Imports, productivity and firm heterogeneity: do origin markets and factor intensity matter?

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Introduction

- Stylized fact: internationally competing firms perform better than domestically operating firms
  - Larger, more productive, more capital intensive, pay higher wages, invest more in R&D, higher probability of survival, etc.
  - Most attention directed towards exporters; how about importers?
  - Several mechanisms through which importing could foster productivity:
    - Cheaper inputs
    - Higher quality inputs (R&D intensive inputs from the technological frontier)
    - More variety of differing quality (beneficial in case of imperfect substitutes)
    - Spillover effects (learning from foreign suppliers)
- Characteristics of imports matter

Research questions

1. Do Dutch importers outperform non-traders in terms of productivity? (*Q1*)
2. Do characteristics of imports affect productivity? (*Q2*)
   - Country of origin
   - Factor intensity of imported goods

- Two hypotheses:
  - Importing high quality goods from the technological frontier (relatively nearby) fosters productivity
  - Importing from 'difficult' markets (relatively far away) requires higher productivity to overcome fixed cost of importing

Main findings

Q1:

- importers more productive than non-traders
- but less than exporters and two-way traders

Q2:

- Productivity…
  - Increases in the number of import markets (by region and product) on which the firm is active
    - incurring fixed cost for each additional market
  - Increases in import share of nearby and developed regions
  - Decreases in share of unskilled labor intensive products
  - Increases in share of imported primary, high-tech, natural resource intensive and human capital intensive products from EU-15

