# Simulations of future labour force in the EU+ using scenarios of labour force integration of immigrants

Michaela Potančoková & Guillaume Marois

7th European User Conference for EU-Microdata
26th March 2021

# Objective

- Immigration often presented as a tool to improve the expected labour force decline

- But shift towards rights-based migration policy implies a need for better integration of (some groups of) immigrants into labour market

- What would be the long-term impacts of improved or worsened economic integration of immigrants on labour supply and employment?



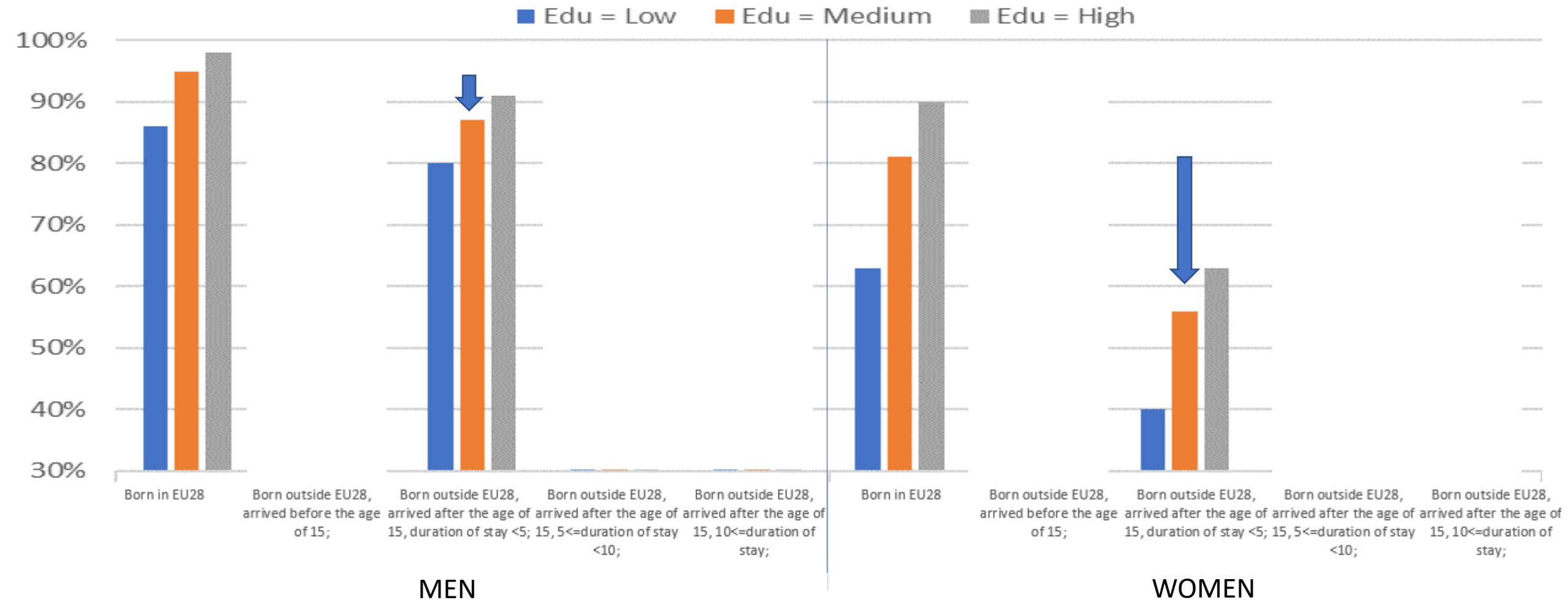Figure 8: Refugees and dependent family members are not easily integrating into our labour markets

