inštitút finančnej politiky

Ministerstvo financií SR / www.finance.gov.sk/ifp

Selected Economic Policy Issues

Lucia Šrámková

IFP

November 2018

Agenda

I. **Crystal ball for Slovak Government Debt** - sophisticated mathematical methods in real life

II. **Expenditure Ceilings in Slovak Budgetary Framework –** international fiscal policy tool in Slovak practice

III. **Roma – Who They are, What are They like** – fruits of data mining

I. Crystal Ball for Slovak Debt Management

1) **Why do we need nerdy model for debt management?**

2) **Economics behind the model**

3) **Using outputs to make decisions**

I. Crystal Ball for Slovak Debt Management

1) **Why do we need nerdy model for debt management?**

2) Economics behind the model

3) Using outputs to make decisions

I. Why do we need better decisions?

- **Government debt (45 mld. EUR)**
  - Even smallest improvements in decision making can save milions EUR !
  - CT scan corruption / F16 Fighting Falcon Jets are peanuts

- **What decisions does the Debt Manager have to make?**
  - How much to borrow?
  - For how long? (decide the proportion of short-term vs. long-term issuances)
  - Cost – risk tradeoff (short-term is cheaper but riskier, long-term vice versa)
  - In which currency? (EUR, USD, JPY, ...)

I. Why do we need better decisions? (2)

- **Discussion about optimal debt management needs consistency**
  - Is today the golden opportunity to borrow long-term cheaply or will low interest rates be there for the next 10 years?

  - How much money can we save if we take on 5% more risk? (more risk = short-term borrowing)
  - **Modelling apporach** is the right approach to answer these complex questions

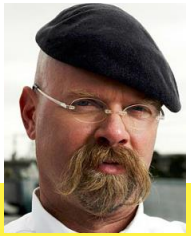
I. Why do we need debt simulator?

- What tools do we need to improve decision making?
  - First best: know the future

  - Second best: **simulate the future** based on best available statistical models

I. Why do we need debt simulator?

- **Running our model is like watching Mythbusters**
  - Bad decisions are extremely costly, like bad experiments with lightbulbs in microwaves
  - Instead of making uninformed decisions:
    - **Experiments**: don´t put the lightbulb in the microwave at home, watch Mythbusters instead and see if it explodes
    - **Debt management**: don´t issue bonds based on feelings, run the model and see what consequences can your decisions have in the future



I. Crystal Ball for Slovak Debt Management

1) Why do we need nerdy model for debt management?

2) **Economics behind the model**

3) Using outputs to make decisions

I. Economics behind the model

- **How can we simulate the future?**
  - we will use all the stuff you learned at school and didn´t believe you´d ever use
  - statistics, vector auto-regressions, programming in R, bootstrap simulations

- **Simulate the future development of the macroeconomy**
  - It can evolve in many possible ways – using statistical models we generate 2000 possible „futures“ to capture all plausible developments
  - Simulate future development of interest rates, inflation, GDP, debt/GDP, primary surplus, government cash reserve

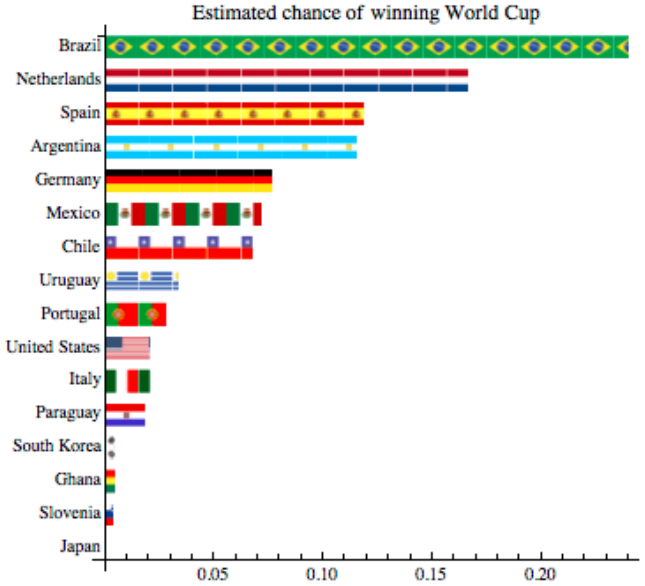
I. Economics behind the model

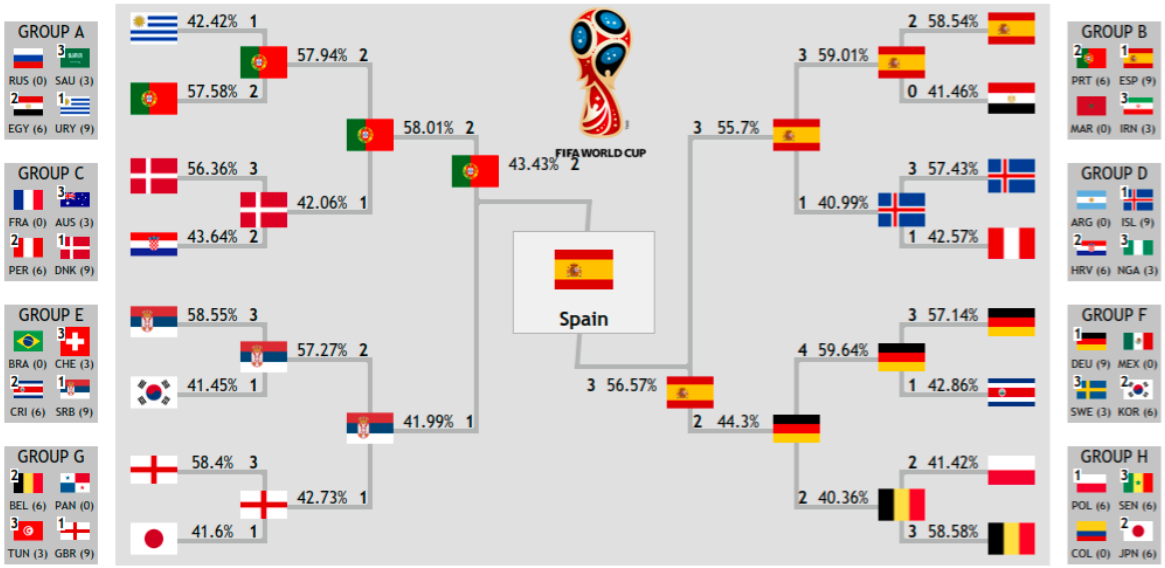
- **Three modules of the debt simulator**
  1. Macroeconomic model of eurozone linked to the yield curve
  2. Macroeconomic model of Slovakia linked to fiscal policy and to the eurozone model
  3. Module for evaluating consequences of issuance strategy choice (estimating cost and risk measures of strategies)