Data

Figure 1: Graphical representation of the merging steps towards a panel data set

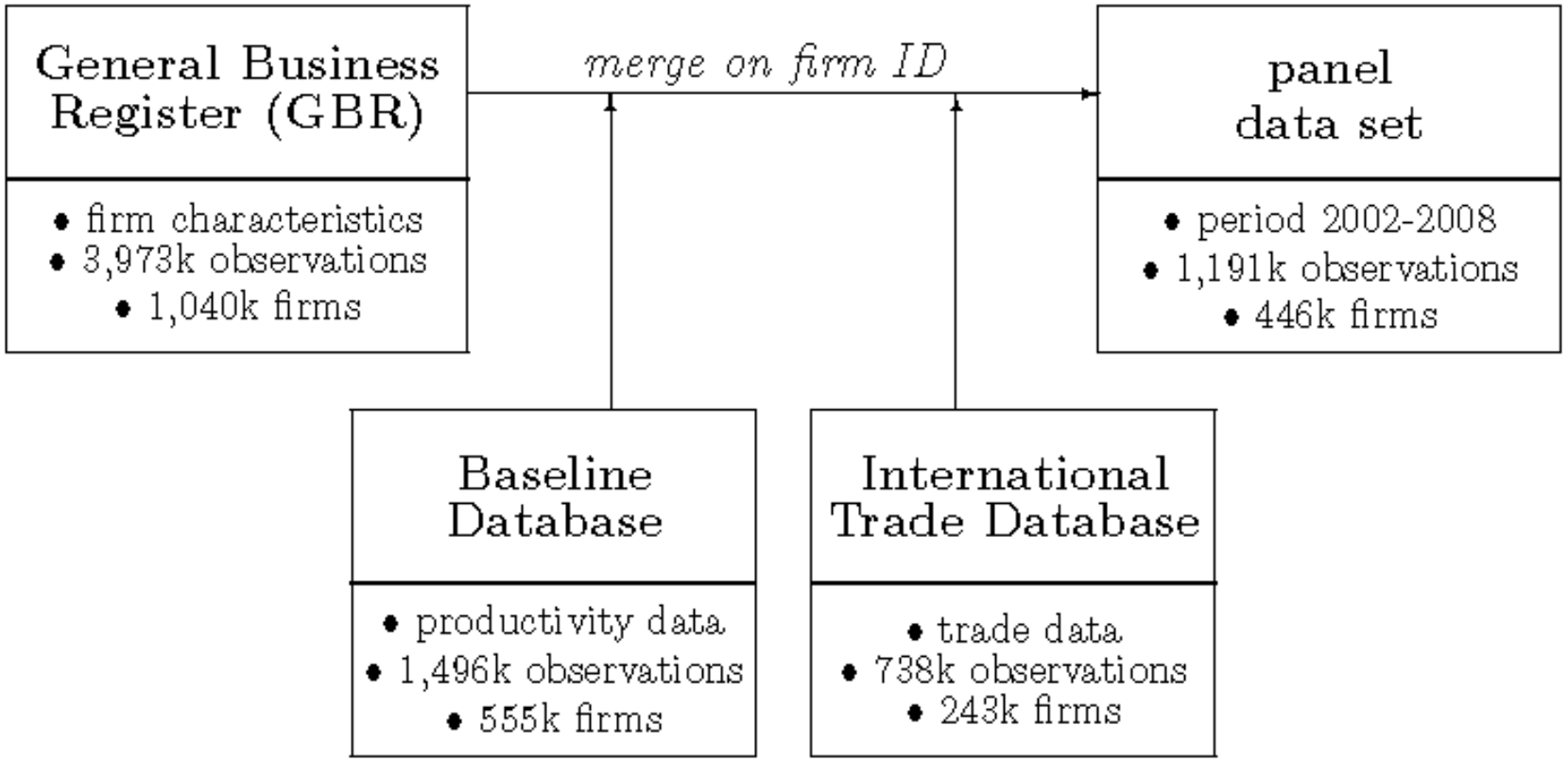
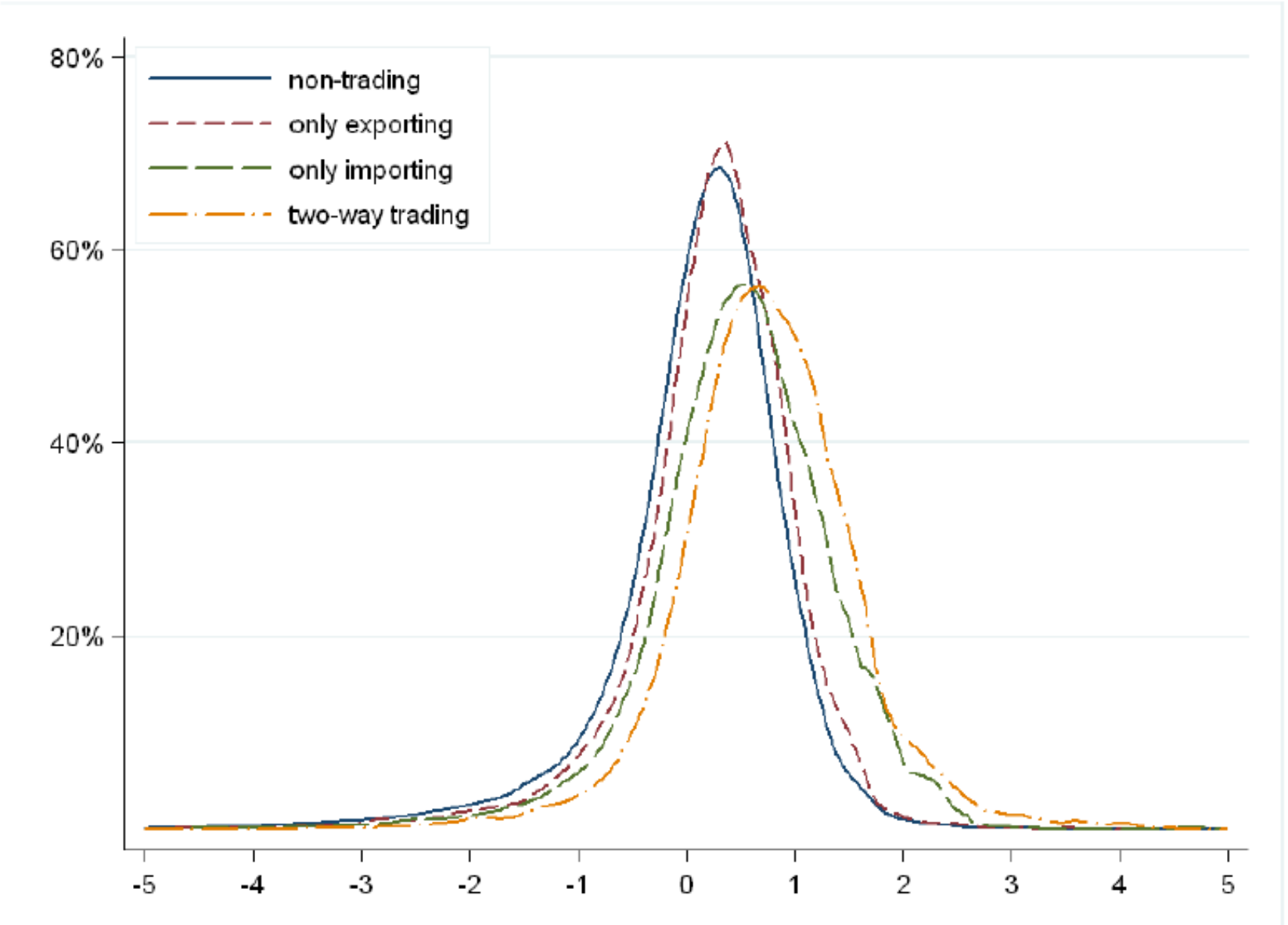
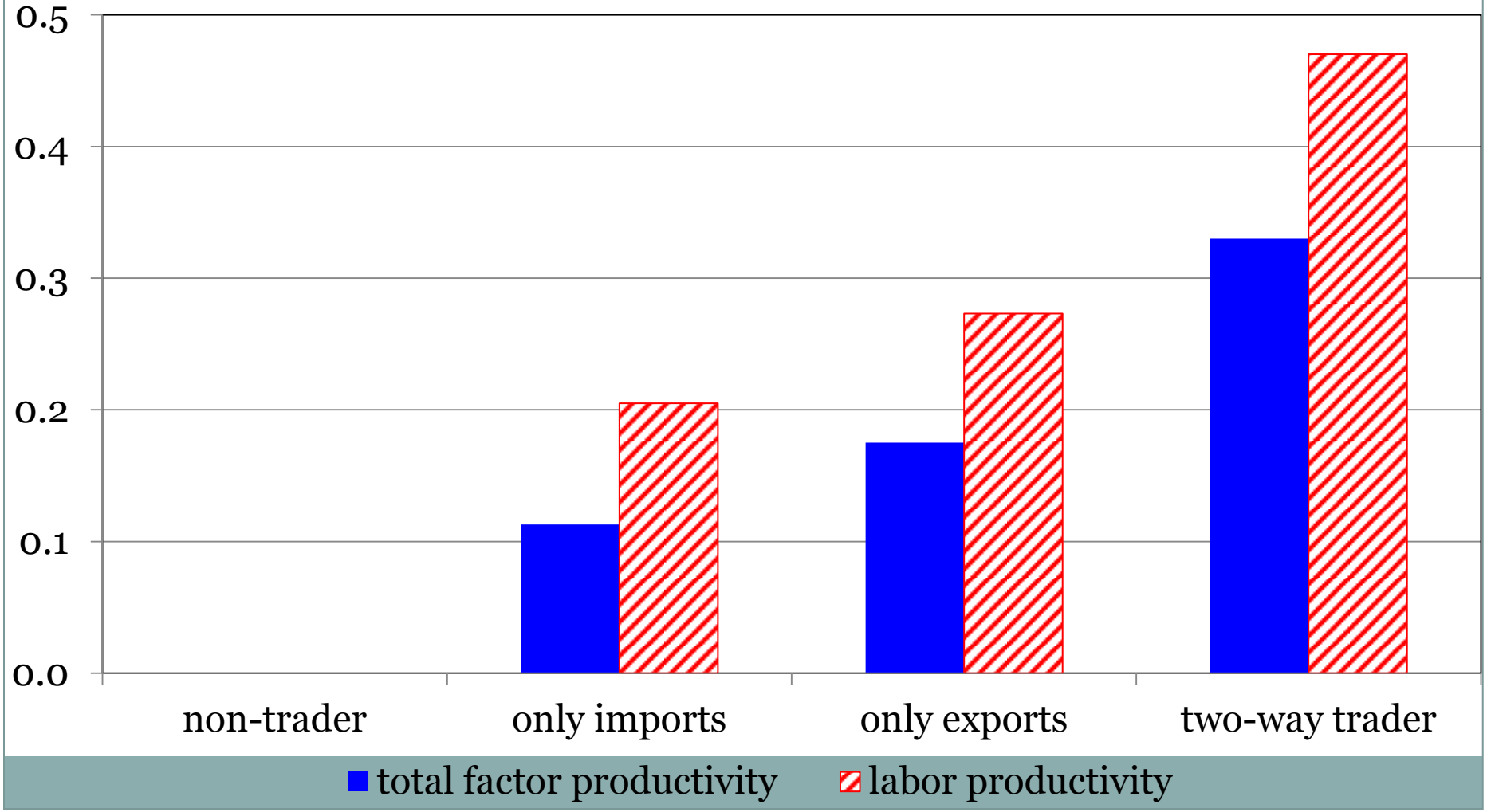