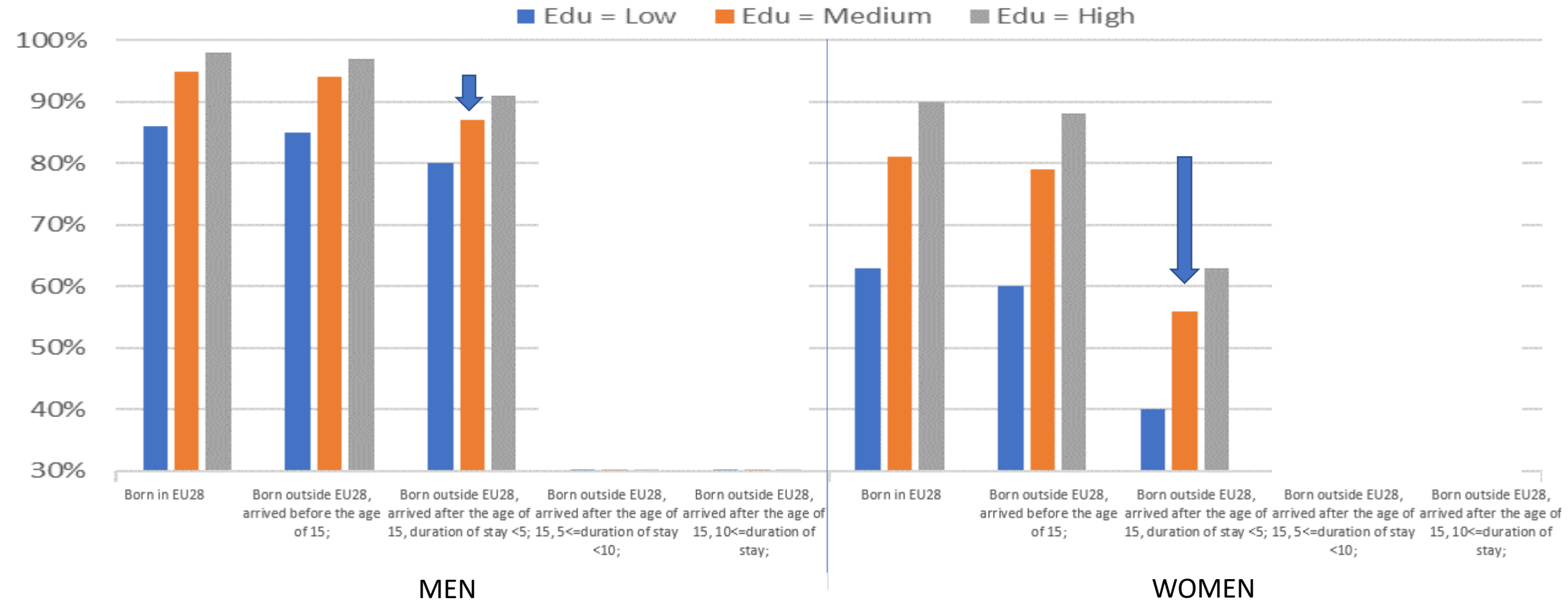Employment rates by type of initial residency permit and duration of residence in the EU, ages 15-64, 2014, in %
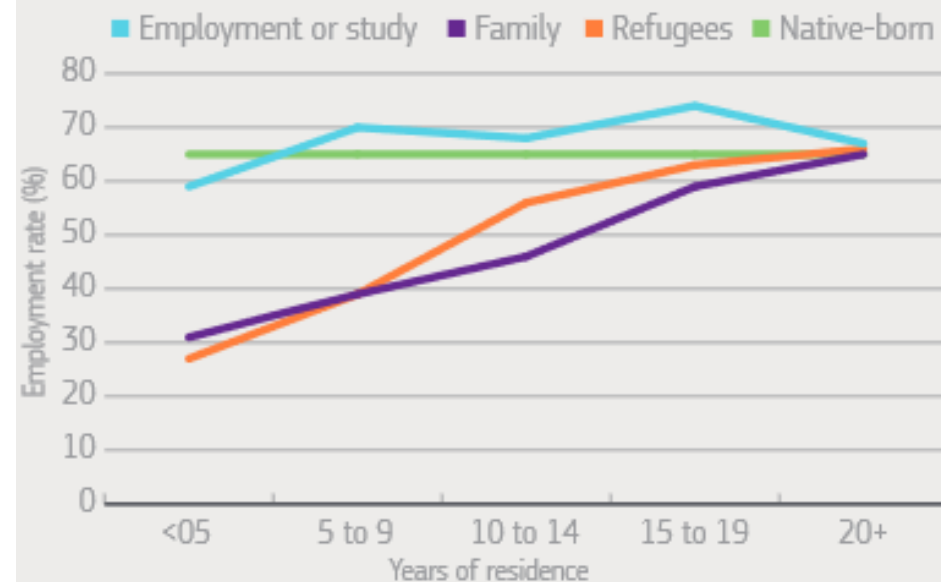
Source: Source: OECD, EU-LFS 2014 ad-hoc module

Source: EPSC (2018)

