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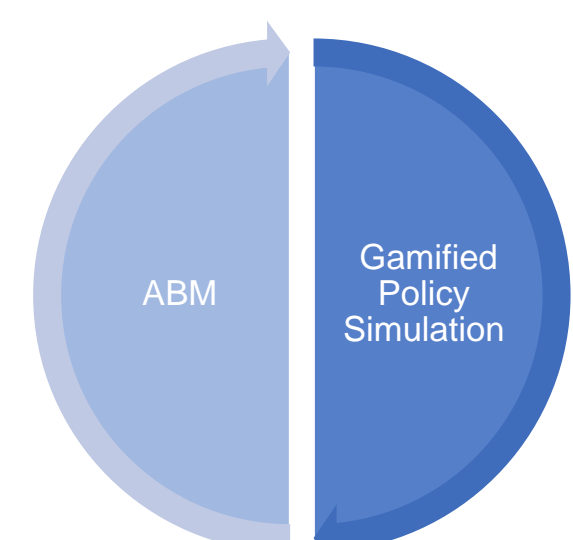
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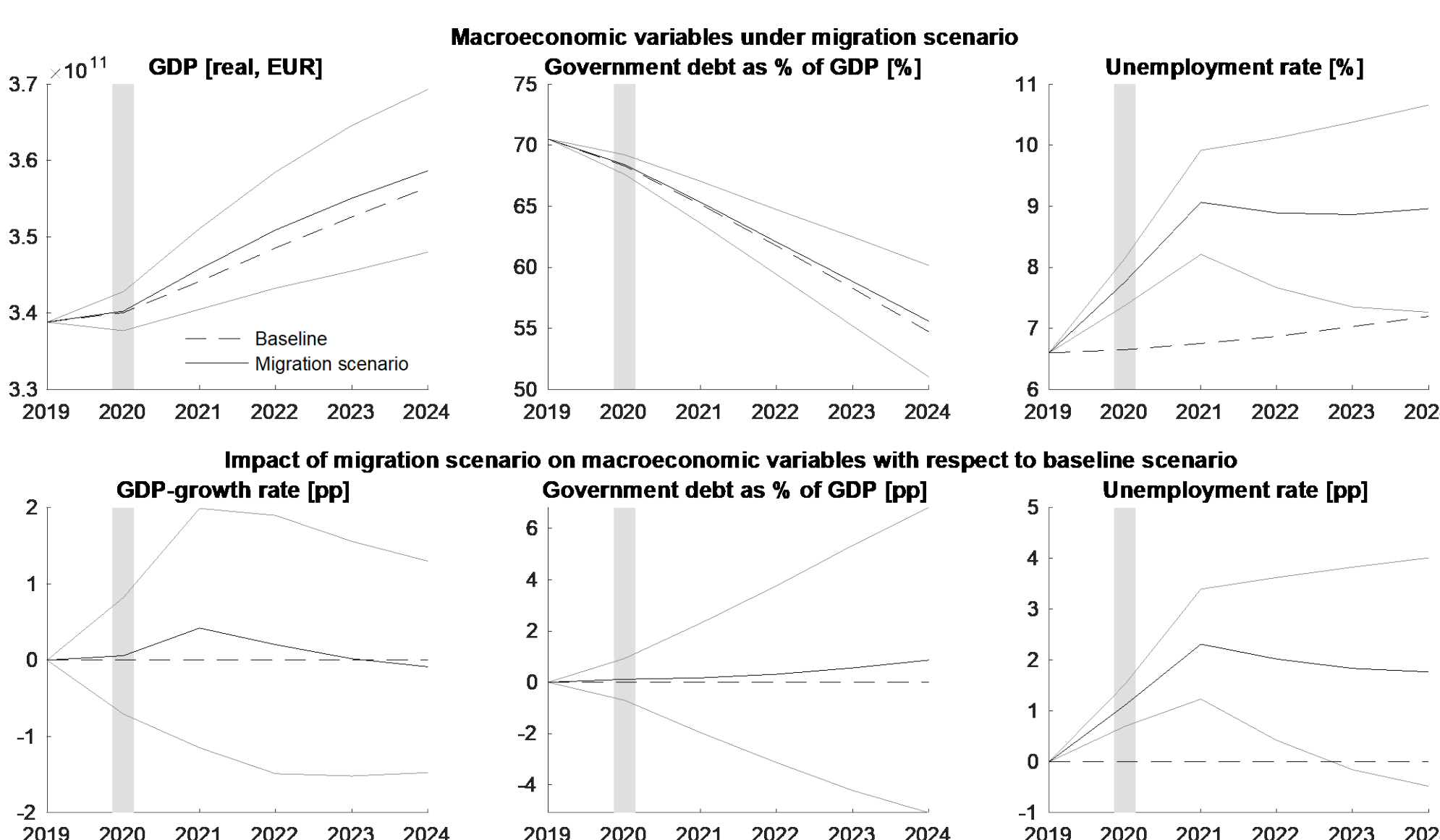
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Motivation and aim