- **We use vector auto-regressions to forecast plausible macro development**
  - Add uncertainty: use bootstrap to simulate unexpected surprise events in the future (e.g. in some futures a crisis might appear)

I. Football manager vs. debt manager

- **Football manager: simulating outcomes of FIFA World Cup**
  - Brasil is a favourite but we cannot make decisions assuming they win for sure
  - Might win in 400/2000 „futures“ but there is much richer set of outcomes
  - Looking at all possible futures we can analyse situations like them losing in QF, etc.





I. Football manager vs. debt manager

- **Debt manager: simulating macroeconomic development**
  - Don´t take median forecast, instead simulate rich set of possible „futures“
  - **Under these many simulated futures, compare issuance strategies and pick the one which is „the best“ in most futures.**
  - The best can mean lot of things (you have to decide what is important):
    - Lowest average cost while maintaining acceptable risk
    - Cost at risk – how bad are 5% of the worst outcomes?
    - Which issuance strategy has lower probability of default?

- **We simulate 2000 possible „futures“ and try to find the „best“ issuance strategy based on above measures**

I. Crystal Ball for Slovak Debt Management

1) Why do we need nerdy model for debt management?

2) Economics behind the model

3) **Using outputs to make decisions**

I. Compare consequences of two strategies

- **Two plausible issuance strategies:**
  - Strategy 1: Current issuance plan of ARDAL.
  - Strategy 2: Alternative issuance plan with shorter maturities.

- **Percentual weights on different maturities:**

	Strat 1	Strat 2
1Y	0	0
2Y	0	10
3Y	0	0
5Y	1	20
7Y	5	10
10Y	30	30
15Y	12	10
20+ Y	52	20

I. Refinancing risk

- **Strategy 2015-18: 5-year refinancing risk shoud be around 55%**
  - Currently at 33.5%
  - We could take on more risk and potentially save resources (that´s what „Strategy 2“ suggests)

- **5-year refinancing risk**
  - Strategy 2 approaches desired risk threshold much better.
  - On top of it, it saves some resources = too much risk aversion might be costly.

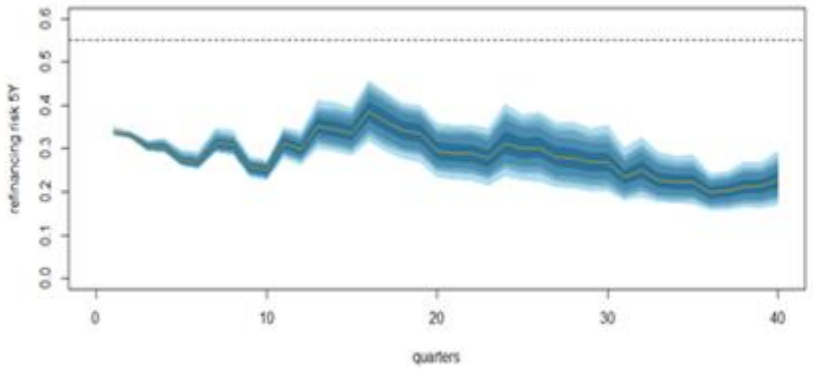


Chart 1: 5-year refinancing risk of strategy 1.

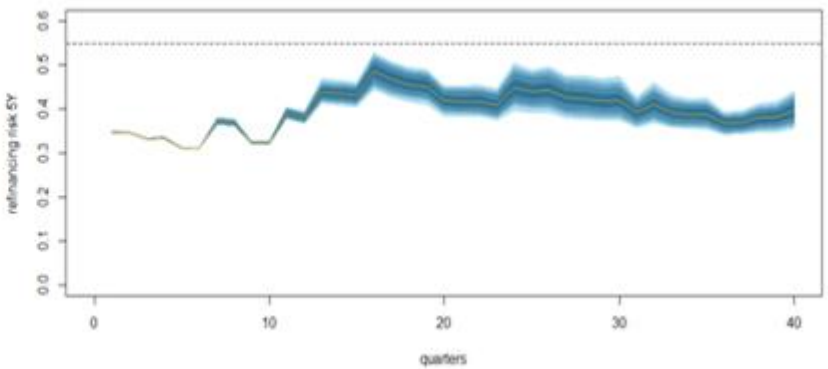


Chart 1: 5-year refinancing risk of strategy 2.

