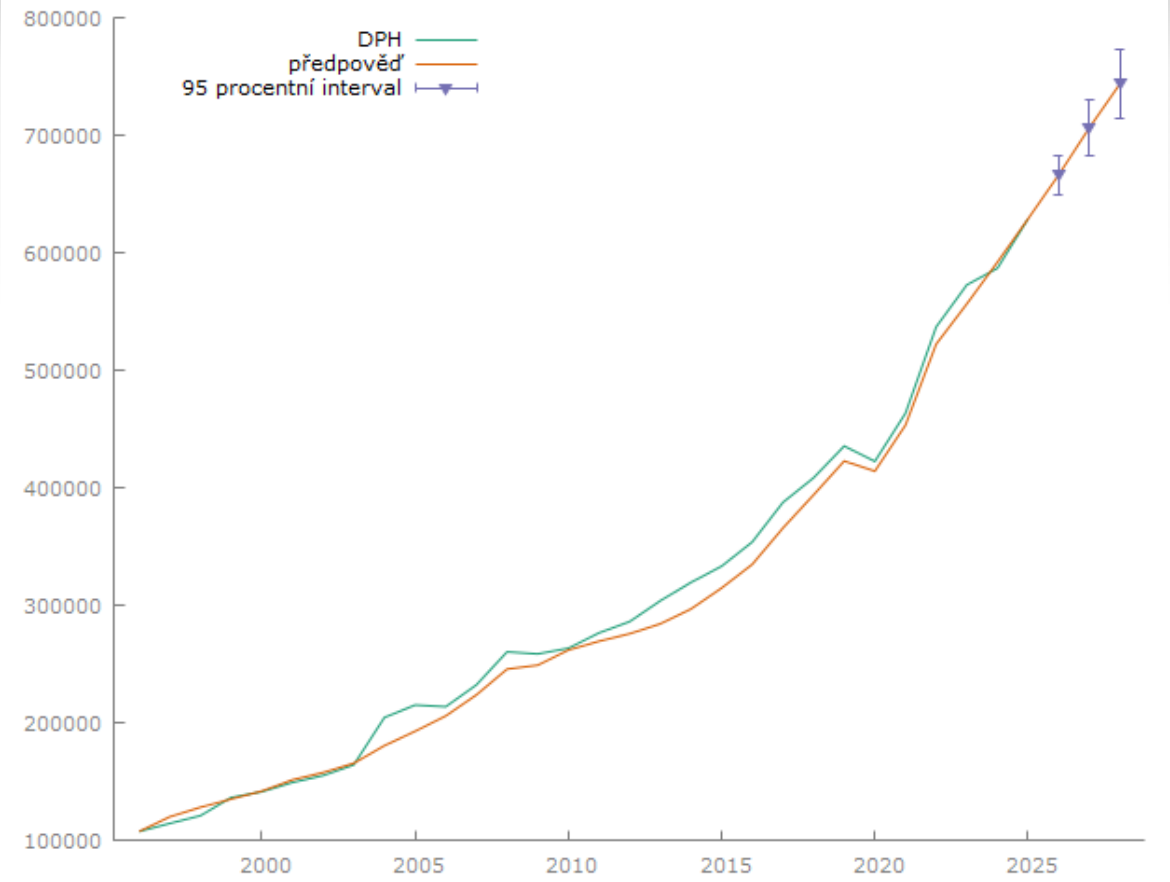
- We found strong relationship between VAT and consumption of households

$$\Delta VAT = \Delta\, \beta 1\ consumption\ of\ households + \beta 2\ dummy\ 2004 + \beta 3\ dummy\ 2020$$

$$\Delta \boldsymbol{VAT} = \boldsymbol{\beta 1}\ \Delta\ \boldsymbol{consumption\ of\ household}s$$

- MoF forecasts the consumption of households for t, t+1, t+2 and we get the VAT forecast for t, t+1, t+2

