The Welfare Impact of Global Migration in the OECD Countries

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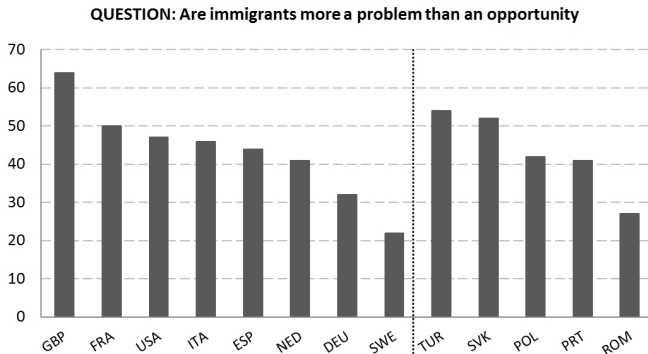January 23, 2014

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[1]Joint work with Amandine Aubry

Natives are actually fearing immigration

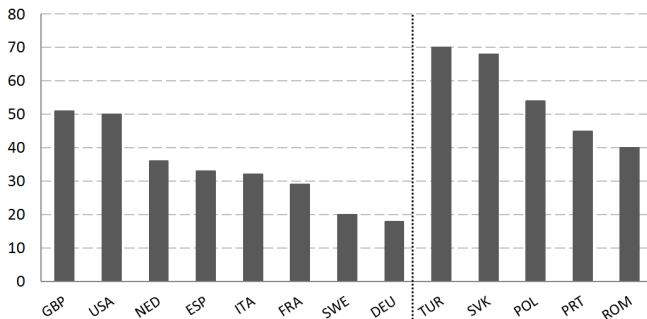**QUESTION: Are immigrants more a problem than an opportunity**

[As a percentage of population]
Source: Transatlantic Trends 2013, German Marshall Fund of the United States (GMF)

Natives fear the labor market consequences of immigration

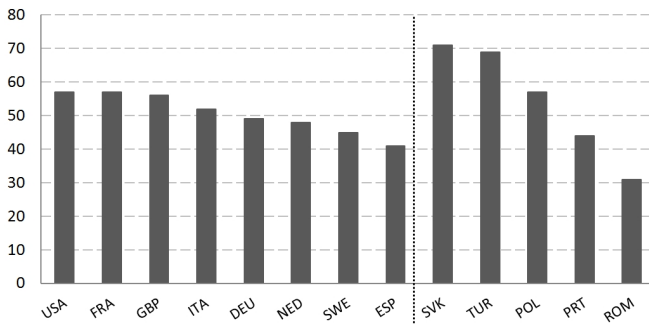**QUESTION: Do immigrants take jobs away from native born**

[As a percentage of population]
Source: Transatlantic Trends 2013, German Marshall Fund of the United States (GMF)

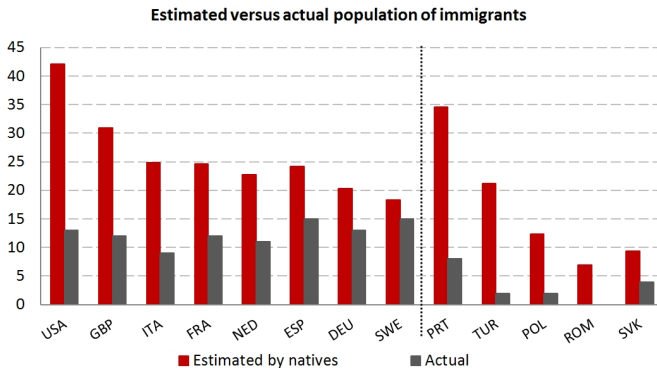# Natives fear the fiscal costs of immigration

QUESTION: Are immigrants a burden on social services

[As a percentage of population]
Source: Transatlantic Trends 2013, German Marshall Fund of the United States (GMF)

Natives overestimate the actual share of immigrants

Estimated versus actual population of immigrants

[As a percentage of population]
Source: Transatlantic Trends 2013, German Marshall Fund of the United States (GMF)

The Research Questions

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3. Changes in inequality due to migration.

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② Winners/losers of migration: comparing countries and skills.

③ Changes in inequality due to migration.

The answer:

Results of counterfactual simulations of a multi-country GE model.

