Adapting HERMIN methodology to labour market analysis

Lessons from Long-term labour market forecasting in FYROM

ING. MAREK RADVANSKÝ, PHD.

eúsav Ekonomický ústav SAV
Institute of Economic Research SAS

Introduction

- Target: Introduce structural long term LM forecasting system to provide analytical support for adapting employment (LM) policies
    - Model developed with Ministry of Labour and Social Policy to support macroeconomic forecasting and quantification of policy goals related to strategic policy planning
    - Identification of potential education and skills mismatch within the country
    - Revealing economic mechanisms and providing structural forecasts in transforming country with lack of reliable data sources
    - Capacity building / Providing training to ensure sustainability
- Main limitations: Small open economy, limited (low quality) data availability, short term time series, high share of informal economy, uncertain e/migration patterns

Methodology

- Several modelling approaches were discussed
- As a most suitable was selected tailor made augmentation of HERMIN (Bradley, 2000) type model (core model named HERMAC) with several submodels
- Regional methodology further developed by WARR Poland on NUTS2 regions (Bradley et al., 2008)
- Application on NUTS 3 regions at Slovakia (Radvansky et al., 2016) to assess effects of CF and SF on regional economy and labour market
- Suitable for scenario analysis and mid-term or long-term forecasting (outlook)
  - Cooperation with other stakeholders (institutions)
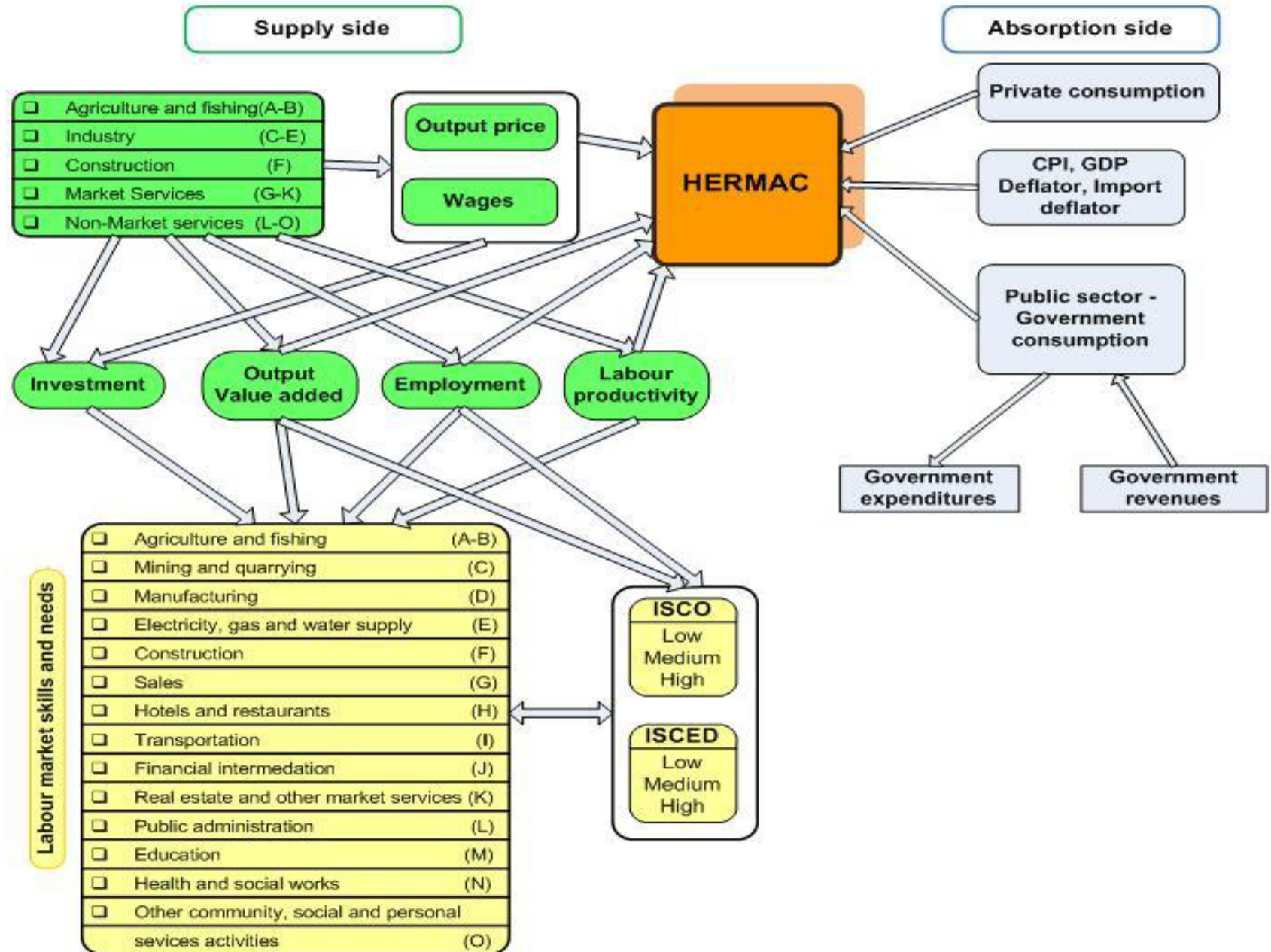 - Verification of economic (expected) behaviour