- <u>VAT is paid from:</u>
  - GFCF of general government
  - Intermediate consumption of general government
- <u>VAT is not paid from:</u>
  - Rent and „imputed rent“ in consumption of households


DPH
předpověď
95 procentní interval
800000
700000
600000
500000
400000
300000
200000
100000
2000
2005
2010
2015
2020
2025

Pro 95% konfidenční intervaly, t(19, 0,025) = 2,093

	VAT	předpověď	směr. chyba	95% konfidenční interval
2005	215118,00	216965,90		
2006	213728,00	231988,19		
2007	232288,00	251919,98		
2008	260366,00	275082,42		
2009	258628,00	278206,07		
2010	263457,00	292618,30		
2011	276533,00	300071,54		
2012	286116,00	305625,37		
2013	303823,00	311890,33		
2014	319485,00	321832,63		
2015	333274,00	337555,70		
2016	353915,00	355213,42		
2017	387537,00	383991,41		
2018	408538,00	410233,50		
2019	435462,00	436693,98		
2020	422479,00	422095,72		
2021	463521,00	459453,90		
2022	536896,00	528988,46		
2023	572701,00	560303,74		
2024	586901,00	594197,87		
2025	628837,00	628837,00		
2026		664133,17	7886,563	647626,40 - 680639,94
2027		702424,44	11153,285	679080,34 - 725768,53
2028		737686,29	13659,928	709095,74 - 766276,85

Přehled hlavních ukazatelů predikce fiskálních příjmů ČR

podklad pro jednání Výboru pro rozpočtové prognózy

tabulka vytvořena: 21. 8. 2026
datum uzávěrky datových zdrojů predikce: 21. 8. 2026

	Metodika	Jednotka	2024	2025	2026	2027	2028	2029
Daň z příjmu fyzických osob [1]	*ESA*	*mld. Kč*	**312,7**	**337,4**	**367,9**	**387,9**	**414,8**	**439,5**
	hotovostní	*mld. Kč*	263,1	290,1	322,9	345,1	369,1	395,1
Daň z příjmu právnických osob vč. daně z neočekávaných zisků	*ESA*	*mld. Kč*	**346,6**	**368,2**	**339,1**	**364,9**	**390,5**	**414,8**
bez DPPO placené obcemi a kraji	*hotovostní*	*mld. Kč*	329,1	371,4	361,1	354,9	383,1	413,6
Daň z přidané hodnoty	*ESA*	*mld. Kč*	**586,9**	**628,8**	**668,3**	**706,3**	**741,3**	**773,7**
	hotovostní	*mld. Kč*	584,1	623,1	665,5	702,8	737,9	769,9
Spotřební daň z minerálních olejů	*ESA*	*mld. Kč*	**92,4**	**94,6**	**93,1**	**97,7**	**98,0**	**98,2**
	hotovostní	*mld. Kč*	92,2	93,6	93,0	97,6	98,0	98,2
Spotřební daň z tabákových výrobků	*ESA*	*mld. Kč*	**59,6**	**58,2**	**61,2**	**63,3**	**62,9**	**62,5**
	hotovostní	*mld. Kč*	56,9	59,1	61,1	63,3	63,0	62,5
Ostatní spotřební daně	*ESA*	*mld. Kč*	**22,6**	**22,0**	**22,3**	**22,7**	**23,0**	**22,9**
	hotovostní	*mld. Kč*	22,1	22,6	22,4	22,5	23,0	22,8
Odvod z nadměrných příjmů [2]	*ESA*	*mld. Kč*	**0,0**	**0,0**	0,1			
	hotovostní	*mld. Kč*	0,0	0,0	0,1			
Dorovnávací daně - minimální zdanění velkých skupin podniků	*ESA*	*mld. Kč*	0,0	**0,0**	**1,0**	**2,0**	**2,0**	**2,0**
	hotovostní	*mld. Kč*		0,0	1,0	2,0	2,0	2,0
Majetkové a silniční daně	*ESA*	*mld. Kč*	**1,2**	**1,1**	**1,0**	**1,0**	**1,0**	**1,0**
	hotovostní	*mld. Kč*	1,1	1,2	1,0	1,0	1,0	1,0
Pojistné na sociální pojištění [3]	*ESA*	*mld. Kč*	**774,2**	**828,2**	**886,4**	**945,0**	**994,6**	**1 041,7**
	hotovostní	*mld. Kč*	752,6	806,3	871,1	923,4	974,8	1 020,8
Pojistné na veřejné zdravotní pojištění (bez státního pojištěnce)	*ESA*	*mld. Kč*	**344,3**	**367,5**	**395,2**	**420,7**	**442,7**	**463,7**
	hotovostní	*mld. Kč*	346,8	370,1	393,7	420,0	442,2	463,2
Stání pojištěnec	*hotov./ESA*	*mld. Kč*	**151,5**	**153,7**	**160,6**	**176,2**	**181,1**	**188,6**
Ostatní daně a poplatky [4]	*ESA*	*mld. Kč*	**26,3**	**27,8**	**28,8**	**27,3**	**28,7**	**29,8**
	hotovostní	*mld. Kč*	22,8	27,6	28,8	27,4	28,8	29,9