Figure 2: Firm-level productivity distribution by trade status (2002-2008)



$$ln(prod_{it}) = \alpha + \beta_1 importer_{it} + \beta_2 exporter_{it} + \beta_3 twowaytrader_{it} + \beta_4 firmsize_{it} + \beta_5 foreigncontrolled_{it} + \beta_6 year_t + \beta_7 sector_{it} + \beta_8 region_i + e_{it}$$

Firm trade type and productivity, The Netherlands

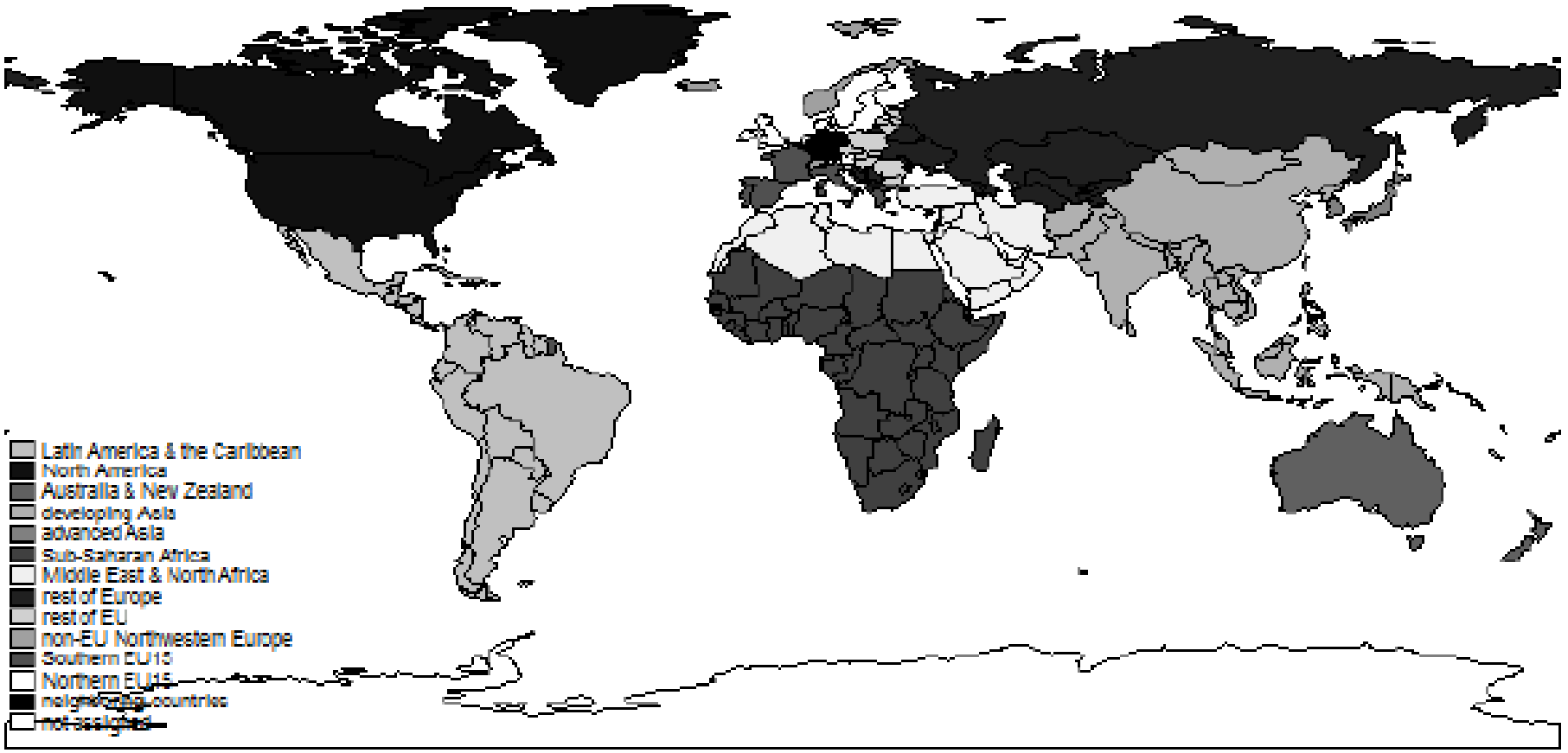


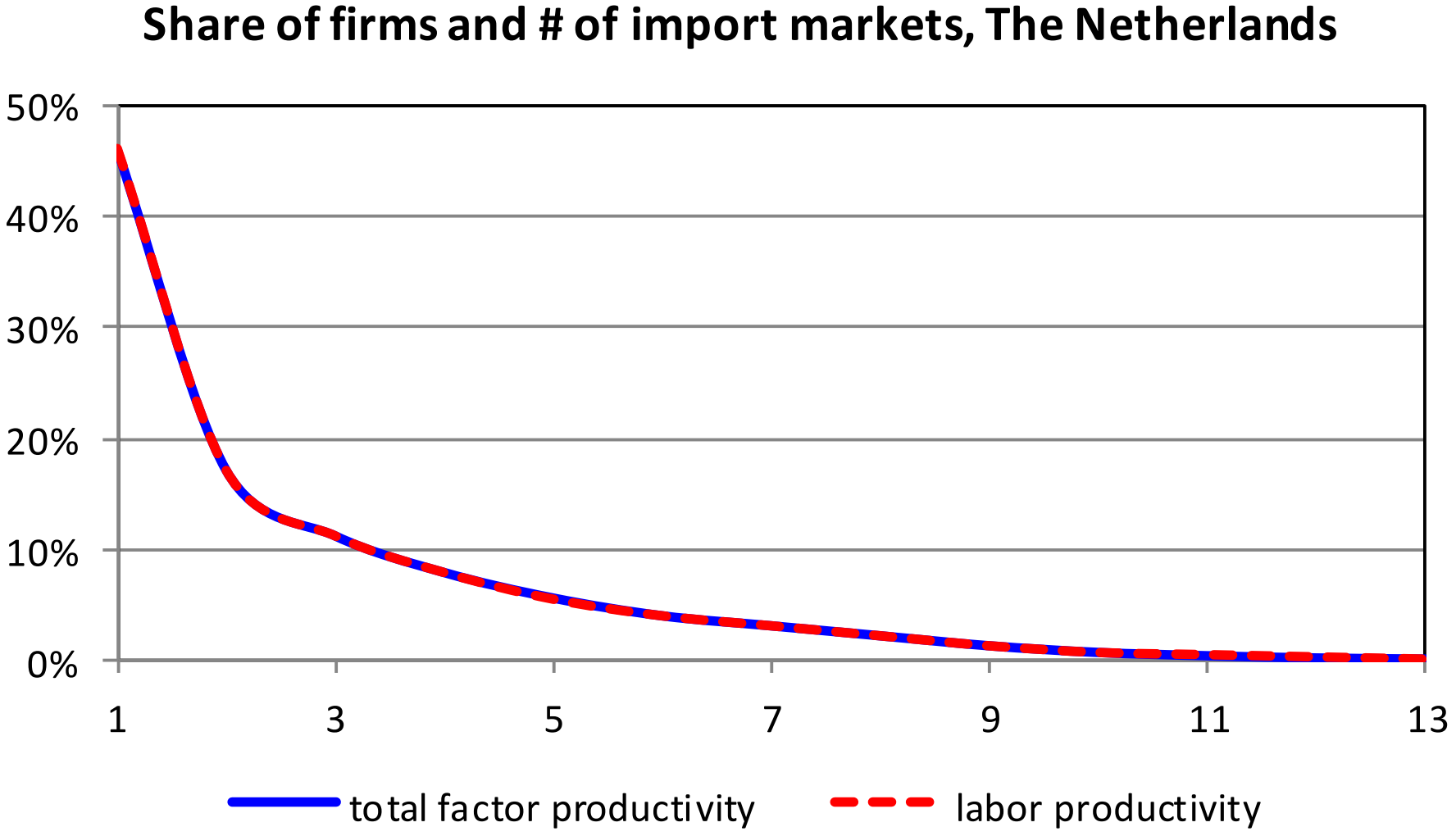