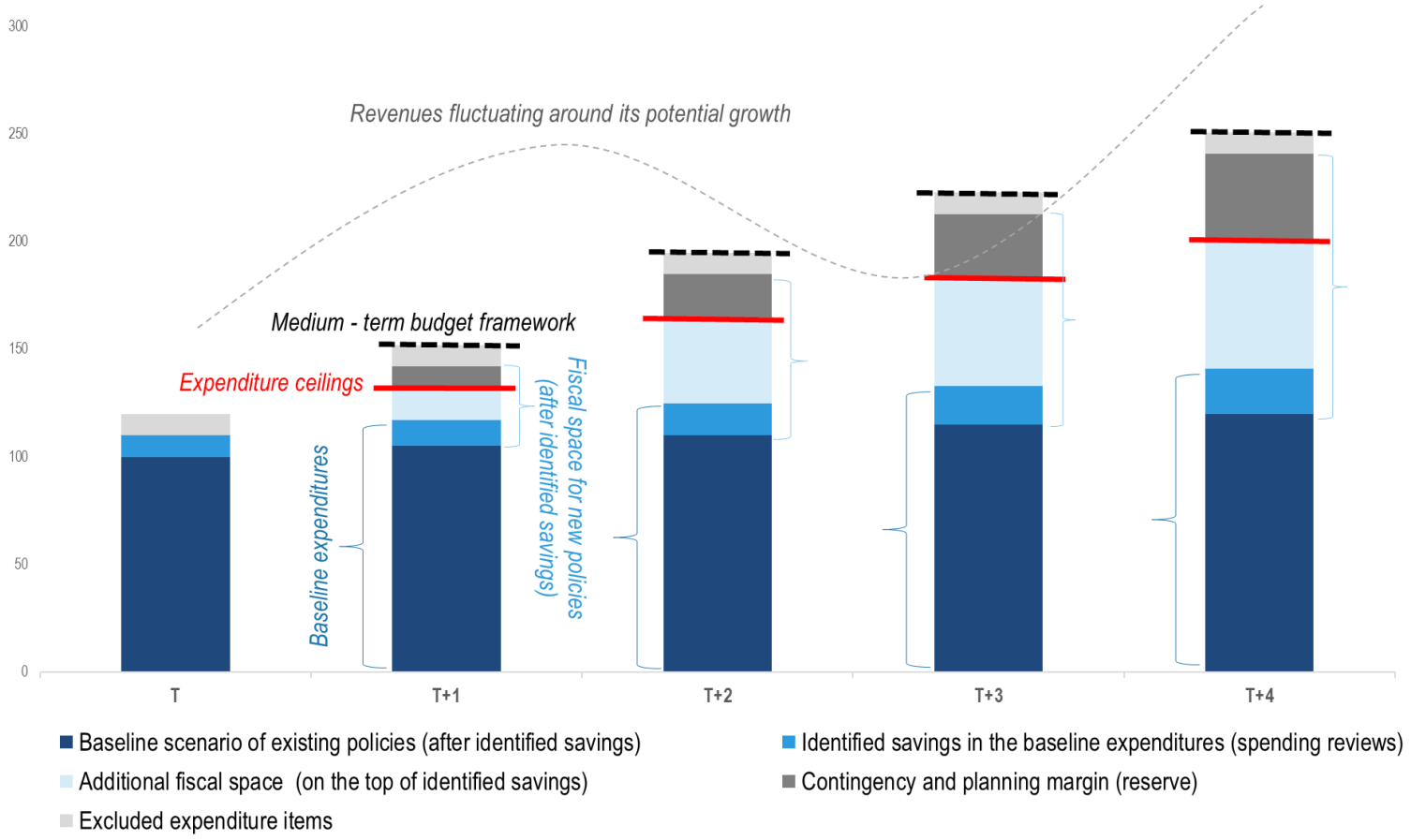
II. Expenditure Ceilings in Slovak Budgetary Framework

1. Why - what are the main benefits?
2. Design (main features)
3. Challenges for implementation

II. What is an expenditure ceiling?

II. What is an expenditure ceiling?

- **Hard aggregate ceiling on total government expenditures** at the start of the budget preparation process

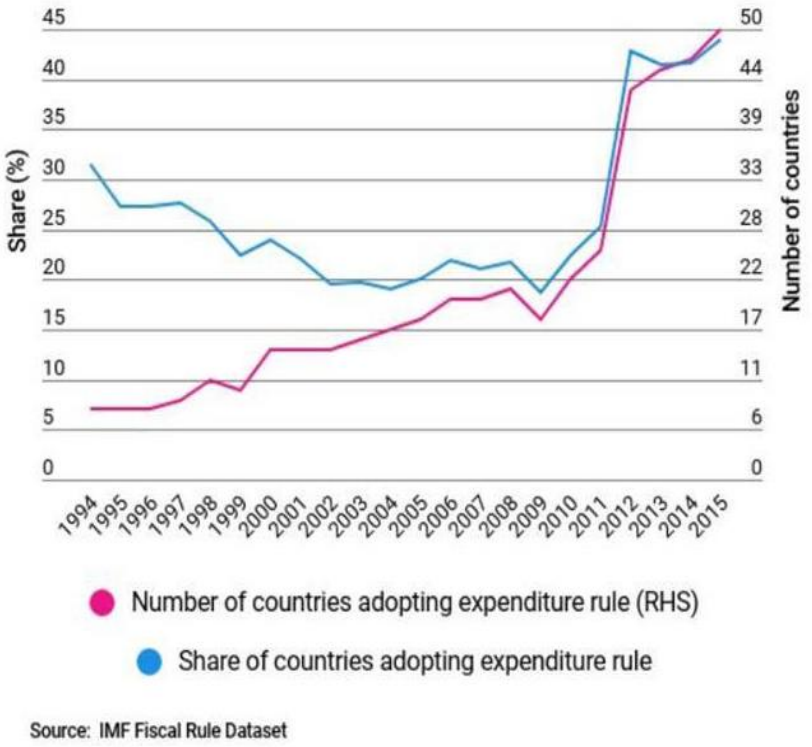


II. Why is it a game changer? 4 main benefits

- **Anchoring the fiscal discipline**
  - Time frame of **binding budgeting** is extended to medium-term
  - Streghtened control over expenditure side (main reason for „deficit bias“)
- **Prioritization and efficiency of public expenditures**
  - Top-down ceilings give **better incentives to reallocate resources**
- **More counter-cyclical fiscal policy**
  - **Reduced possibility to spend windfall cyclical revenues**
  - But also providing fiscal space to counter-act recessions
- **Increased budget control and transparency**
  - Constrained expenditure is **under control of government** (real policy changes)
  - Main operational tool for budget preparation and assesment

II. Almost everybody agrees on the need for expenditure ceilings

- **Support from academia and IOs**
  - All important international organisations recommend as main operational budget rule (IMF, EC, OECD)
  - Even french and german economists agree (Carnot, 2014, Claeys et al, 2015; Bénassy-Quéré, et al, 2018, etc)
- **Brussels pushes for expenditure rules since 2012**
  - 6 – pack : Expenditure benchmark (2012)
  - Fiscal compact 2.0 (2017)
- **Strong trend of implementation in recent years**
  - Today almost 50 countries
  - Best practise (Netherlands, Sweden)