# Labour force participation rates at age 35-39, EU28



Data: EU-LFS 2010-2016

# Labour force participation rates at age 35-39, EU28

# Labour force participation rates at age 35-39, EU28
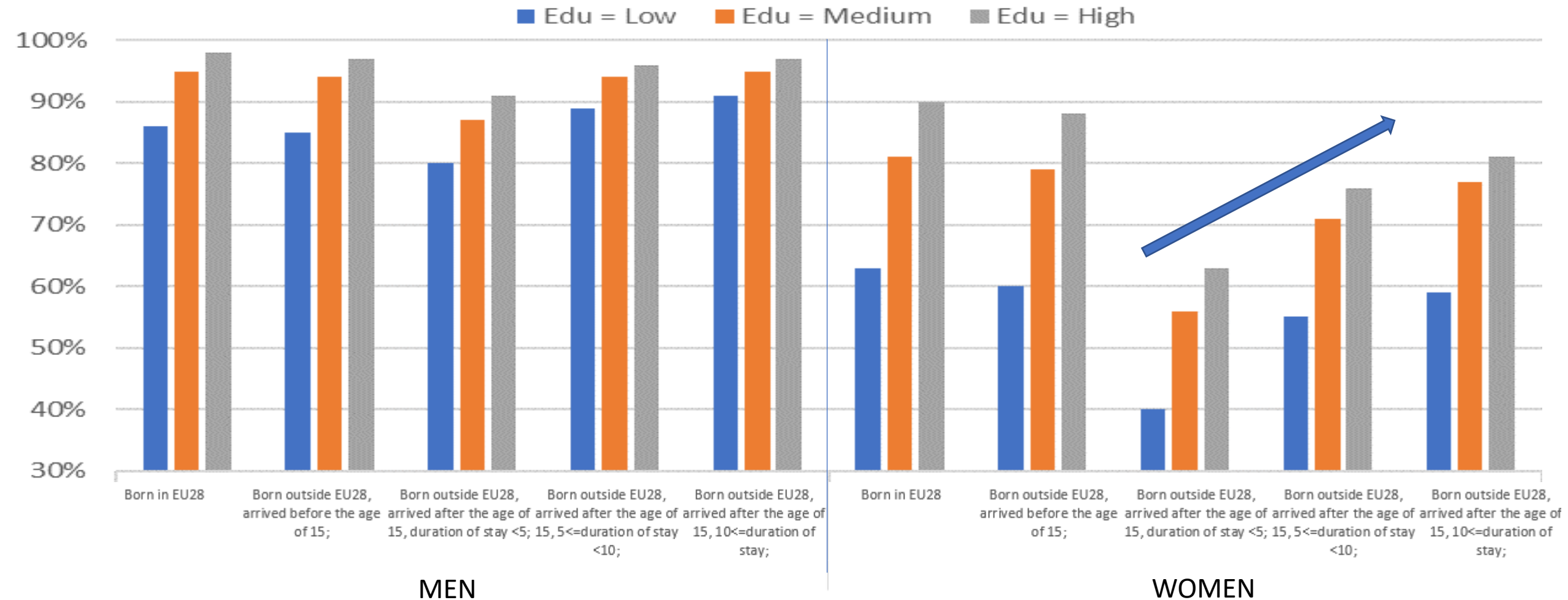


Data: EU-LFS 2010-2016
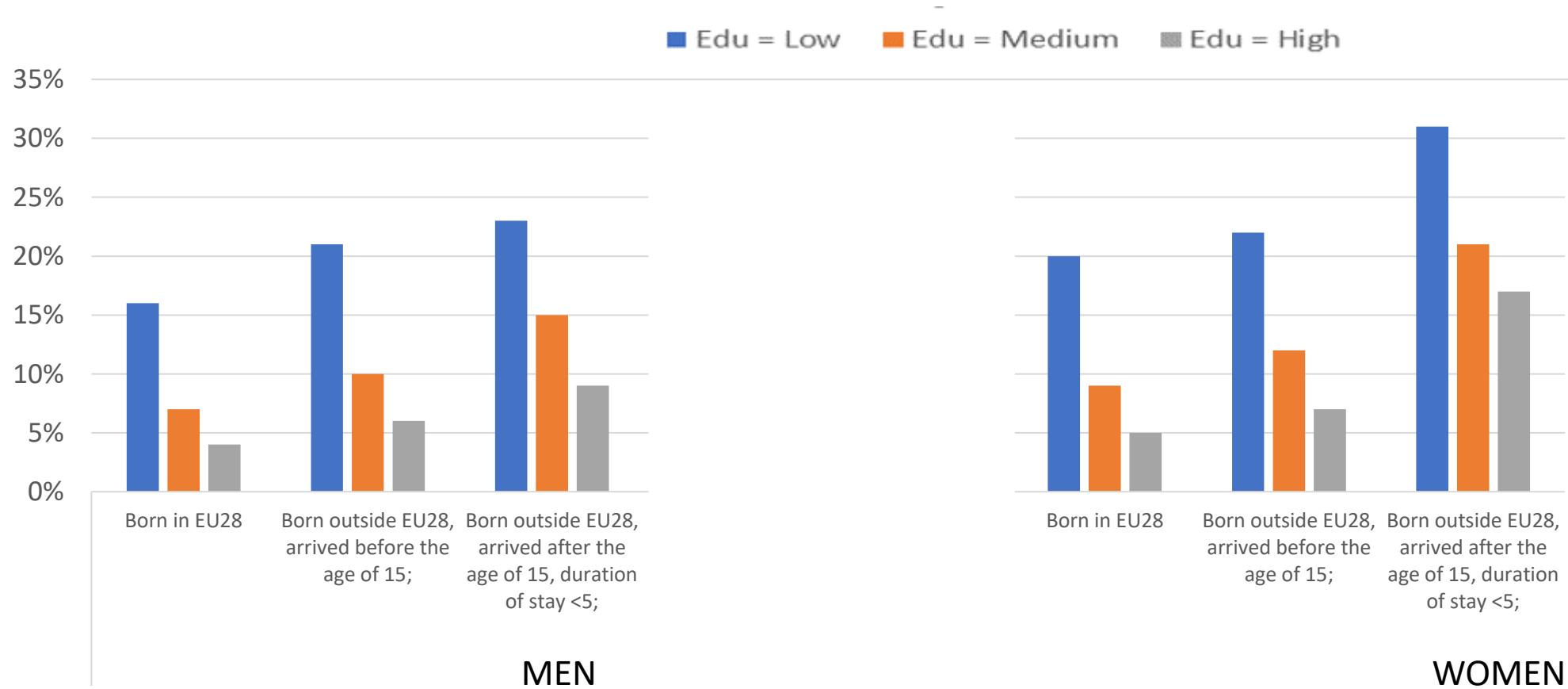
# Unemployment rates at age 35-39, EU28