Q2: impact of import characteristics?

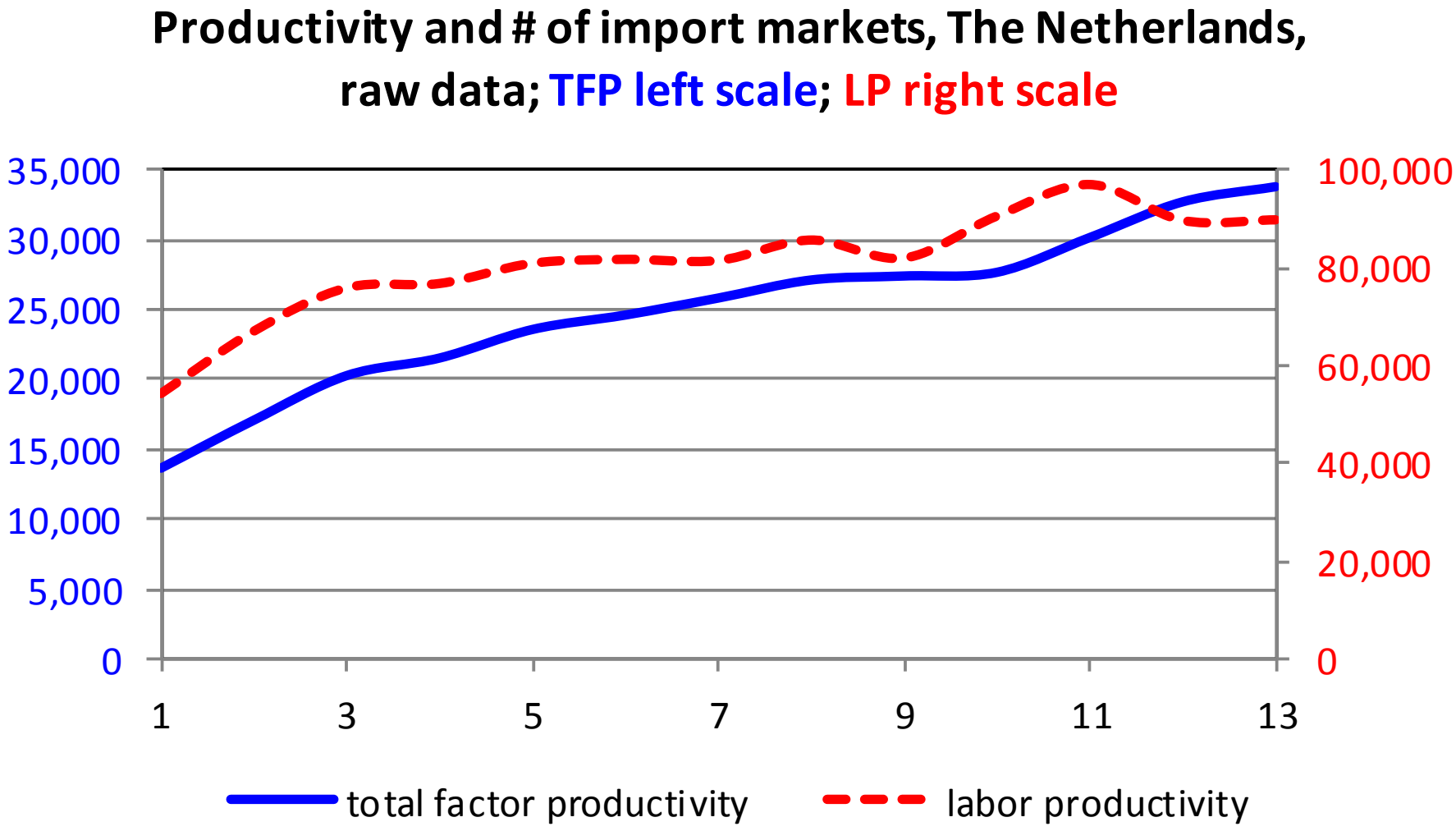
- Analysis within subset of importers…
  - conditional on being an importer
  - given they are more productive (on average) than non-traders
- …for which full decomposition of imports is available:
  - By origin country: 61,632 observations
  - By product group: 38,164 observations
  - By origin country and product group: 35,966 observations