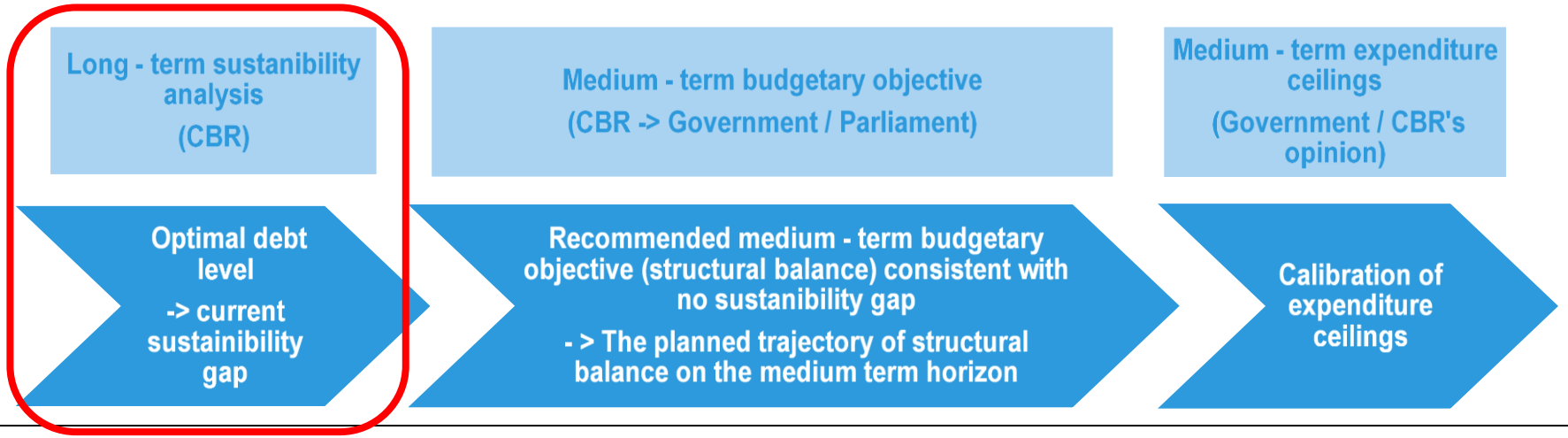
Source: IMF Fiscal Rule Dataset

II. Main features of expenditure ceilings (3 areas)

- **Numerical formulation of the ceiling**
  - and link to the aggregate fiscal targets
- **Coverage and the level of detail of the ceiling**
  - by items and sectors and the level of detail (ministerial vs aggregate ceilings)
- **Flexibility instruments**
  - Uncertainities in the mid-term planning/forecast

II. How to calibrate expenditure ceilings in 3 steps - start with debt sustainibility analysis

Three - steps approach to link expenditure ceilings to fiscal targets



1. **Fiscal Anchor** -> *no long - term sustainibility gap* (based on not breaching gross debt ceiling of 50 % of GDP in the long-term in the baseline scenario)
2. **Medium - term operational target** (and trajectory to achieve it)
   -> *structural surplus 0.4 % of GDP* (prefund for population ageing)
3. **Expenditure ceilings** -> *nominal exp. ceilings (in EUR)* set consistently with the planned trajectory of structural balance towards targeted structural surplus

II. Trajectory to reach structural surplus: decided by the government while respecting SGP rules

- The **government sets binding fiscal targets towards fiscal surplus**
  - for its whole term (4 years)
  - to reach (or get close to) the structural surplus target depending on the distance

- **How fast to reach the fiscal surplus**?
  - Need to balance sustainability and stabilization objectives
  - **Annual structural improvement of 0.5 % of GDP** (Stability and growth pact)
    - More in good times, less in bad times

II. Coverage as wide as possible, but under control of government

- **Excluding some items and sectors** from exp. ceilings increases accountability, transaparency adn operational control
  - Adjusts for good or bad lack of policymakers (items not under control of government)
    - Cyclical revenues
    - Interest costs
    - Unemployments benefits
    - But also some sectors (local governments)

- But in the end the ceilings' **coverage should be as wide as possible**
  - Link to aggregate fiscal targets needs to be preserved
  - Wide coverage increases competition between policies

II. Ministerial sub - ceilings would anchor fiscal discipline even more

- **Aggregate ceilings (only)**
  - Higher flexibility
  - Lack of clear responsibility and budgetary certainty at line ministries
  - Lack of clarity of governmental priorities across public policies

- **Ministerial subceilings**
  - Budgetary negotiations need to control allocation across sectors (line ministries)
  - All ministers know ex-ante the fiscal space they have for priorities
  - Stronger incentive for identification of savings at line ministries, supporting implementation of spending reviews/VfM
  - Clear resposibility when it comes to budgetary results
  - Higher ownership

II. Contingency reserve as main absorption tool for standard shocks

- **Not all fiscal space under expenditure ceiling should be allocated** ex-ante
  - Need to provide fiscal space for uncertainities in forecast and planning
  - mainly real GDP and inflation forecast errors

- **Contingency reserve** (under ceilings) should be created to absorb forecast revisions
  - from 1% of the exp. ceiling in T+1, up to 3 % in T+4

II. Escape clauses for unusual/catastrophic events

- **In case of truly extraordinary events the expenditure limit can be changed**
  - Deep recession like the one in 2008/2009
  - Bailout of banking sector or natural disasters
    - qualified as one-off events

- **Need for oversight of independent institution**
  - Council for budget responsibility (CBR) approves triggering of escape clause

II. Implementation challenges

- **Legislation**
  - Amendment of relevant laws
  - Definition of specific roles for Government, Parliament, MoF, CBR

- **Budget management**
  - Amendment of budgetary negotiation process -> two-round process (ministerial level)
    - (1) No – policy change scenario (2) New priorities negotiations (both scrutitnized by VfM)
  - Strenghtenening of budgetary control over state enterprises