Why HERMIN type model

- To some extent it was applied to all cohesion countries on national level as model approved by EC for CP impact assessment
- Suitable for small open economies (under transition) with short time series
- Transparent econometric model with clear structural relations with both demand and supply side, required data are usually available (LFS, National Accounts…)
- Easily adjustable number of sectors (production side)
- Limitations related to size and structure of economy, no initial division by ISCO/ISCED
- But relatively simple calibration under circumstances – transition and small open economies often needs significant proportion of expert approach
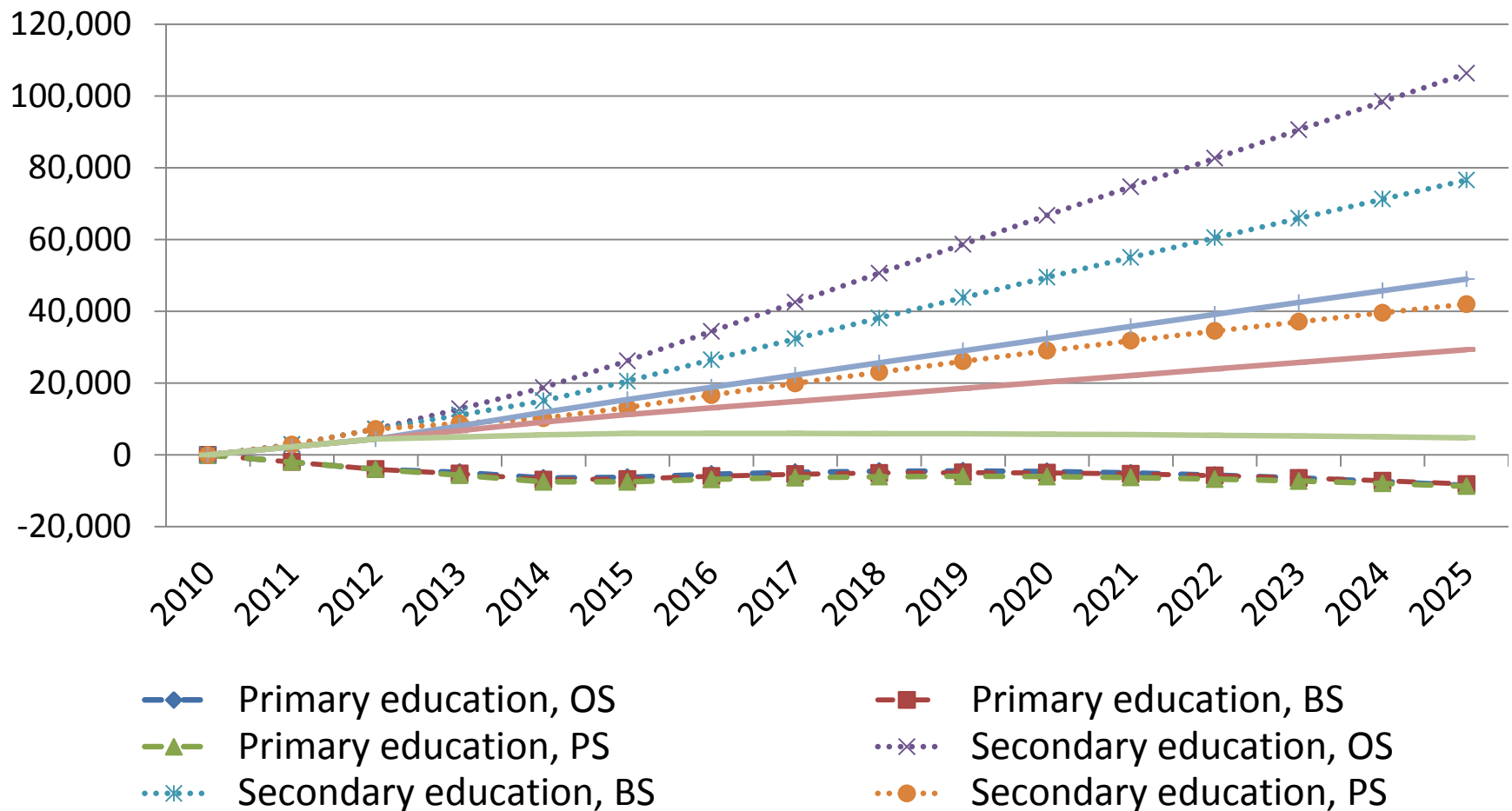
HERMAC Augmentation