By country of origin

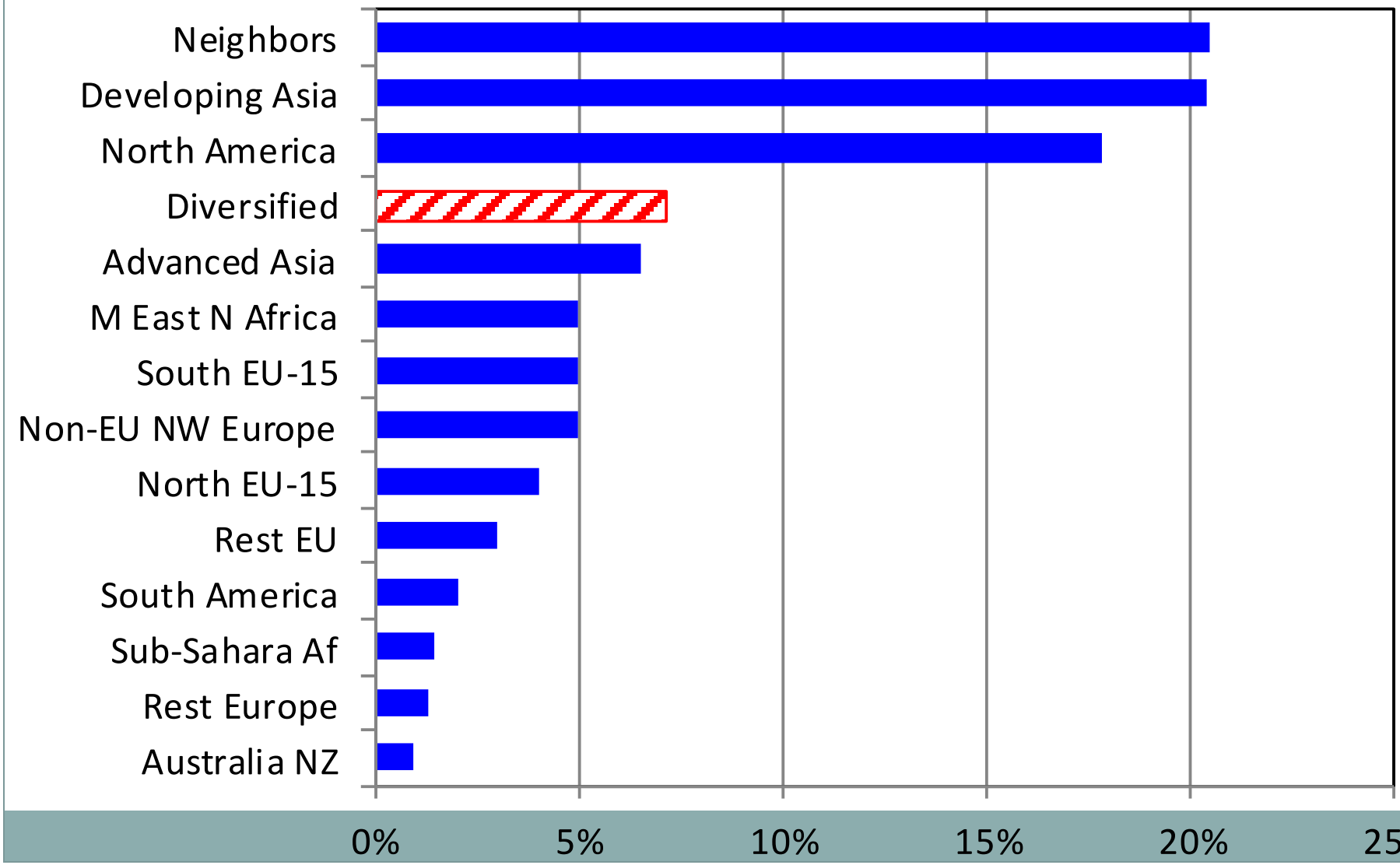
Figure 3: Regional aggregation of origin countries




Share of firms and # of import markets, The Netherlands
50%
40%
30%
20%
10%
0%
1
3
5
7
9
11
13
total factor productivity
labor productivity