Data: EU-LFS 2010-2016

# Unemployment rates at age 35-39, EU28



Data: EU-LFS 2010-2016

# Unemployment rates at age 35-39, EU28



Data: EU-LFS 2010-2016
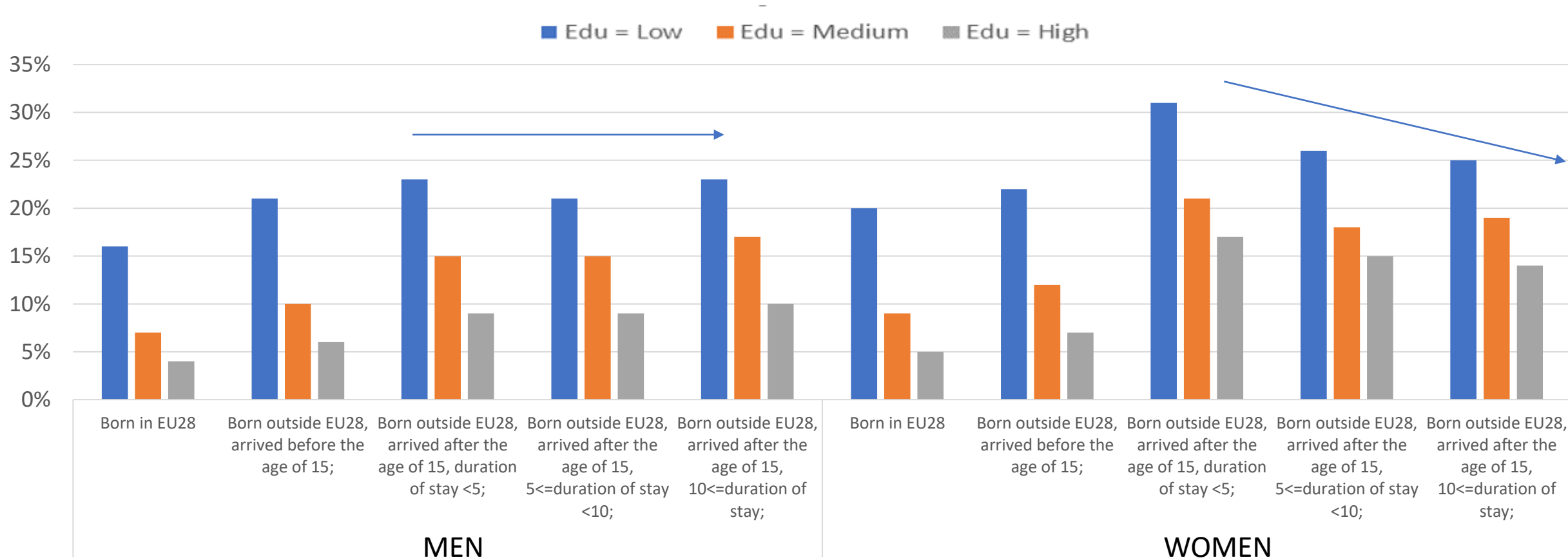
# Microsimulation model dimensions

| Events | Age | Sex | Place of residence | Place of birth | Age at immigration | Duration of stay (immigrants) | Language | Religion | Education | Mother's education | Methods to estimate parameters |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fertility | X | | X | X | X | X | | | X | | Vital statistics, logit regression |
| Mortality | X | X | X | | | | | | X | | Vital statistics |
| Migration between EU MS | X | X | X | | | | | | | | Population estimates, O/D matrices |
| Emigration outside EU | X | X | X | | | | | | | | Population estimates |
| Language used at home | | | | | X | X | X | | | | Survival curves |
| Religion | X | X | X | | | | | X | | | O/D matrices |
| Educational attainment | X | X | X | X | | | X | X | | X | Ordered logit regression |
| Labour force participation | X | X | X | X | X | X | | | X | | Logit regression |
| Employment | X | X | X | X | X | X | | | X | | Logit regression |

QuantMig

# Modelling of labour force participation and employment

sex- and country-specific logit regressions for age>14 & age<75, pooled EU-LFS 2010-2015:

$$\text{logit}(P)$$
$$= \beta_0 + \beta_1 AGE + \beta_2 EDU + \beta_3 YEAR + \beta_4(AGE * EDU) + \beta_5(AGE * YEAR)$$
$$+ \beta_6(EDU * YEAR) + \beta_7(AGE * EDU * YEAR) + \beta_8 IMMIG + \beta_9(IM15 * EDU)$$

EDU (educational attainment):
Low (L): Lower secondary or less (ISCED 2 or lower)
Medium (M): Upper secondary completed (ISCED 3)
High (H): Post-secondary (ISCED 4+)

IMMIG (migrant status):
Born in EU28
Born outside EU28, arrived before the age of 15
Born outside EU28, arrived after the age of 15, duration of stay < 5
Born outside EU28, arrived after the age of 15, 5 <= duration of stay < 10
Born outside EU28, arrived after the age of 15, 10 <= duration of stay