The State-of-the-Art

Papers that examine the wage impact of migration.

- Borjas (2009),
- Docquier, Özden, Peri (2013),
- Peri, Shih, Sparber (2013).

Papers that consider the market size effect in modeling the welfare impact of migration.

- Iranzo, Peri (2009),
- Di Giovanni, Levchenko, Ortega (2012).

The Value Added

- We construct a clear and easy to calibrate model that allows to quantify the total economic impact of migration for 34 OECD countries and the ROW, considering:
    - stock vs flow of immigrants/emigrants,
    - N-N vs S-N migration,
    - low vs high skilled workers,
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  1. Wage, TFP and fiscal effects are small, but the market size effect is substantial.
  2. S-N migration is positive for the OECD natives, whereas N-N is a zero-sum game with only few winners.
  3. An increase in inequality is mainly due to the N-N migration.

The Layout of the Model

- A multi-country, general equilibrium model assuming:
    - homogeneous firms,
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  - heterogeneous labor,
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- We consider endogenous:
  - wages,
  - TFP levels,
  - numbers of varieties available for consumption,
  - taxation.

Assumptions

Environment

- N countries indexed by $i \in \{1, 2, ..., N\}$.
- Total, efficient labor force endowment in country i: $\bar{L}_i^T$.
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Individuals

- Inelastically supply one unit of labor.
- Gain utility from consuming different varieties of the consumption good.
- We distinguish between 4 types of workers:
  - nl – native low skilled,
  - nh – native high skilled,
  - fl – foreign low skilled,
  - fh – foreign high skilled.

  write: $s \in \{nl, nh, fl, fh\}$

Individuals

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- The value of the indirect utility function (equivalent to the real wage equivalent to the welfare):

$$U_i^s = \left(\int_{b_i} \left(\frac{p_{ij}(k)^{-\epsilon}}{P_i^{1-\epsilon}} \tilde{w}_i^s \right)^{\frac{\epsilon-1}{\epsilon}} dk \right)^{\frac{\epsilon}{\epsilon-1}} = \frac{\tilde{w}_i^s}{P_i}. \qquad (1)$$

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- The high skilled workers have to pay a tax on their income, which is then transfered to the low skilled agents.

- Assume a balanced governmental budget.

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- The efficient labor composite is a nested CES with an imperfect substitution between low/high skilled as well as domestic/foreign workers.

- The TFP is a function of the high skilled share in the population (Lucas 1988) and a residual.

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$$p_i(k) = p_i = \frac{\epsilon}{\epsilon - 1} \frac{W_i}{A_i}. \tag{3}$$

- However, there are **barriers to entry**, so that the profit is equal to zero, which leads to a simple Krugman's equation:

$$B_i = \frac{\bar{L}_i^T}{\epsilon f_i}. \tag{4}$$

The Definition of the General Equilibrium

Definition (GE)

The general equilibrium in the system of N economies,
taking $\{[X_i]_{i \in N}, [\bar{A}_i]_{i \in N}, [g_i]_{i \in N}, [\bar{L}_i^T]_{i \in N}, [f_i]_{i \in N}\}$ as given,
is defined by the set of vectors $\{[P_i]_{i \in N}, [B_i]_{i \in N}, [W_i]_{i \in N}\}$
and the matrix of bilateral trade $[X_{ij}]_{i,j \in N}$
that for every country $i \in N$ satisfy:

($E1$)   Individuals maximize utilities of consumption.
($E2$)   Total expenditures $=$ total incomes.
($E3$)   Firms minimize cost and maximize profits.
($E4$)   The zero profit condition is binding.
($E5$)   The goods market clear and trade is balanced.
($E6$)   The labor market clears.
($E7$)   The governmental budget is balanced.

Exogenous Variables

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- Data on GDP and exports: World Bank Database.

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- The data describing the stocks and flows of migrants are taken from Docquier, Özden, Peri (2013)
- Data on GDP and exports: World Bank Database.
- Fixed cost: an unweighted synthetic indicator of three variables from Doing Business by the World Bank.
- The tax (t_i) and subsidy (s_i) rates are such that the changes in the inequalities in income before and after the redistribution (Gini coef.) fit perfectly the ones estimated by Immervoll and Richardson (2011).