Productivity and # of import markets, The Netherlands, raw data; TFP left scale; LP right scale
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
100,000
80,000
60,000
40,000
20,000
0
1
3
5
7
9
11
13
total factor productivity
labor productivity

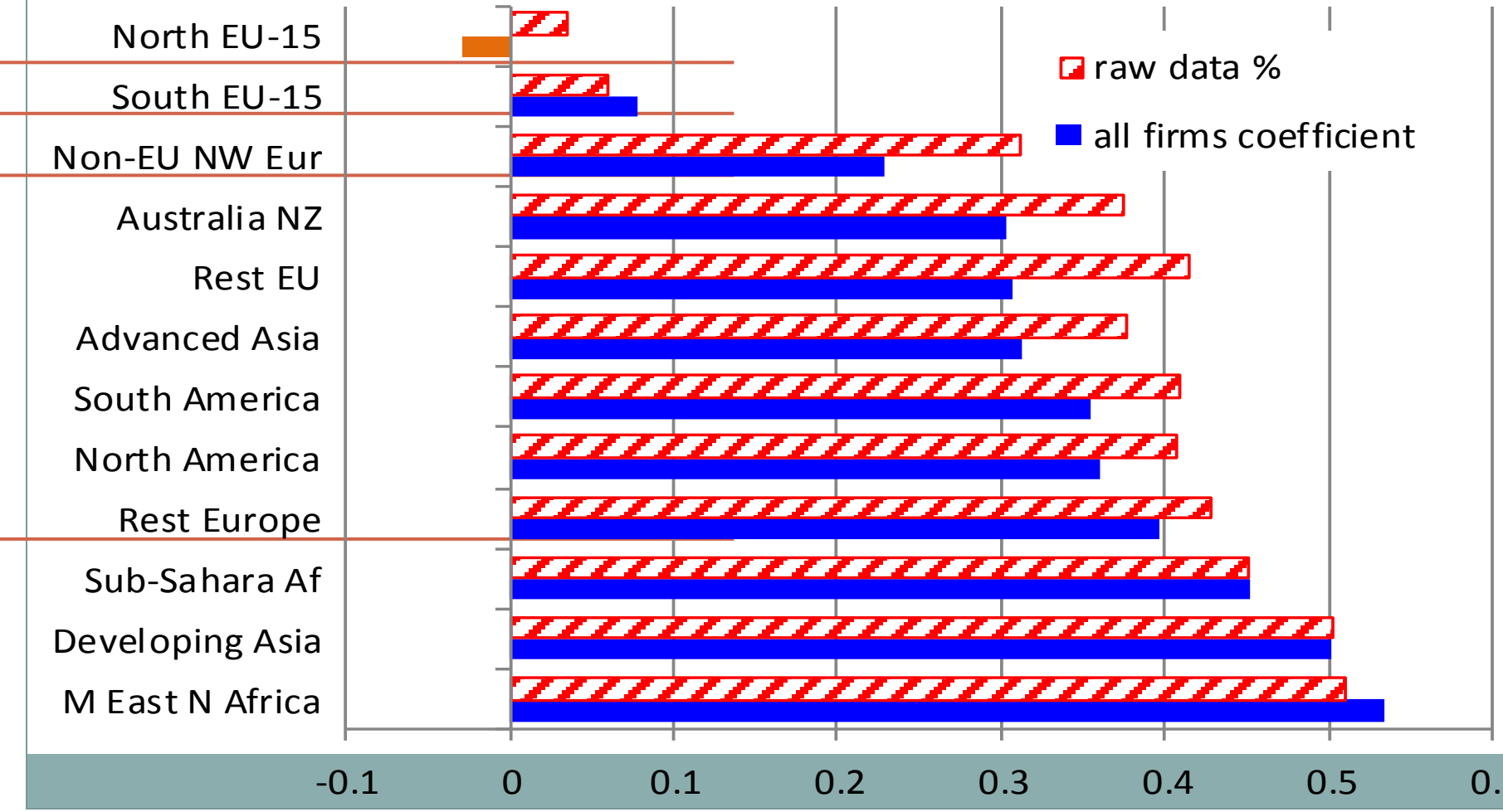
Concentration of imports; % of firms with regional imports at least 50% and diversified firms



$$ln(prod_{it}) = \alpha + \sum_{g=1}^{13} \beta_g importshare_{git} + \beta_{14} twowaytrader_{it} + \beta_{15} firmsize_{it}$$
$$+\beta_{16} foreigncontrolled_{it} + \beta_{17} year_t + \beta_{18} sector_{it} + \beta_{19} region_i + e_{it}$$