QuantMig

# Modelling of labour force participation and employment

sex- and country-specific logit regressions for age>14 & age<75, pooled EU-LFS 2010-2015:

$$\text{logit}(P)$$
$$= \beta_0 + \beta_1 AGE + \beta_2 EDU + \beta_3 YEAR + \beta_4(AGE * EDU) + \beta_5(AGE * YEAR)$$
$$+ \beta_6(EDU * YEAR) + \beta_7(AGE * EDU * YEAR) + \beta_8 IMMIG + \beta_9(IM15 * EDU)$$

$$\text{logit}(E) = \beta_0 + \beta_1 AGE + \beta_2 EDU + \beta_3(AGE * EDU) + \beta_4 IMMIG + \beta_5(IM15 * EDU)$$

EDU (educational attainment):
Low (L): Lower secondary or less (ISCED 2 or lower)
Medium (M): Upper secondary completed (ISCED 3)
High (H): Post-secondary (ISCED 4+)

IMMIG (migrant status):
Born in EU28
Born outside EU28, arrived before the age of 15
Born outside EU28, arrived after the age of 15, duration of stay < 5
Born outside EU28, arrived after the age of 15, 5 <= duration of stay < 10
Born outside EU28, arrived after the age of 15, 10 <= duration of stay

QuantMig

# Scenarios of economic integration of immigrants from outside the EU28

- Scenarios to help assess the long-term impact of better or worsened economic integration of immigrants

- Take into account employment not only labour force participation (extends Marois et al. 2018, 2019)

- Not predictions or plausible scenarios but stylized situations (what-if scenarios) representing a range of policy outcomes

- Assumptions on LFPR and unemployment at fixed demographic and educational trends, and at fixed volume and composition of immigrantion flows

QuantMig

# Scenario assumptions

| Component | Baseline | High integration | Low integration | High employment |
|---|---|---|---|---|
| **Fertility** | Slight increase in the TFR from about 1.6 in 2015-19 to 1.78 by 2060 | | | |
| | Constant differential between the native-born and immigrants | | | |
| **Mortality** | Continuous improvement in life expectancy, past trends continue | | | |
| **Educational attainment (EU-born)** | Past trends continue, continued increases in higher education | | | |
| **Volume of immigration into EU28** | About 10 million from outside the EU every 5 years | | | |
| **Educational composition of immigrants** | Same as average recent immigrants (40% low, 27 % sec, 34% high) | | | |
| **Labour force participation of migrants** | Baseline | High integration — same as EU-born by 2040 | Low integration — worst observed by 2040 | Baseline |
| **Employment of international immigrants** | Baseline | High integration — = same as EU-born by 2040 | Low integration — = worst observed by 2040 | High integration — = as as EU-born by 2040 |
| **Labour force participation trends** | Constant exit and entry rates net from migration | | | |

QuantMig

# Value of parameters used as convergence point in 2040 in LOW integration scenario:

Parameters for immigrants arrived as adults:

| | Value of $\beta_8$ (Denmark) | | Value of $\beta_4$ (Sweden) | |
|---|---|---|---|---|
| | Women | Men | Women | Men |
| Born in EU28 | Ref | Ref | Ref | Ref |
| Born outside EU28, arrived before the age of 15; | -0.272 | -0.301 | -0.589 | -0.710 |
| Born outside EU28, arrived after the age of 15, duration of stay <5; | -1.078 | -1.638 | -1.877 | -1.706 |
| Born outside EU28, arrived after the age of 15, 5<=duration of stay <10; | -1.421 | -1.236 | -1.595 | -1.520 |
| Born outside EU28, arrived after the age of 15, 10<=duration of stay; | -1.692 | -1.422 | -0.903 | -1.016 |

Parameters for immigrants arrived as children:

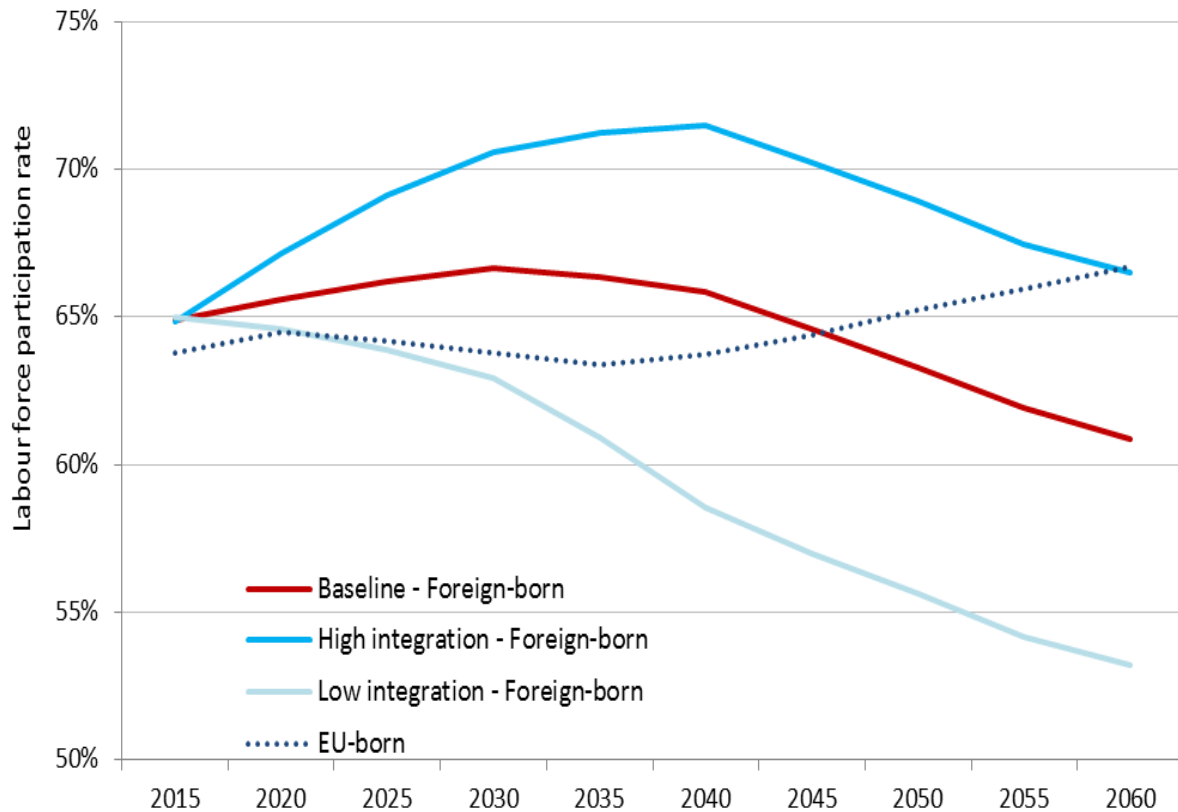| Education level | Value of $\beta_8$ (Denmark) | | Value of $\beta_4$ (Sweden) | |
|---|---|---|---|---|
| | Women | Men | Women | Men |
| Low | 0.681 | 0.865 | Ref | Ref |
| Medium | 0.314 | 0.235 | -0.104 | -0.101 |
| High | Ref | Ref | -0.574 | -0.336 |