- In Europe, large migratory shocks have led to a heated political debate on their management
- Uncertainty about the **migratory impact on the economy and society** has in many instances polarized the debate
- The **task of modelers and social scientists** is to use their tools to inform stakeholders and policy makers of the most likely economic and social consequences
- Our **aim** is to **combine the Agent-based modeling approach (ABM) and a social science approach to support policy-making process** (→ science to policy)
- Our case is a large migration flow into Austria: **pilot test** efficacy of game

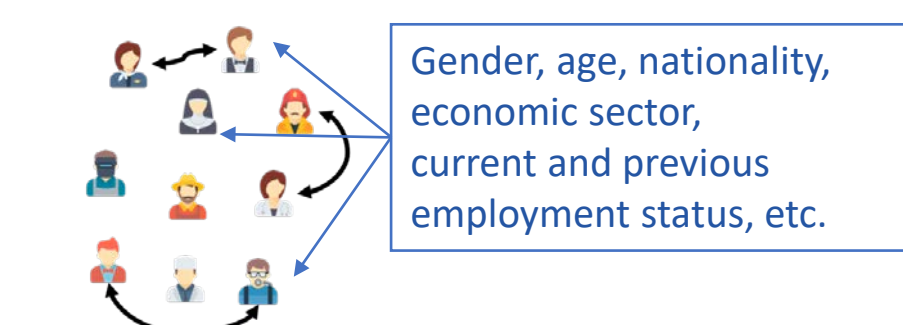


Agent-based model to unravel the economic effects of migration



- We use IIASA's large-scale **Macroeconomic Agent-based Model for Austria**
- We study an extreme, yet **realistic migration scenario** (~250K migrants in two years) modeled on the 2015 refugee crisis
- Our focus is on **macroeconomic impacts** and detailed **labour market dynamics**
- We simulate the artificial Austrian economy at the scale 1:1 with **detailed microdata** from Statistic Austria **Register-based Labour Market Career (ERV) data**

• Unemployment rate...
• Wages...
• Social benefits...
...by economic sector and socio-economic status



Register-based Labour Market Career (ERV) Data on the employment history of each person in Austria from 2009 onwards (~4.1 mln. employees; ~20 mln. employment relationships)

Images sources: Tindoarchitect/Dreamstime, (Itzquierdo et al., 2019)

The Policy Exercise (gamified policy simulation)