Import origin and TFP; neighbours as reference

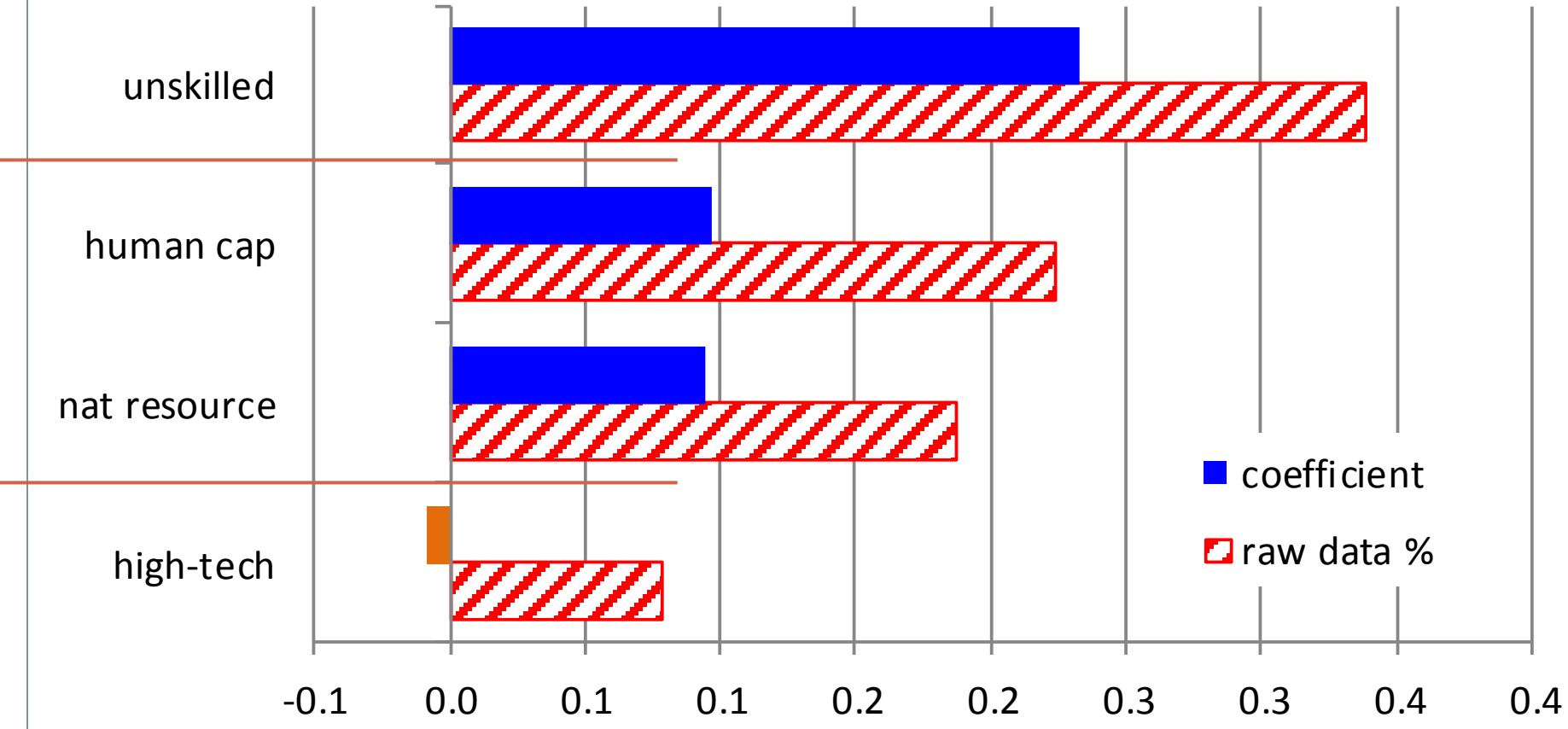
minus coefficients & raw data

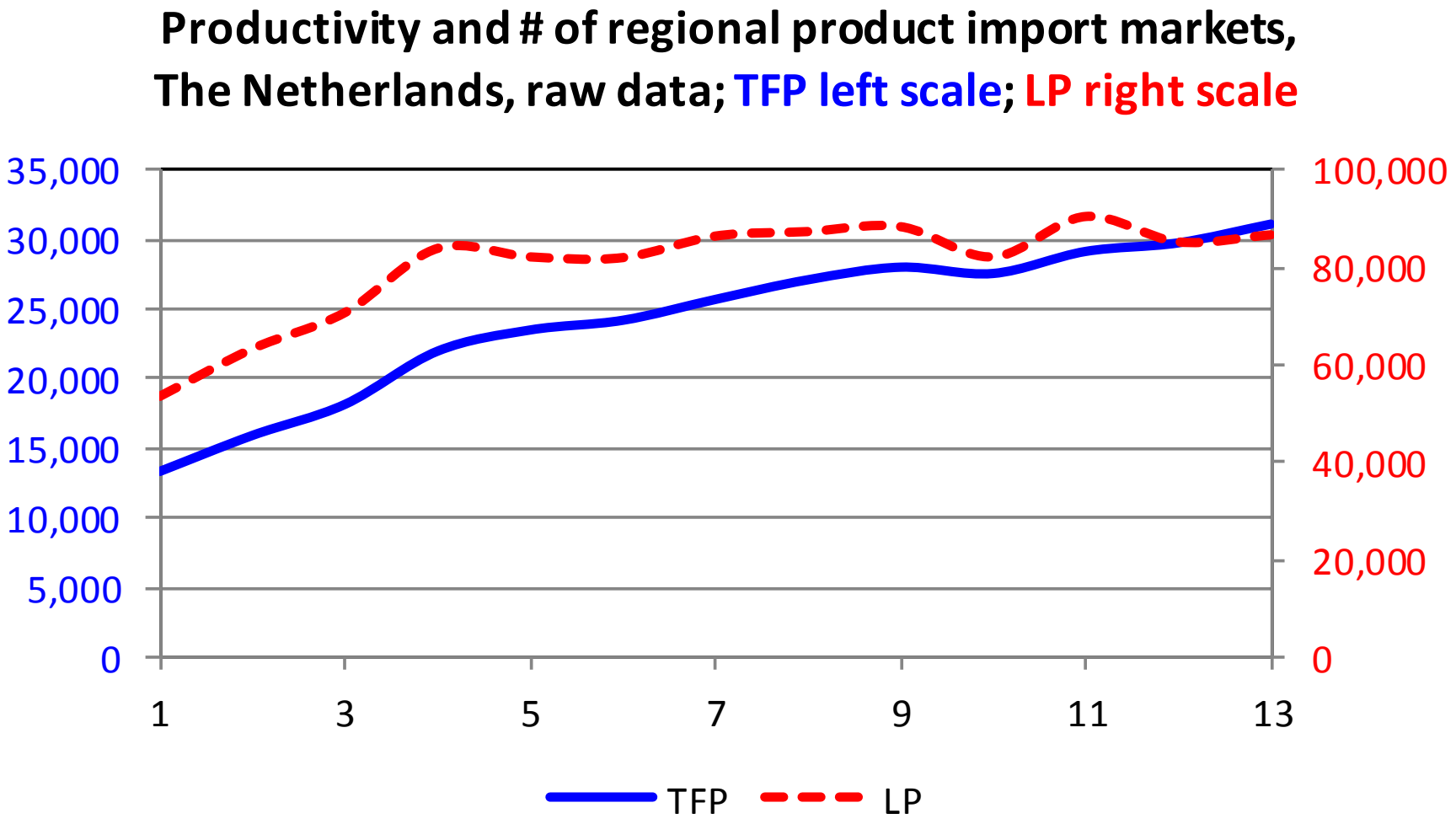


By product type

- Factor intensity of imported good
  - Aggregated into 5 product groups (following van Marrewijk, 2002)
    - Primary products (e.g. live animals, oil, crops)
    - Natural resource intensive products (e.g. leather and fur)
    - Unskilled labor intensive products (e.g. clothing, footwear)
    - Technology intensive products (e.g. ICT, chemicals)
    - Human capital intensive products (e.g. cars, household equipment)