Trade Cost Matrix

We estimate the trade costs by the following equation:

$$ln(X_{ij}) = \beta_0 + \lambda_i + \phi_j + \beta_1 ln(Dist) + \beta_2 Border + \beta_3 Legal$$
$$+ \beta_4 Language + \beta_5 Colonial + \beta_6 CU + \beta_7 FTA$$

- λ_i is a fixed effect of the exporting country,
- ϕ_j is a fixed effect for the importing country,
- *Dist* is the geographic distance,
- *Border* is the common border,
- *Legal* is the same legal system,
- *Language* is the common language,
- *Colonial* are the colonial ties,
- *CU* is the common currency,
- *FTA* is a free trade agreement.

Source: CEPII Gravity Database

Parameters and the Welfare Effects

Table: The Benchmark Parametrisation of the Model

| Description of the parameter	Symbol	Value
Elasticity of substitution between varieties	ϵ	3
Elasticity of TFP w.r.t the HS ratio	λ	0.3
Elasticity of substitution between HS and LS workers	σ	1.75
Elasticity of substitution between natives and migrants	σ_M	20

The changes in welfare are calculated as:

$$\frac{\Delta U}{U} = \frac{U_{Reference} - U_{Counterfactual}}{U_{Counterfactual}}. \tag{5}$$

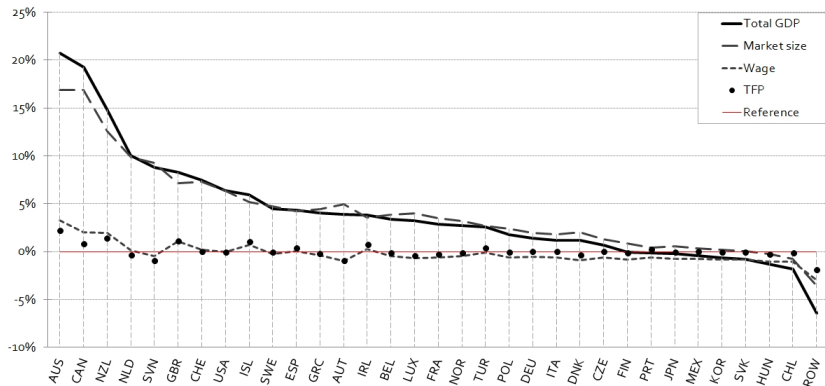# Overall Impact of Migration - Total (S-N, stock)
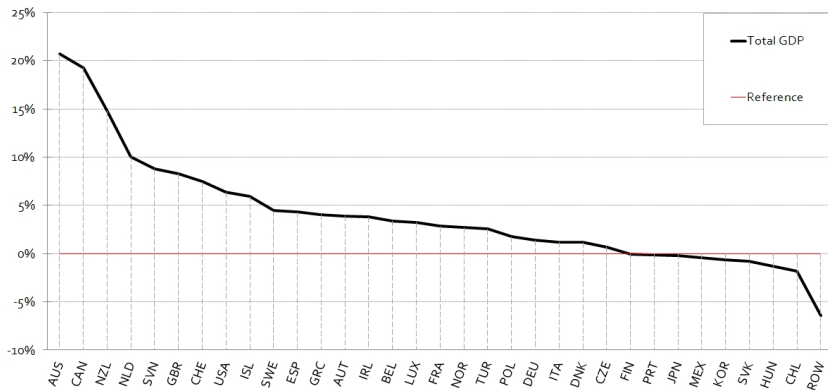
Many winners in the S-N, stock case.