- *Forecast of macroeconomic development in 5 main sectors and 14 subsectors (3 scenarios)*
- *Employment (by 14 sectors, 3 levels of ISCED) subsequently enriched to 3 ISCO levels based on relation to sectoral employment*
- *Public sector incl. debt and CA balance*
- *Partially restricted demand (by total labour supply)*
- *Key exogenous variables:*
  - *External variables: World output and prices; exchange rates; world interest rates;*
  - *Main domestic (policy) variables: Demographic development; public expenditure; tax rates (PIT, CIT, VAT); social contribution rate, pension rate, interest rates.*
- *Some out of the model calculations related to results (replacement demand, imbalance indicator, etc.)*
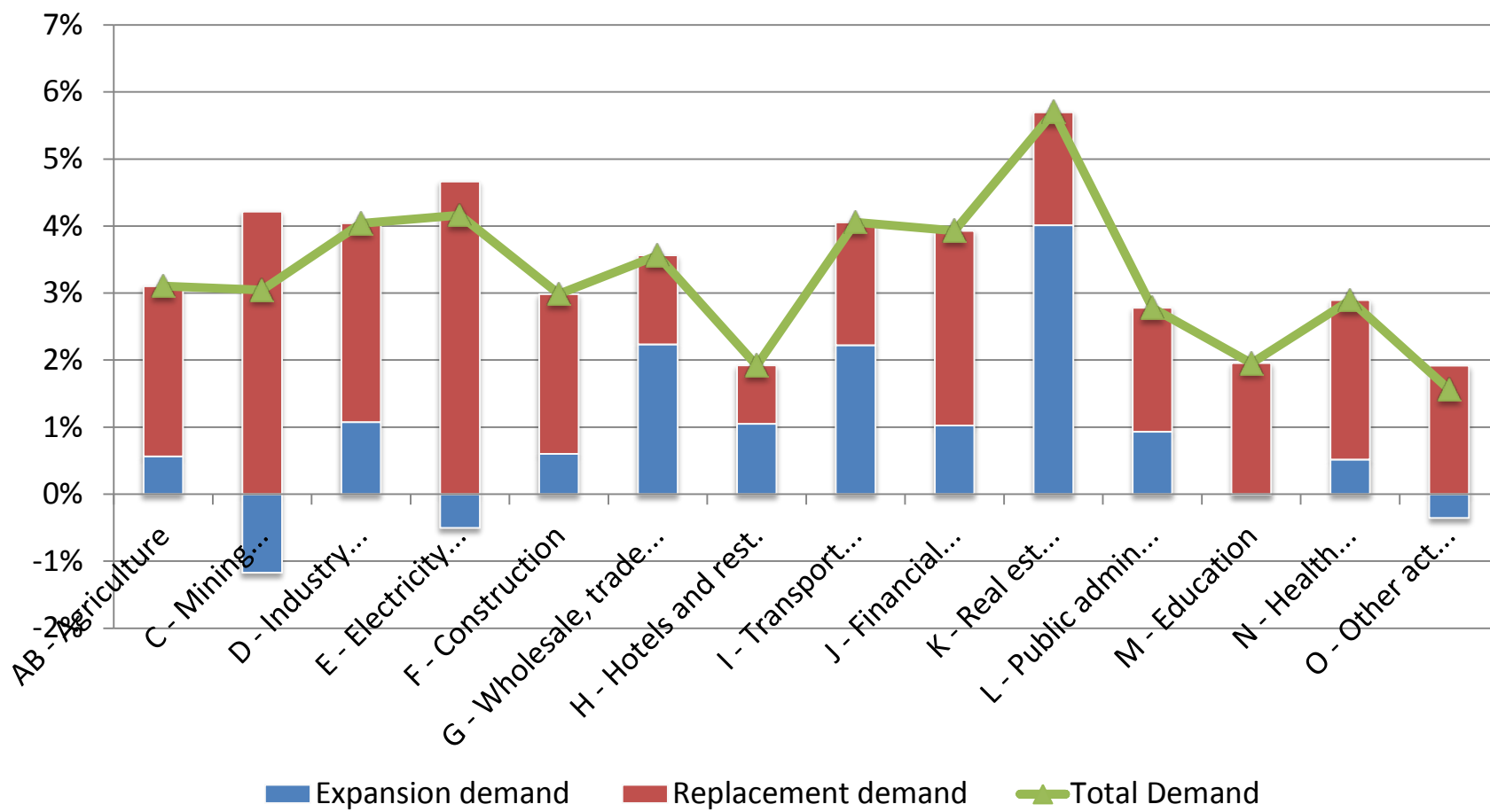
HERMAC model MACEDONIA