Import product type and TFP; primary products as reference; minus coefficients & raw data




Productivity and # of regional product import markets, The Netherlands, raw data; TFP left scale; LP right scale
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9
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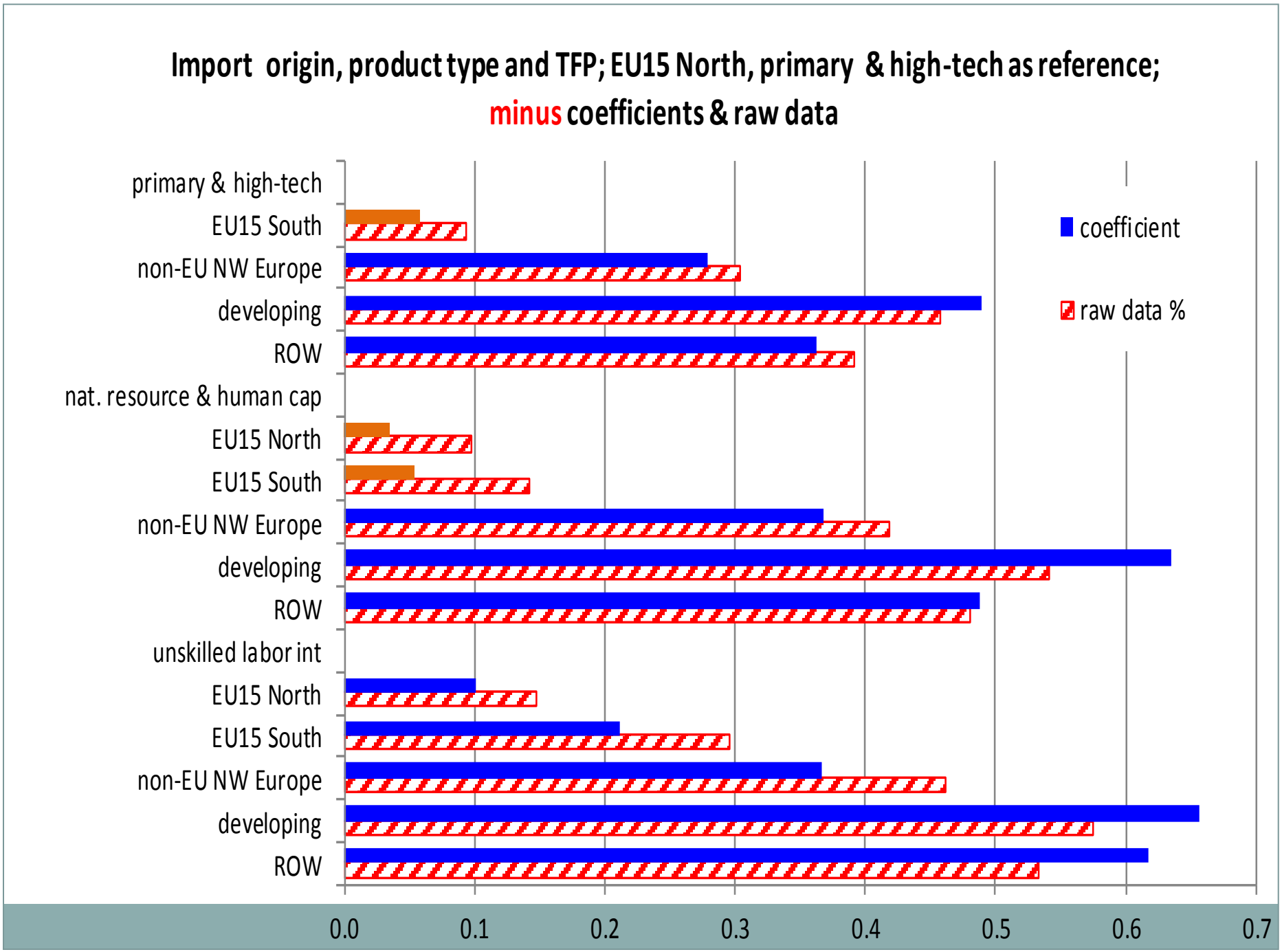
13
TFP
LP


Import origin, product type and TFP; EU15 North, primary & high-tech as reference;
minus coefficients & raw data
primary & high-tech
EU15 South
non-EU NW Europe
developing
ROW
nat. resource & human cap
EU15 North
EU15 South
non-EU NW Europe
developing
ROW
unskilled labor int
EU15 North
EU15 South
non-EU NW Europe
developing
ROW
coefficient
raw data %
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7

Policy implications

- Productivity premium of importing seems to be mainly tied to imports from nearby regions
  - Focus on BRIC-countries seems suboptimal strategy in this respect
- Empirical results seem largely consistent with focus on designated top sectors:

product groups by factor intensity	top sectors
primary products	agri-food, horticulture, energy
technology intensive products	high tech, chemicals, energy, life sciences & health
human capital intensive products	high tech, chemicals
natural resource intensive products	high tech

Thank you!

QUESTIONS AND COMMENTS?

FOR FURTHER INQUIRIES PLEASE CONTACT THE AUTHOR
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