QuantMig

# Preliminary results for EU28

Projected labour force participation rates
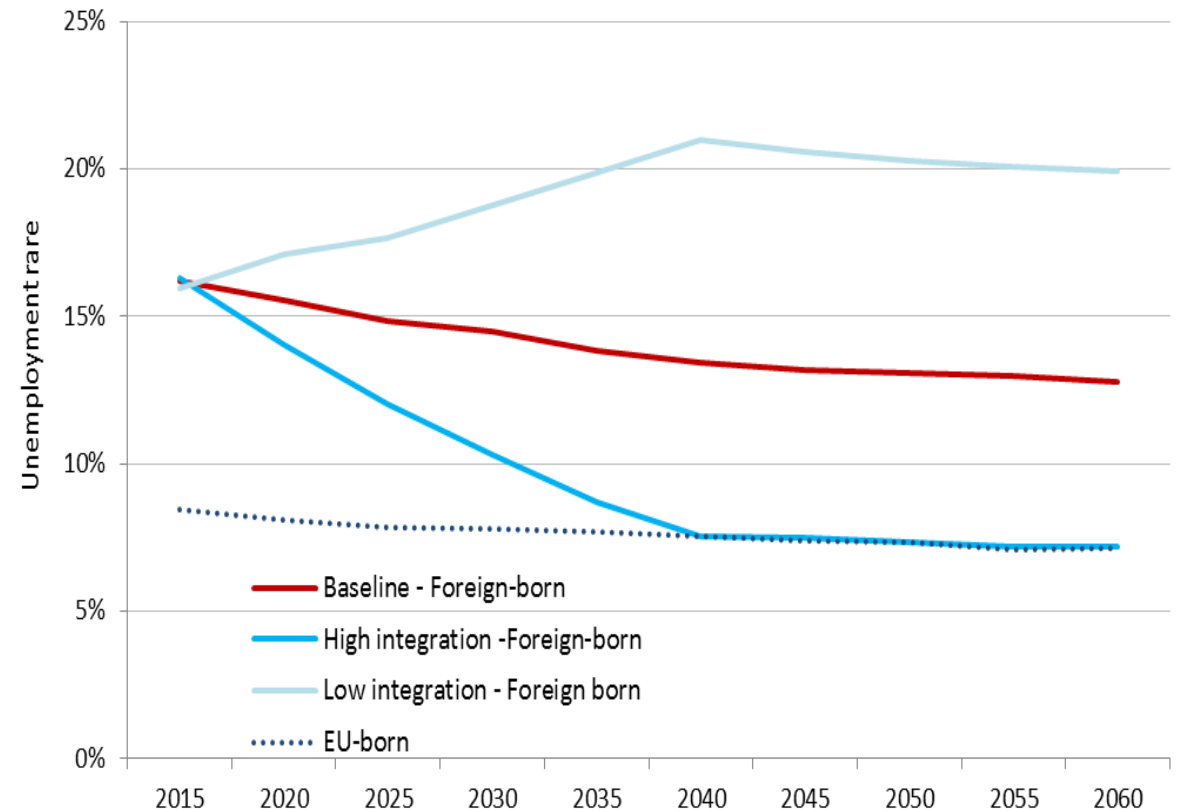in EU28, population age 15-74
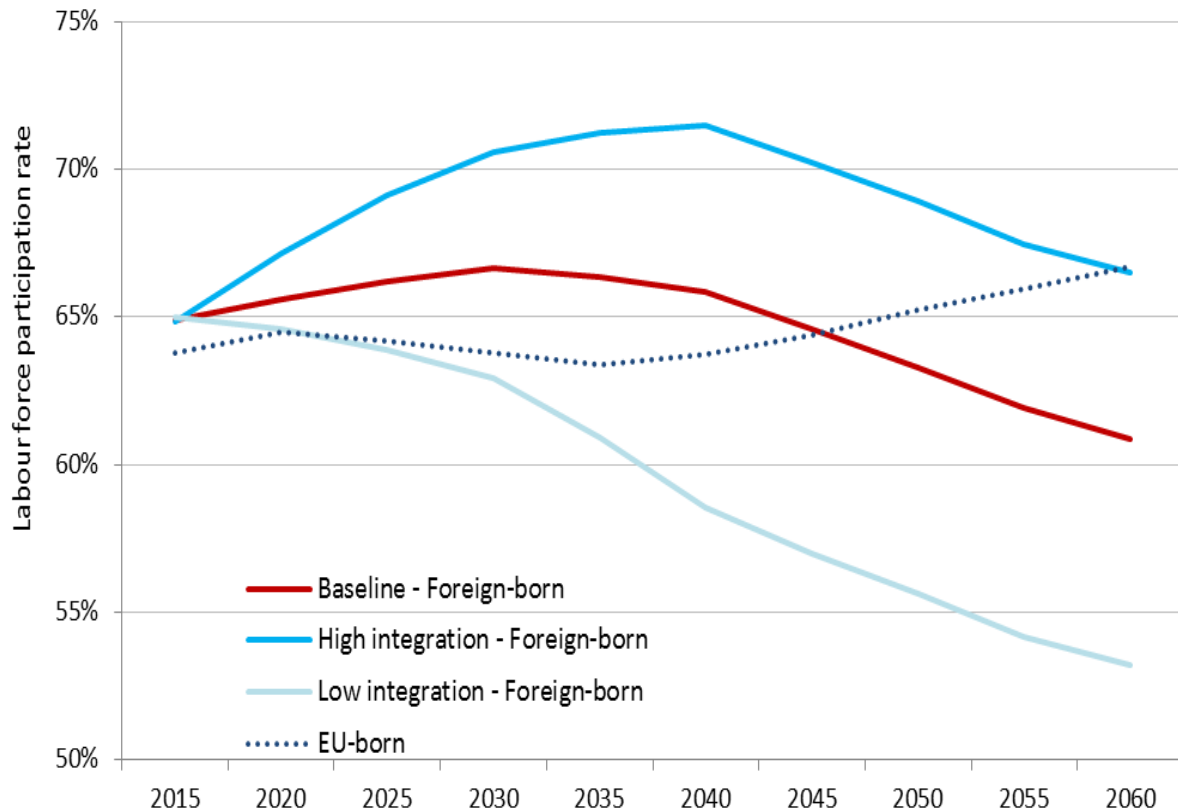
# Preliminary results for EU28