Supply side

Absorption side

❑ Agriculture and fishing(A-B)	
❑ Industry (C-E)	
❑ Construction (F)	
❑ Market Services (G-K)	
❑ Non-Market services (L-O)	

Output price

Wages

HERMAC

Private consumption

CPI, GDP Deflator, Import deflator

Public sector - Government consumption

Investment

Output Value added

Employment

Labour productivity

Government expenditures

Government revenues

Labour market skills and needs

❑ Agriculture and fishing	(A-B)
❑ Mining and quarrying	(C)
❑ Manufacturing	(D)
❑ Electricity, gas and water supply	(E)
❑ Construction	(F)
❑ Sales	(G)
❑ Hotels and restaurants	(H)
❑ Transportation	(I)
❑ Financial intermedation	(J)
❑ Real estate and other market services	(K)
❑ Public administration	(L)
❑ Education	(M)
❑ Health and social works	(N)
❑ Other community, social and personal sevices activities	(O)

ISCO
Low
Medium
High

ISCED
Low
Medium
High

Additional (expansion) demand for labour by education level

Legend:
- Primary education, OS
- Primary education, BS
- Primary education, PS
- Secondary education, OS
- Secondary education, BS
- Secondary education, PS

Relative replacement, expansion and total avg. demand by sectors, 2016-2020