	VAT	Consumption	ETR_forecast	GDP	VAT_GDP	C_GDP
2004	204 618	1 485 518	13,77%	3 087 777	6,627%	48,1%
2005	215 118	1 552 867	13,85%	3 288 493	6,542%	47,2%
2006	213 728	1 637 519	13,05%	3 530 252	6,054%	46,4%
2007	232 288	1 753 935	13,24%	3 856 629	6,023%	45,5%
2008	260 366	1 891 253	13,77%	4 037 564	6,449%	46,8%
2009	258 628	1 898 922	13,62%	3 945 505	6,555%	48,1%
2010	263 457	1 979 627	13,31%	4 032 952	6,533%	49,1%
2011	276 533	2 015 308	13,72%	4 095 355	6,752%	49,2%
2012	286 116	2 038 700	14,03%	4 118 386	6,947%	49,5%
2013	303 823	2 066 693	14,70%	4 169 011	7,288%	49,6%
2014	319 485	2 118 478	15,08%	4 377 991	7,298%	48,4%
2015	333 274	2 207 664	15,10%	4 651 813	7,164%	47,5%
2016	353 915	2 309 367	15,33%	4 843 030	7,308%	47,7%
2017	387 537	2 483 017	15,61%	5 179 344	7,482%	47,9%
2018	408 538	2 640 260	15,47%	5 475 773	7,461%	48,2%
2019	435 462	2 798 916	15,56%	5 888 869	7,395%	47,5%
2020	422 479	2 691 926	15,69%	5 828 318	7,249%	46,2%
2021	463 521	2 921 089	15,87%	6 307 755	7,348%	46,3%
2022	536 896	3 358 430	15,99%	7 049 872	7,616%	47,6%
2023	572 701	3 548 496	16,14%	7 659 655	7,477%	46,3%
2024	586 901	3 755 247	15,63%	8 069 326	7,273%	46,5%
2025	628 837	3 966 818	15,85%	8 573 124	7,335%	46,3%
2026						
2027						
2028						