- **Macroeconomics (how to balance)**
  - Volatile economic cycle (real GDP, inflation)
  - How to allocate reserve (distinguishing between cyclical and structural shocks)

- **Selling points towards the public and politicians**
  - Need to finetune the explanation of the expenditure ceiling features

III. Roma - Who They are, What are They like

1. Motivation

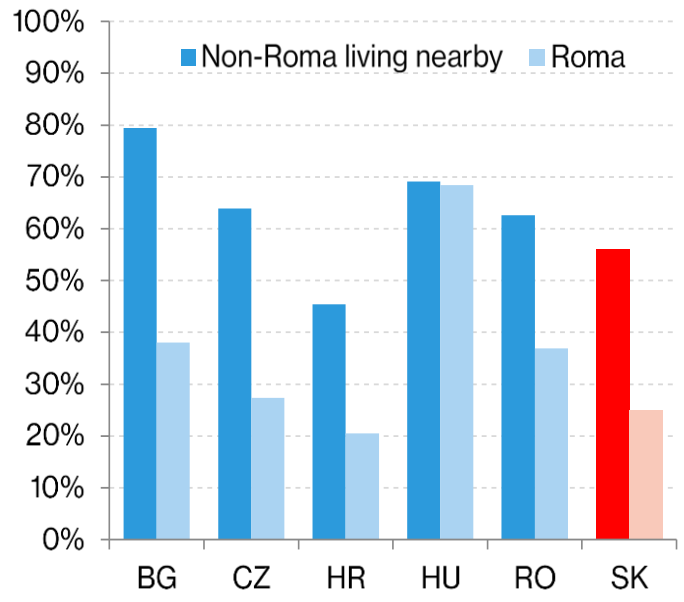
2. Data mining

3. Outcomes in labour market, education and health

4. What next?

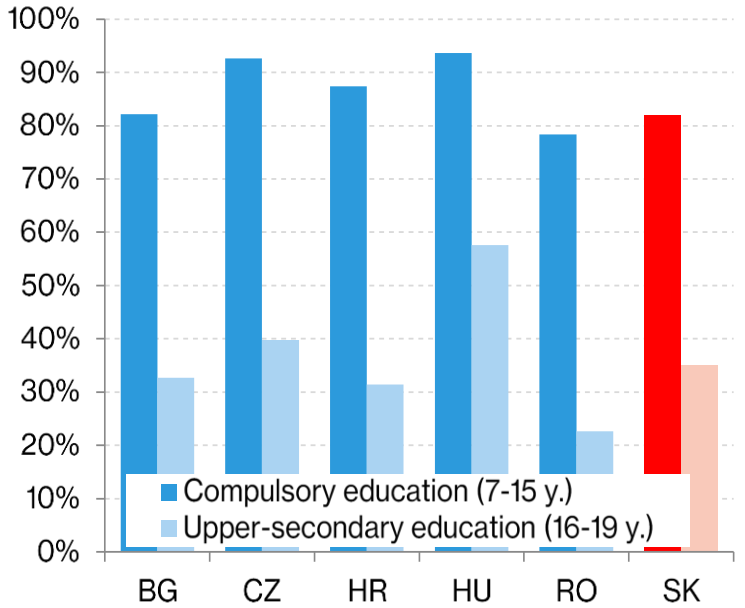
III. Research motivation: everything starts at school

Pre-school enrolment rate (%, 3-6 y.)



Source: UNDP-WB-EC regional Roma survey 2011

Poor transition to upper-secondary education for Roma (%, gross enrolment rates)

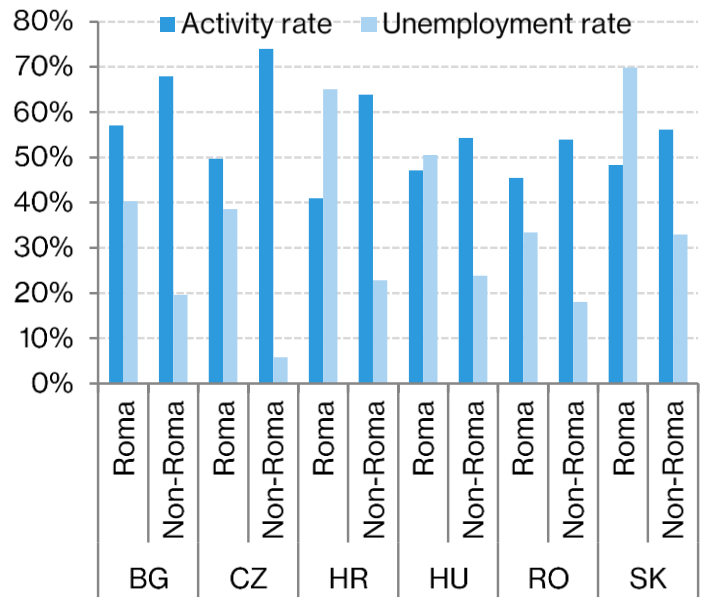


Source: UNDP-WB-EC regional Roma survey 2011

- Existing survey data show a significant gap in education outcomes between Roma and majority population

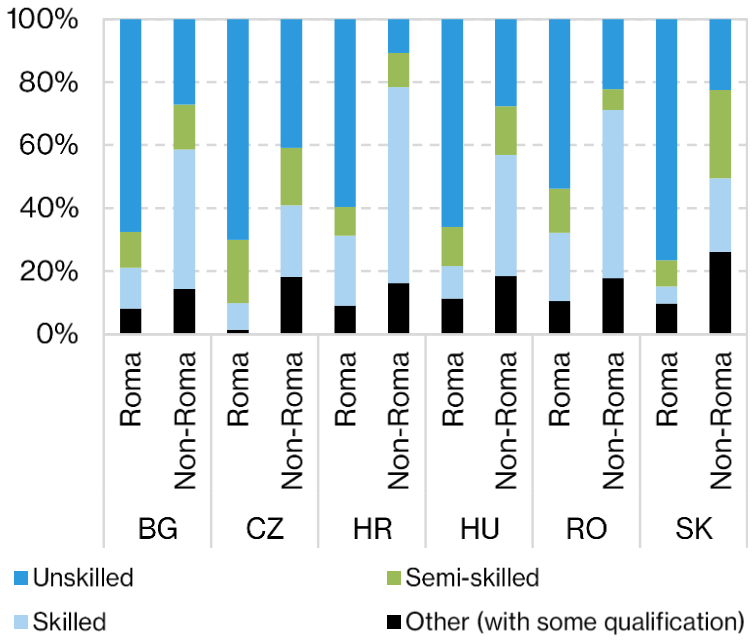
III. Research motivation: poor labour market outcomes