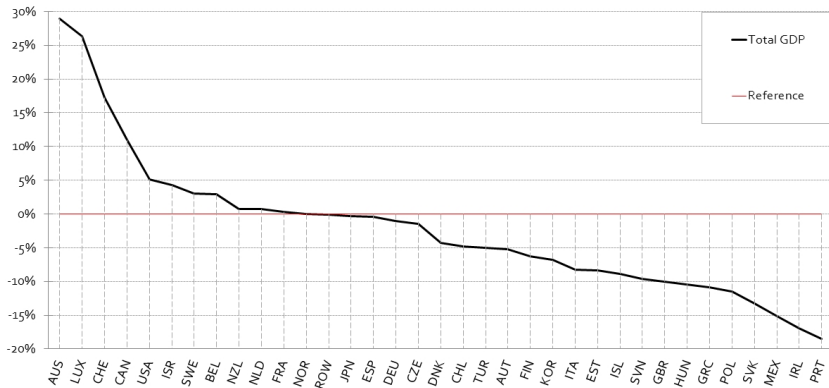# Overall Impact of Migration - Channels (S-N, stock)
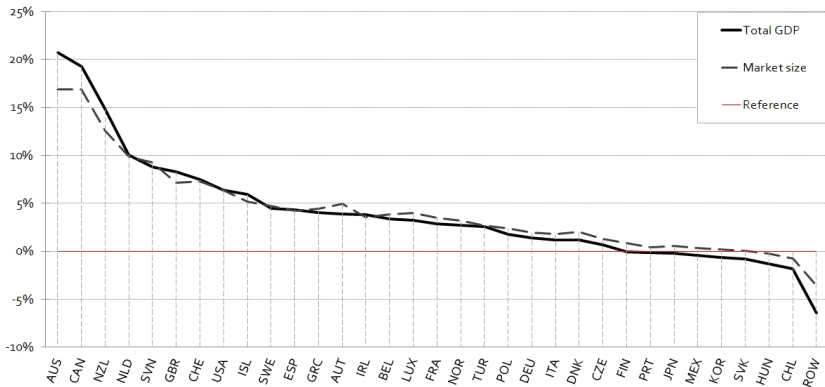
The market size effect is roughly the same as the total effect.

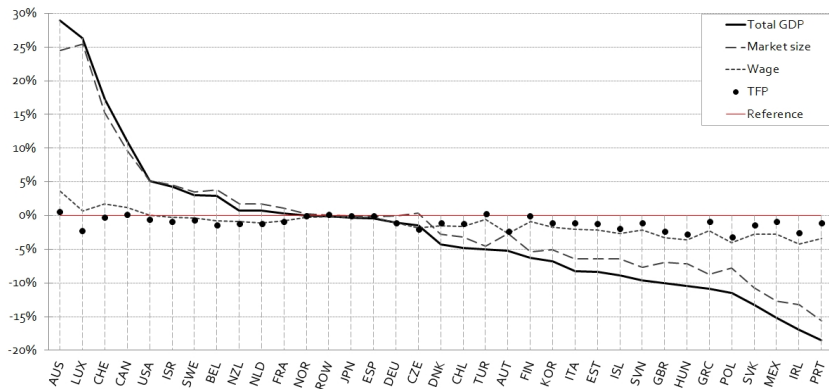# Overall Impact of Migration - Channels (S-N, stock)

A strong TFP effect only in few countries, as well.

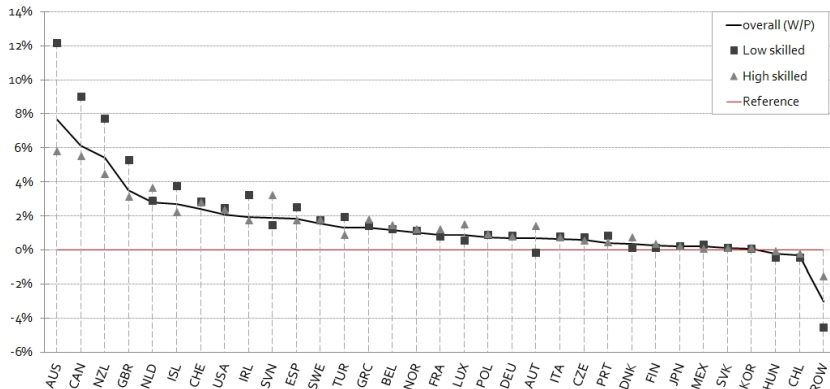# Overall Impact of Migration - Total (N-N, stock)

Few winners, many losers in the N-N, stock case (a zero-sum game).