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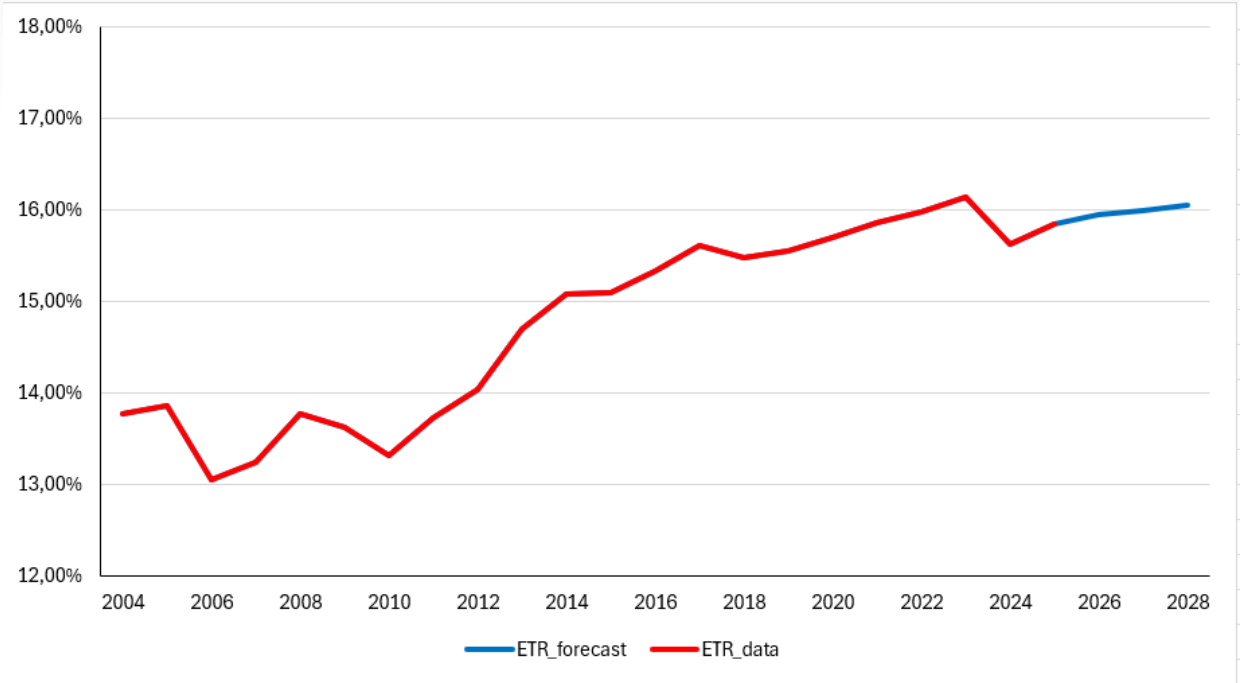
18,00%
17,00%
16,00%
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2004
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ETR_forecast
ETR_data

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2026	**667 131**	4 182 640	15,95%	8 969 000	7,438%	46,6%
2027	**706 854**	4 417 840	16,00%	9 531 000	7,416%	46,4%
2028	**743 667**	4 633 440	16,05%	10 034 000	7,411%	46,2%