Unemployment and activity rate of Roma and Non-Roma population (%)



Source: UNDP-WB-EC regional Roma survey 2011

Skills of unemployed Roma and Non-Roma



Source: UNDP-WB-EC regional Roma survey 2011

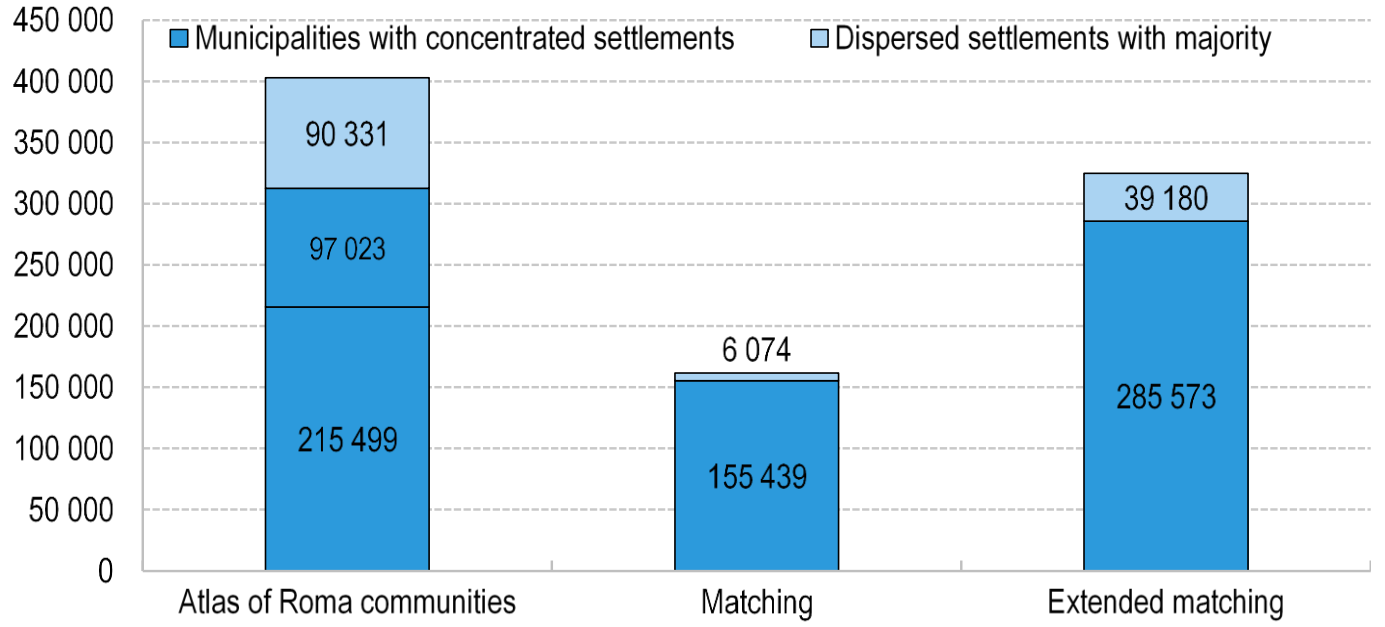
- Low education has a negative impact on labour market outcomes
- However, survey data about Roma have limitations – occasional (thus it is not possible to track outcomes over time), surveys were conducted only in some regions/districts, limited variables
- Therefore, we came up with an

III. What are we doing?

- Field research trip to Prešov and Bardejov districts (qualitative research in community centres)
- Using administrative data for better integration policies in education, labour market and healthcare: first steps – new approach for descriptive statistics, further steps – evaluation of policies
- Collaboration with OECD on the topic of Roma inclusion in Slovakia (chapter in the Economic Survey + research paper)
- Policy briefs and input for forthcoming spending review on this topic
- Good feedback from NGOs on our work