### Projected labour force participation rates in EU28, population age 15-74
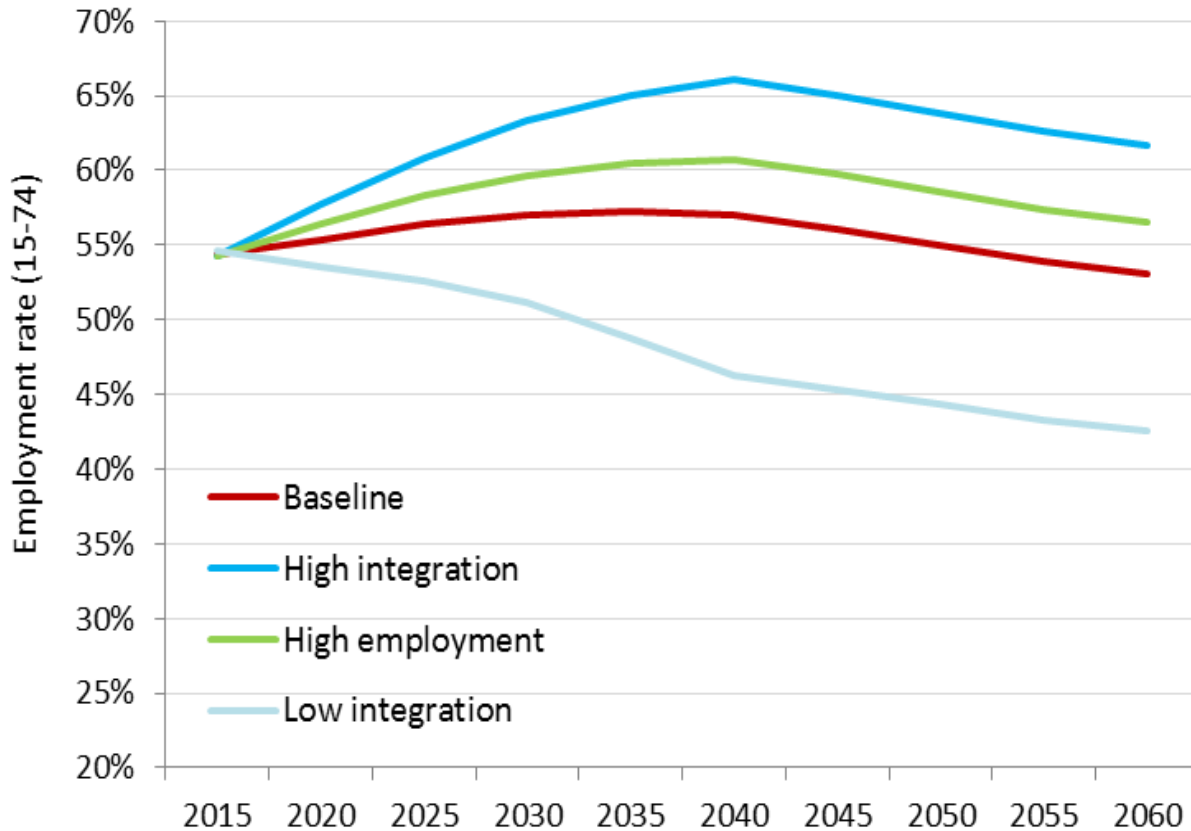


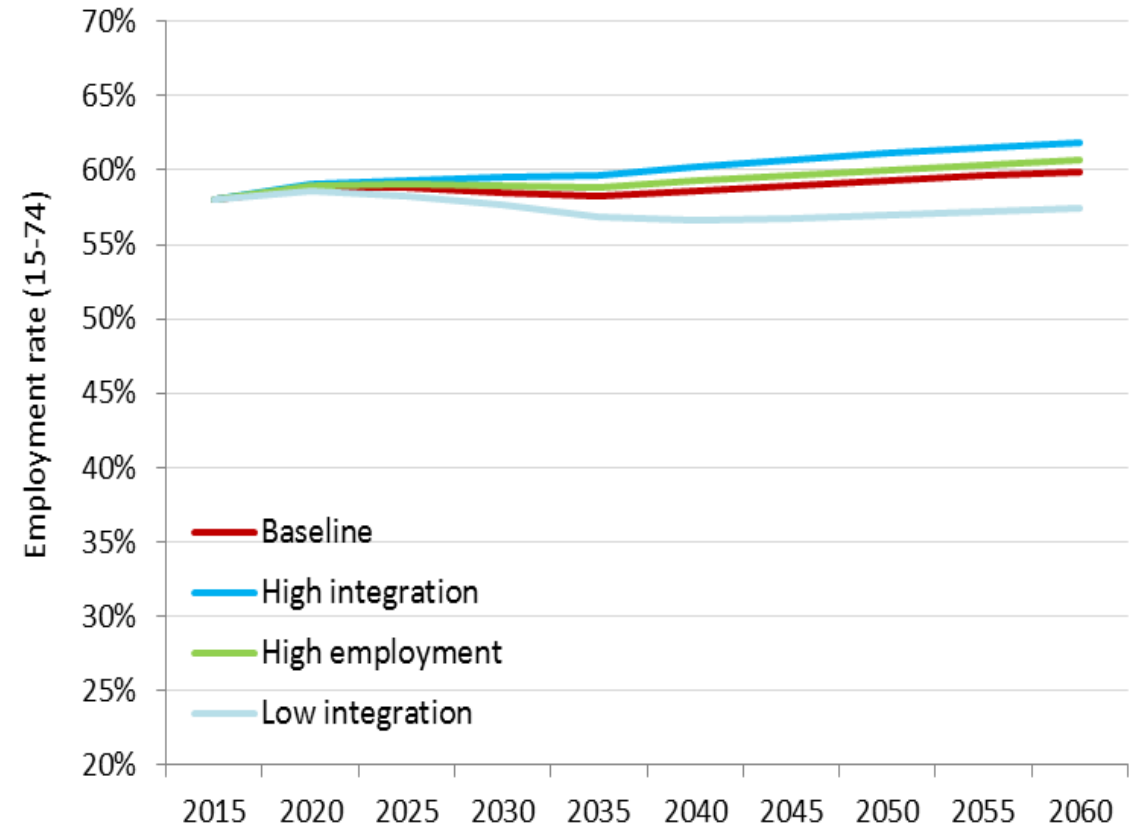### Projected unemployment rates in EU28, population age 15-74

# Preliminary results for EU28

Projected employment rates of foreign-born population 15-74

Projected employment rates for total population 15-74

# Discussion & limitations

- Previous studies show that continuing improvement in education (skills) and larger participation of women would stabilize the LF and also the LFDR (Marois et al 2019)

- Without improved economic integration large immigration would boost the LF size but would also add large number of dependents and wouldn't improve LFDR (Marois and Loichinger 2018)

- Removing the disadvantaged standing of immigrants would slow down the decline of employed population by 50% in 2060, compared to the baseline scenario

- Focus on improving employment must go in hand with improved access to labour market - especially for women

QuantMig

# Further improvements

- Differentiate among subgroups of immigrants -> conditional on data availability in LFS

- Extend the model to include EFTA countries

- Improve modelling of migration to capture more recent migration trends and differences in emigration between the EU-born and foreign-born

- Analyze country-specific results

QuantMig

# Thank you

marois@iiasa.ac.at

potancok@iiasa.ac.at

https://www.quantmig.eu/

# Projected employed population 2015-2060

**Total employed population** (millions)