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	hotovostní	*mld. Kč*	263,1	290,1	322,9	345,1	369,1	395,1
Daň z příjmu právnických osob vč. daně z neočekávaných zisků	*ESA*	*mld. Kč*	**346,6**	**368,2**	**339,1**	**364,9**	**390,5**	**414,8**
bez DPPO placené obcemi a kraji	*hotovostní*	*mld. Kč*	329,1	371,4	361,1	354,9	383,1	413,6
Daň z přidané hodnoty	*ESA*	*mld. Kč*	**586,9**	**628,8**	**668,3**	**706,3**	**741,3**	**773,7**
	hotovostní	*mld. Kč*	584,1	623,1	665,5	702,8	737,9	769,9
Spotřební daň z minerálních olejů	*ESA*	*mld. Kč*	**92,4**	**94,6**	**93,1**	**97,7**	**98,0**	**98,2**
	hotovostní	*mld. Kč*	92,2	93,6	93,0	97,6	98,0	98,2
Spotřební daň z tabákových výrobků	*ESA*	*mld. Kč*	**59,6**	**58,2**	**61,2**	**63,3**	**62,9**	**62,5**
	hotovostní	*mld. Kč*	56,9	59,1	61,1	63,3	63,0	62,5
Ostatní spotřební daně	*ESA*	*mld. Kč*	**22,6**	**22,0**	**22,3**	**22,7**	**23,0**	**22,9**
	hotovostní	*mld. Kč*	22,1	22,6	22,4	22,5	23,0	22,8
Odvod z nadměrných příjmů [2]	*ESA*	*mld. Kč*	**0,0**	**0,0**	0,1			
	hotovostní	*mld. Kč*	0,0	0,0	0,1			
Dorovnávací daně - minimální zdanění velkých skupin podniků	*ESA*	*mld. Kč*	0,0	**0,0**	**1,0**	**2,0**	**2,0**	**2,0**
	hotovostní	*mld. Kč*		0,0	1,0	2,0	2,0	2,0
Majetkové a silniční daně	*ESA*	*mld. Kč*	**1,2**	**1,1**	**1,0**	**1,0**	**1,0**	**1,0**
	hotovostní	*mld. Kč*	1,1	1,2	1,0	1,0	1,0	1,0
Pojistné na sociální pojištění [3]	*ESA*	*mld. Kč*	**774,2**	**828,2**	**886,4**	**945,0**	**994,6**	**1 041,7**
	hotovostní	*mld. Kč*	752,6	806,3	871,1	923,4	974,8	1 020,8
Pojistné na veřejné zdravotní pojištění (bez státního pojištěnce)	*ESA*	*mld. Kč*	**344,3**	**367,5**	**395,2**	**420,7**	**442,7**	**463,7**
	hotovostní	*mld. Kč*	346,8	370,1	393,7	420,0	442,2	463,2
Stání pojištěnec	*hotov./ESA*	*mld. Kč*	**151,5**	**153,7**	**160,6**	**176,2**	**181,1**	**188,6**
Ostatní daně a poplatky [4]	*ESA*	*mld. Kč*	**26,3**	**27,8**	**28,8**	**27,3**	**28,7**	**29,8**
	hotovostní	*mld. Kč*	22,8	27,6	28,8	27,4	28,8	29,9

Personal Income Tax

1) PIT (PAYE and tax settled via tex return) = earnings of employees and self-employed
2) Witholding tax = dividends, interest revenue, short-term non-employment agreements

PIT_1

✓ Strong relationship with CoE, no relationship with mixed income

$$\Delta\, PIT_1 = \beta 1 \Delta\, compensation\ of\ employees + \beta 2 dummy\ 2021$$

PIT_2

✓ 3-month interbank rate … interest revenues

✓ compensation of employees … short term non-employmet agreements

✓ profits (one year lag) … dividends

$$\Delta\, PIT_2 = \beta 1 \Delta\, PRIBOR + \beta 2 \Delta\, compensation\ of\ employees + \beta 3 \Delta\, profits_{t-1}$$

$$PIT_2 = \beta 1 PRIBOR + \beta 2 compensation\ of\ employees + \beta 3 profits_{t-1}$$

Corporate Income Tax

CIT revenues depend on firms' profits

But which macro variable should represent profits?

- ✓ GOS = gross operating surplus
- ✖ The relationship between CIT and GOS has weakend siginficantly from 2022 onwards (financial operations…)

Neverthless: We define variable „profits“ as:

Profits = GDP – Compensation of Employees

$$CIT = \beta 1 profits + \beta 2\, profits_{t-1}$$

$$\Delta CIT = \beta 1 \Delta\, profits + \beta 2 dummy\,2020 + \beta 3 dummy\,2021$$

Social Security Contributions

- Consists of pension contributions and healthcare contributions
- Basically a flat tax (although there is cap on pension contributions as no contributions are imposed on wage above 4 times the average wage)

Approach 1:

Change in wages = change in SSC

6% change in wages = 6 % change in SSC

Approach 2:

The macroeconomic base: The compensation of emyployees (CoE)

$$\Delta SSC = \beta 1 \Delta CoE$$

Approach 3:

Effective tax rate should remain constant (we use 3-year moving average of ETR)

$$SSC(t+1) = ETR(3yMA) * CoE(t+1)$$

Excise duties

Excise duty on fuels = we need forecast of fuel consumption

Excise duty on tobacco = we need forecast of tobacco consumption

Excise duty on alcohol = we need forecast of alcohol consumption

How to forecast consumption of particular commodities?