III. Using administrative data and the Atlas of RC

Data matching based on location and family ties

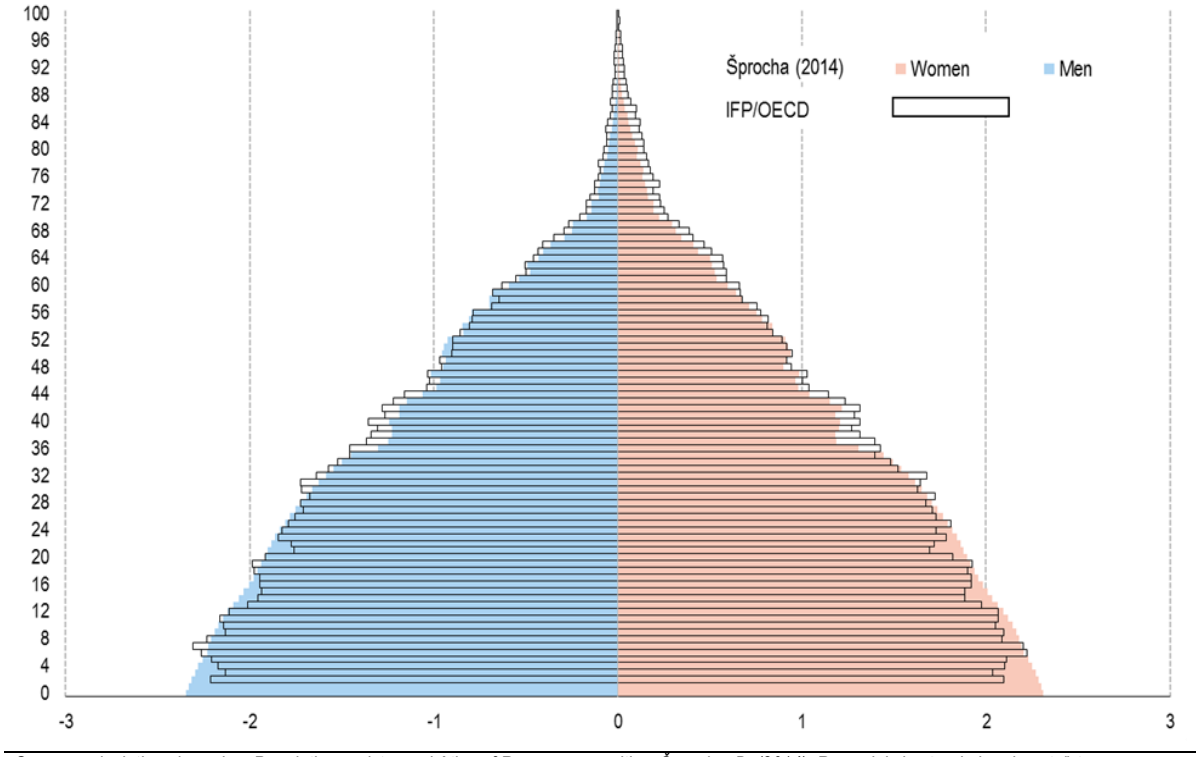


Source: calculations based on Population registry and Atlas of Roma communities

- Identification of Roma communities based on the Atlas of Roma communities (2013) mostly in municipalities with concentrated settlements (our proxy for less integrated Roma population)
- Extension of the population with data based on family ties
- Number of identified Roma population equals to 80 % of the population identified in the Atlas RC

III. Using administrative data and the Atlas of RC

Data validity check - our data are consistent with other data sources

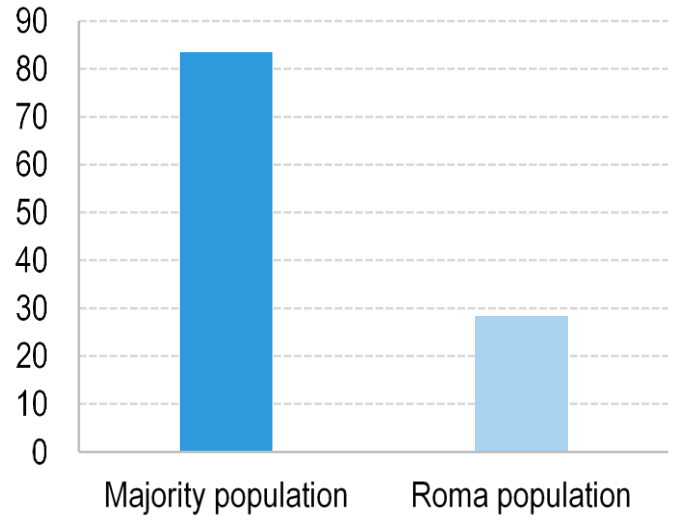


Source: calculations based on Population registry and Atlas of Roma communities; Šprocha, B. (2014), Reprodukcia rómskeho obyvateľstva na Slovensku a prognóza jeho populačného vývoja, INFOSTAT – Výskumné demografické centrum

- Identified Roma population is „similar“ to other population data sources
- Outcomes for labour market and social inclusion match existing survey statistics about Roma population

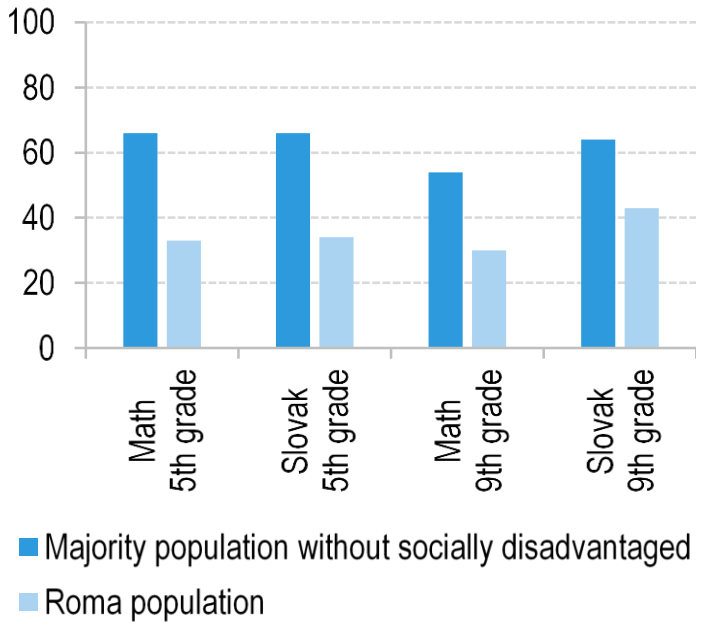
III. Early education matters

Preschool participation (% of children aged 3-5 y., school year 2017/2018)



Source: calculation based on Ministry of Education database, Population registry and Atlas of Roma communities

Nationwide testing of primary school students (2016, success rates considering the full scores in %)

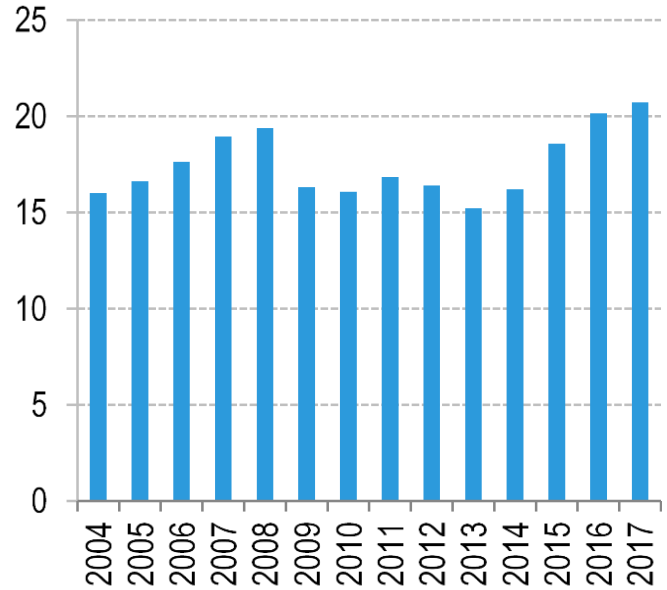


Source: calculation based on NÚCEM data, Population registry and Atlas of Roma communities