Indicator of skills mismatch of secondary educated in economic sectors
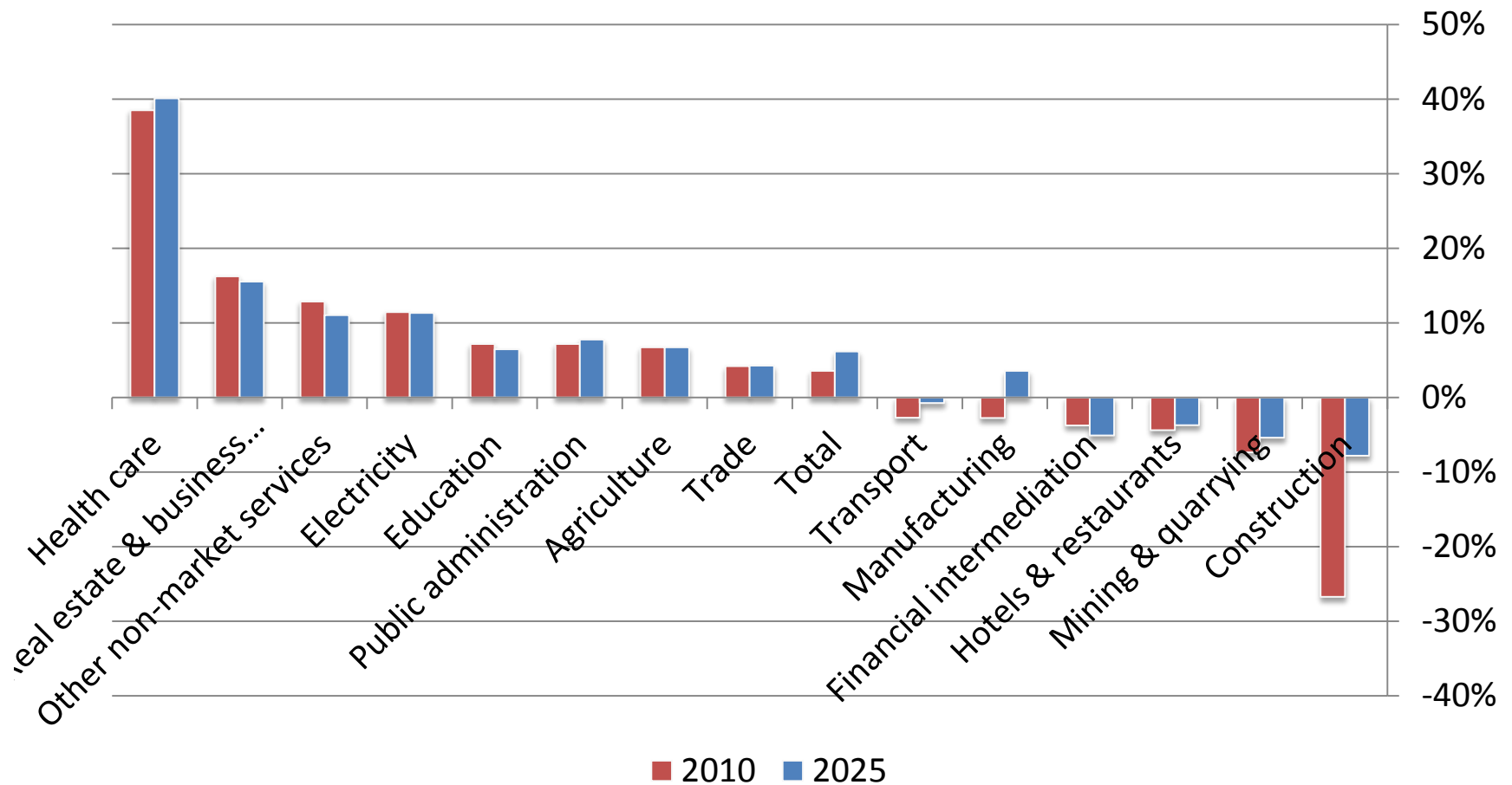
Discussion

- *Selected methodology is applicable and adjustable in respect to produce relatively well structured macroeconomic (production, GDP and main components, fiscal block incl. social transfers and debt) and labour market forecast*

- *Suitable as initial exercise for better understanding of the structural development of economy and LM*

- *Several supporting sub-models interconnected to HERMAC results was developed and implemented:*
  - *Demographic development; economic activity; labour supply by 3 education levels ISCED; employability indicator for 8 fields of education; replacement and expansion labour demand; formal qualification mismatch; working hours*

- *Replacement demand will create higher proportion of future job openings in the country, despite it is often underestimated (or ignored).*

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"DANGER, WORK"

Thank you

MAREK RADVANSKÝ
MAREK.RADVANSKY@SAVBA.SK

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