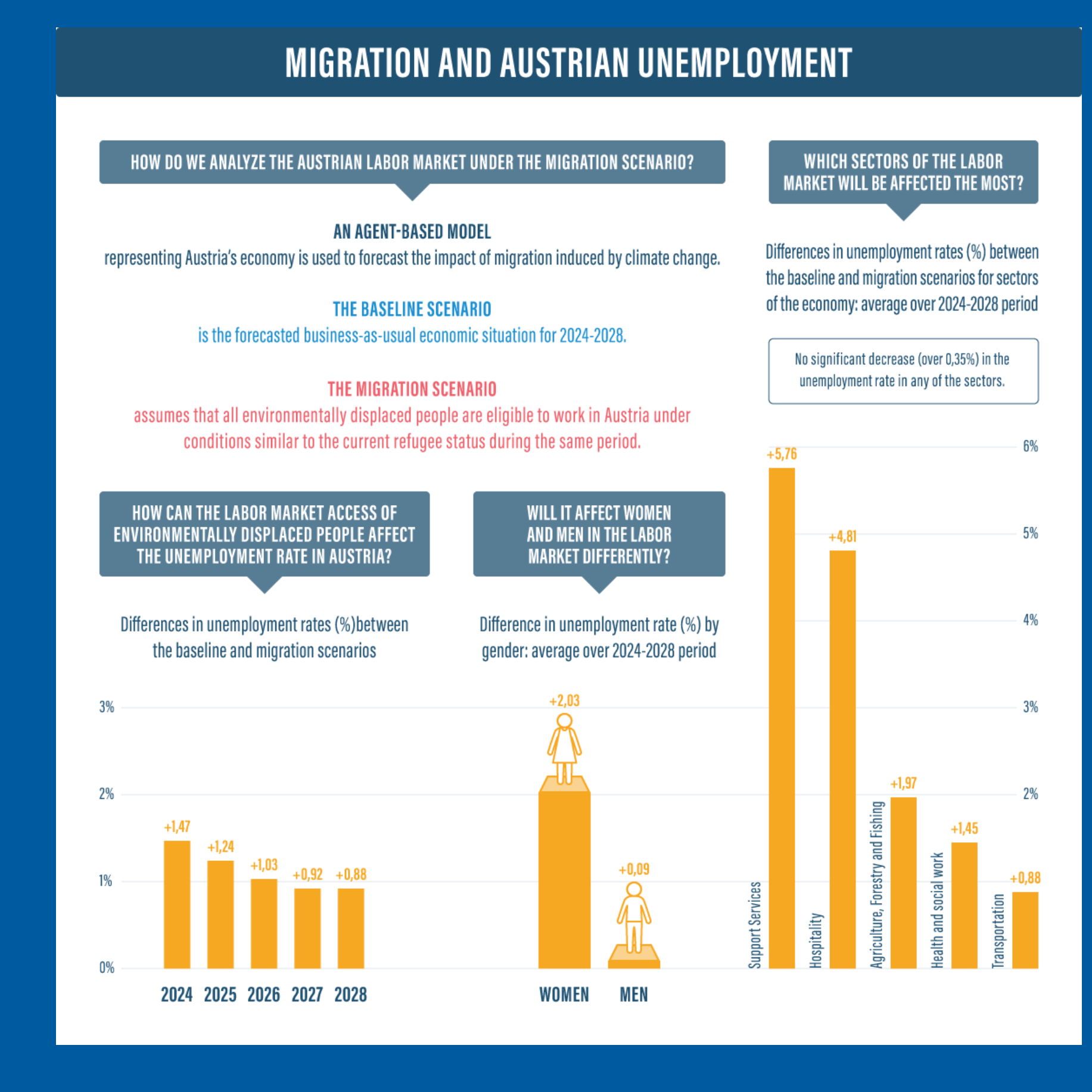
- Is a virtual tool for stakeholder engagement & deliberation
- Enables an experiential process where participants with diverse backgrounds interact collectively to *explore a complex reality*
- Its **scenario** being Migration from the MENA-region to Austria due to impacts of climate extremes, which is **informed by the ABM**
- Social** because it requires the participation of people who represent different groups and organizations (political parties)
- Simulation** because it represents carefully selected real-world structures and processes (parliamentary assembly)

Player roles and policy questions

- Each **player** takes the **role of a political party representative** as part of the Austrian parliamentary commission charged with making recommendations on the three **policy questions**
- What should be Austria's financial assistance to MENA region governments?*
- negotiating position in the EU deliberations on creating a new classification for „environmental migrants“, giving them the same labor rights as political refugees?*
- support for Mediterranean sea rescue efforts and for relaxing its own border controls?*



Example: fact sheet with migration scenario and model results



Briefings

Before playing the Policy Exercise and simulating the policy negotiations, the players are briefed on:

- The attribution of climate to extremes in the MENA region
- The economic impacts of a climate migration scenario (ABM) *250,000 individuals expected to arrive in Austria in 2023/24*
- Their party platform and position
- The legal context

Playing the Policy Exercise

Once briefed, players

- choose their political party and receive their party position
- negotiate their position with members of their own party
- discuss the 3 policy questions in three mixed party working groups and propose options
- vote (in 2 rounds) on the options in the WGs (right image below)
- Present and discuss their arguments in plenary
- Go through a voting debriefing process
- Fill in a post-simulation questionnaire (open and likert scale questions)

Selected research questions

- What **new policy options** emerge?
- To what extent do the **participants reach consensus** on the policy questions?
- How do participants **rationalize and argue** their positions? e.g.
 - What **role** does the **economy/model** play?
 - To what extent does **'climate justice'** (responsibility of Austrians for extreme weather in MENA region) enter the debates?

First results

- First trials show **promise in combining ABM and policy simulation** to support the migration policy process
- The **ABM results informed** the (role-played) **stakeholder deliberations**, and in some instances a consensus emerged on complex policy questions.
- Participants experienced the complex and controversial negotiation process through the policy simulation.

Next steps

- Detailed evaluation of game plays through discourse analysis (journal article forthcoming)
- Play the game with Austrian stakeholders to inform real policy processes (e.g., political party members & public officials)

Selection from post-simulation questionnaire*:

- 65%** of participants stated they could give their view on problems and available solutions
- 74%** of participants achieved a common understanding of the challenge connected with the migration crisis
- 87%** of participants came to an agreement re. (pre)established solutions
- 52%** of participants used migration data when making decisions
- 56%** of participants used economic data generated by model/info about rescue effort when making decisions
- 83%** of participants stated that the party program played a role when making decisions

*Data from 4 plays of the game with 43 participants (IIASA YSSP: migration students & researchers from University of Vienna; researchers from IIASA & Danube University Krems)



(Voting results after 1st round (left) & 2nd round (right); after discussions informed by ABM)