Motivation
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The Model
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Calibration
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Results
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Conclusions
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Overall Impact of Migration - Channels (N-N, stock)

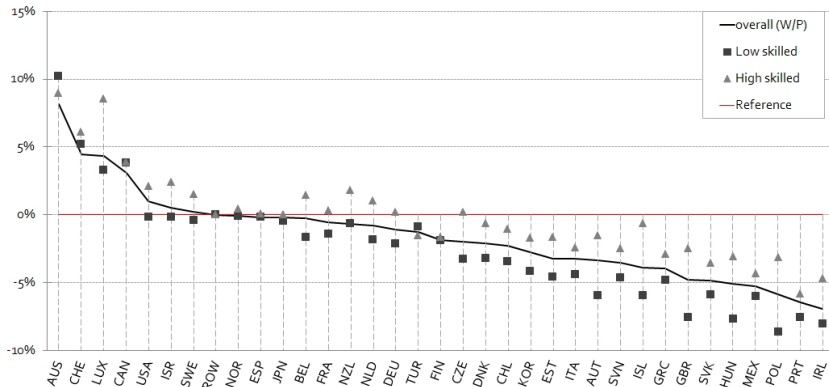Few winners, many losers in the N-N, stock case (a zero-sum game).

Welfare Impact of Migration - Real Wages (S-N, stock)

Many winners (LS are better off) in the S-N, stock case.

Migration induces more between-country rather than within-country inequalities.
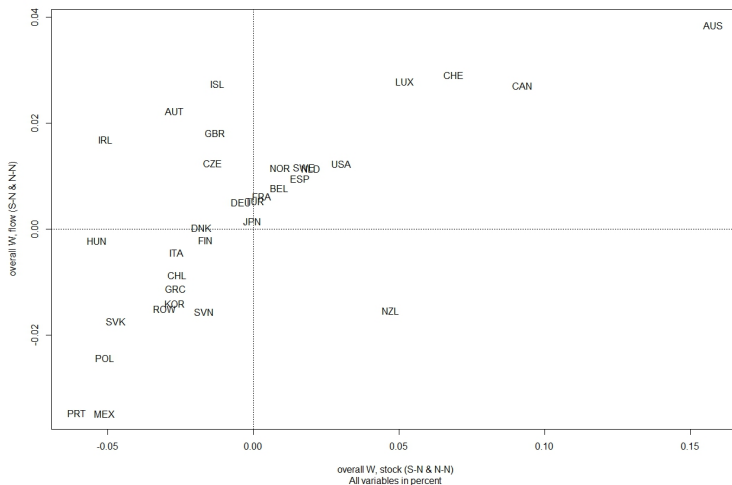
Welfare Impact of Migration - Real Wages (N-N, stock)

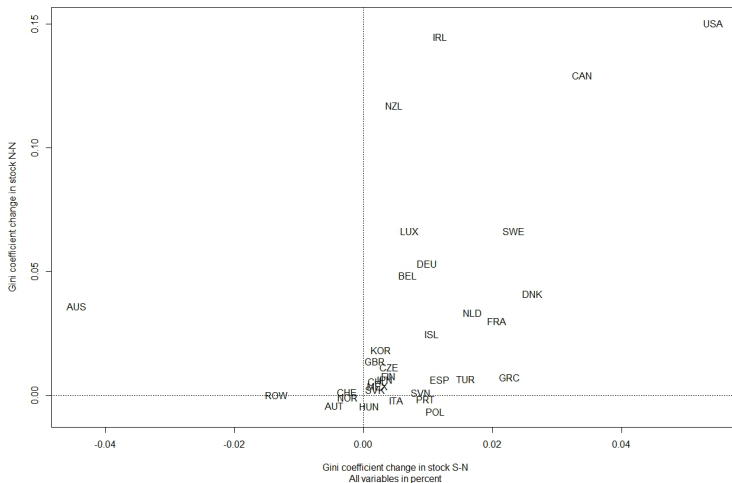Few winners, many losers (HS are better off) in the S-N, stock case.

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Welfare Comparison (stock vs flow)

Huge disproportions in the gains in welfare across the OECD countries.

Inequality (Gini coef.) Comparison (S-N vs N-N)

Huge disproportions in inequalities across the OECD countries (notice that N-N are way higher that S-N).

Conclusions

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    - The majority of the OECD countries gain (both in stock and flow of migrants).
    - Mainly the low skilled are winning.
- In the N-N case:
    - There are few winners and many losers (a zero-sum game) among the OECD countries.
    - The high skilled are better off.

Motivation
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The Model
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Calibration
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Results
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Conclusions
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Thank you for your attention