1) „Naive“ models

- we do not forecast macro base (consumption of fuel, cigarettes, alcohol)
- we use lagged collection of particular excise duty (plus trend)

$$\Delta ED_fuel = \beta 1 \Delta EC_fuel_{t-1} + dummy_{2020} + dummy_{2021}$$

$$\Delta ED_tobacco = \beta 1 \Delta EC_tobacco_{t-1} + dummy_{2014} + time$$

$$\Delta ED_alcohol = \beta 1 \Delta EC_alcohol_{t-1} + time$$

Excise duties

2) We forecast consumption of particular commodities …

a) with use of lagged variable:

$$consumption\ of\ diesel = \beta 1\ consumption\ of\ diesel_{t-1} + dummy_{2020} + dummy_{2021}$$
$$consumption\ of\ gasoline = \beta 1\ consumption\ of\ gasoline_{t-1} + dummy_{2020} + dummy_{2021}$$

b) with use of trend:

$$consumption\ of\ cigarettes = \beta 1\ time$$
$$consumption\ of\ alcohol = \beta 1\ time$$

c) with use of lagged variable and with use of trend

$$consumption\ of\ cigarettes = \beta 1\ time + \beta 2\ consumption\ of\ cigarettes_{t-1}$$
$$consumption\ of\ alcohol = \beta 1\ time + \beta 2\ alcohol_{t-1}$$

Excise duties

… and then we forecast the excise duty

Exciese duty on fuel (ED_fuel):

$$\Delta\, ED_{fuel} = \beta 1 \Delta\, consmuption\ of\ diesel + \beta 2 \Delta\, consmuption\ of\ gasoline$$

Exciese duty on fuel (ED_tobacco):

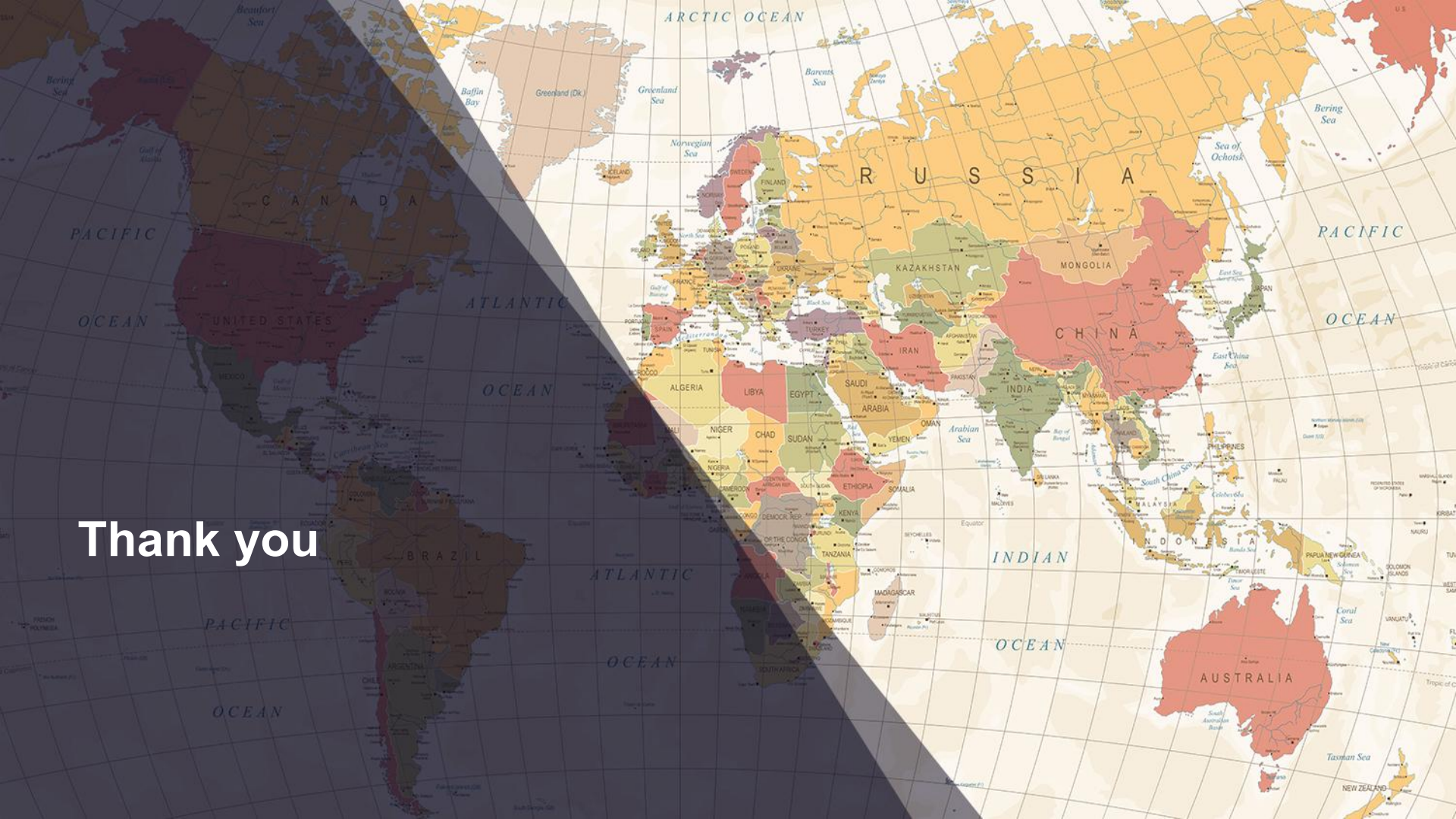
$$ED_{tobacco} = \beta 1\ consmuption\ of\ cigarettes + \beta 2\ ED_{tobacco_{t-1}}$$