- Only about 30 % of Roma children attend preschool education compared to over 80 % of the majority
- Consequently, this has a negative impact on results of Roma pupils in primary schools

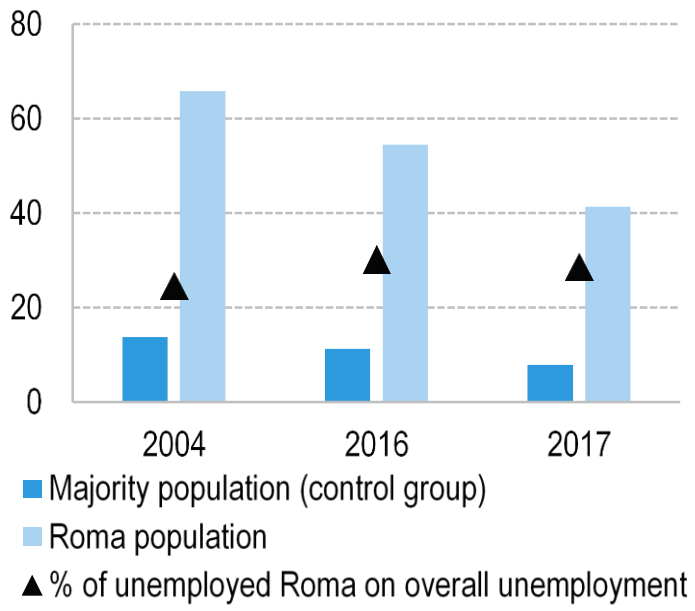
III. Low education = poor labour market outcomes

Employment rate (%, population 15-64 y.)



Source: calculation based on Social Insurance Agency, Population registry and Atlas of Roma communities

Unemployment rate (%, population 15-64 y.)



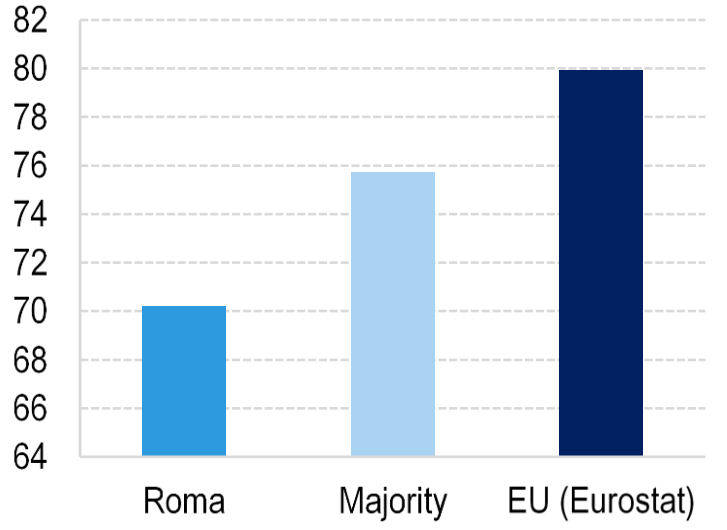
Note: unemployment rate on December 31

Source: calculation based on CoLSAF, Social Insurance Agency, Population registry and Atlas of Roma communities

- Despite a positive impact of economic cycle, employment rate of Roma reaches only a third of that of the majority
- Unemployment rate of Roma still higher than 40 % in districts with concentrated Roma settlements

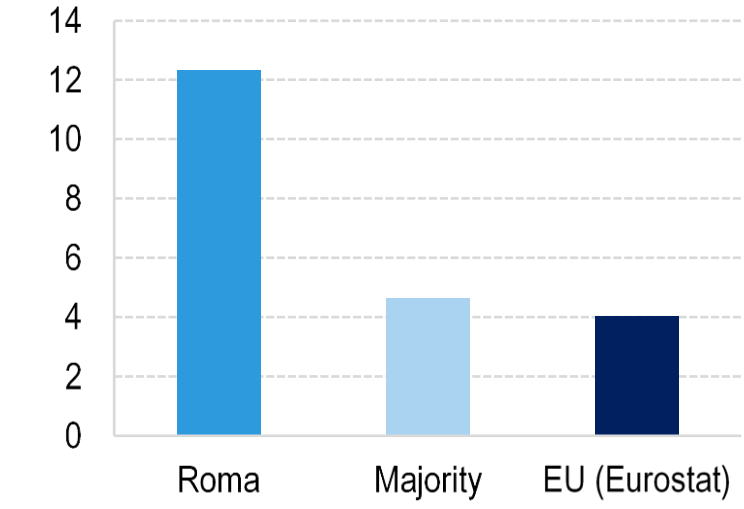
III. Inclusion is also important in healthcare

Life expectancy at birth (in years)



Source: calculation based on Population registry and Atlas of Roma communities, Eurostat

Infant mortality (per 1 000 live births)



Note: number of deaths of infants under one year old per 1,000 live births

Source: calculation based on Population registry and Atlas of Roma communities, Eurostat

- Life expectancy is considerably lower in Roma communities compared to the majority (70 vs. 76 years)
- Infant mortality is about three times higher that of the majority population (12,3 vs. 4,6 deaths per 1,000 live births)

- **“In technology, we spend so much time experimenting, fine-tuning, getting the absolute cheapest way to do something – so why aren’t we doing that with social policy?”**

— Esther Duflo, MIT

III. Further steps: evaluation and design of policies

New and quality data enable policy research in various areas:

- Teaching assistants
- Active labour market policies
- Health mediators (Zdravé komunity)
- Impact of field social work and community centres
- Discrimination

Thank you for your attention!

Career

Interested in evidence-based policy making in Slovakia?
For joining the public sector / IFP write @ hr.ifp@mfsr.sk