Exciese duty on fuel (ED_alcohol):

$$ED_{alcohol} = \beta 1\ consmuption\ of\ alcohol + \beta 2\ ED_{alcohol_{t-1}} + \beta 3\ dummy_{2020}$$

CONCLUSION AND MAIN POINTS

1) We try to find relationships between tax category and macro variable (via simple OLS regressions)
2) There is not ideal regression (model) for all countries for the same tax category
3) We tried plenty of simple regressions for each tax category
4) You can try to substitute explanatory variables (cigarettes x smoker prevalence, wages x disposable income)
5) You can try various specifications (with deltas, in level, with lagged variables, with trends…)
6) You have the choose the best one (which fits the data the best in the past)
7) We are not trying to be world champions in econometrics
8) We know our models are not ideal and they are very simple
9) But they work for our purpose (we can use them to verify wheter forecasts of the MoF are somewhat realistic)


ARCTIC OCEAN
Beaufort Sea
Bering Sea
Baffin Bay
Greenland (Dk.)
Greenland Sea
Barents Sea
Norwegian Sea
ICELAND
RUSSIA
Sea of Ochotsk
Bering Sea
CANADA
PACIFIC
OCEAN
ATLANTIC
OCEAN
UNITED STATES
MEXICO
KAZAKHSTAN
MONGOLIA
PACIFIC
OCEAN
CHINA
East China Sea
IRAN
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
INDIA
Arabian Sea
NIGER
CHAD
SUDAN
YEMEN
OMAN
PHILIPPINES
South China Sea
ETHIOPIA
SOMALIA
KENYA
MALAYSIA
Equator
INDIAN
OCEAN
BRAZIL
ATLANTIC
OCEAN
TANZANIA
MADAGASCAR
INDONESIA
PAPUA NEW GUINEA
Coral Sea
AUSTRALIA
PACIFIC
OCEAN
Tasman Sea
NEW ZEALAND

Thank you