

IFC Satellite Seminar on "Post-crisis data landscape: micro data for the macro world", co-organised with the Central Bank of Malaysia and the European Central Bank

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Key indicators for sectoral productivity analysis¹

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¹ This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.



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IFC-BNM-ECB Satellite Seminar – Session 4 “Key indicators for sectoral productivity analysis”

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Outline/Content

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- PPPs for the production side of GDP
- Previous work
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- Sectoral productivity analysis
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Purchasing power parities (PPPs)

- The purchasing power depends on the price of goods and services
- PPPs are indicators of price level differences across countries
- In Europe: [Eurostat-OECD PPP Programme](#)
- Worldwide: [International Comparison Program](#)
- Calculated for a wide range of goods and services → price level indices
- Used for real GDP comparisons, measurement of poverty rates, etc.

PPPs for the production side of GDP

- Usual method: collection and aggregation of consumer prices
- PPPs are thus calculated for the expenditure side of GDP

- But what about industry-specific productivity comparisons?
- Estimate PPPs for the production side of GDP: “PPPPs”

- Main issue: lack of reliable data sources
- Workaround: adjustments to existing sources

Previous work

- Methodology developed by University of Groningen (Netherlands)
- Used in several projects: [EU KLEMS](#), [WIOD](#), [PWT](#)
- Eurostat: similar approach, using only official European statistics
- First results: PPPs for the year 2014 published in [Eurostat EURONA](#)

EUROSTAT REVIEW
ON NATIONAL ACCOUNTS
AND MACROECONOMIC
INDICATORS
2/2016

Estimating purchasing
power parities for the
production side of GDP
LAURENT OLISLAGER AND PAUL KONIJN (!)

Methods

- Adjusted expenditure PPPs + output PPPs
- Limitation: PPPs for the output (rather than value added) of industries
- Elteto-Koves-Szulc (EKS) calculation
- Basic headings (BHs): [CPA/NACE](#) 4-digit level

Data sources

- Only official European statistics
- Prices:
 - [Prodcom](#): unit values for over 3000 manufactured goods
 - [PPP Programme](#): consumer goods and services, equipment, construction, education, health, collective services
 - [Agriculture prices and price indices](#): producer prices for 128 products
 - “Proxy PPPs”
- Weights:
 - [Prodcom](#): production values at product level (below BH level)
 - [Structural business statistics](#): GVA for 4-digit NACE branches (above BH level)
 - [National accounts](#): GVA for 64 NA branches (further aggregation)

Data sources

| A64* NACE title | A64* NACE title |
|---|---|
| 1 Crop and animal production, hunting and related service activities | 33 Air transport |
| 2 Forestry and logging | 34 Warehousing and support activities for transportation |
| 3 Fishing and aquaculture | 35 Postal and courier activities |
| 4 Mining and quarrying | 36 Accommodation; food and beverage service activities |
| 5 Manufacture of food products, beverages and tobacco products | 37 Publishing activities |
| 6 Manufacture of textiles, wearing apparel and leather products | 38 Motion picture, video and television programme production, sound recording |
| 7 Manufacture of wood and of products of wood and cork, except furniture; | 39 Telecommunications |
| 8 Manufacture of paper and paper products | 40 Computer programming, consultancy and related activities; information service |
| 9 Printing and reproduction of recorded media | 41 Financial service activities, except insurance and pension funding |
| 10 Manufacture of coke and refined petroleum products | 42 Insurance, reinsurance and pension funding, except compulsory social |
| 11 Manufacture of chemicals and chemical products | 43 Activities auxiliary to financial services and insurance activities |
| 12 Manufacture of basic pharmaceutical products and pharmaceutical | 44 Real estate activities |
| 13 Manufacture of rubber and plastic products | 45 Legal and accounting activities; activities of head offices; management |
| 14 Manufacture of other non-metallic mineral products | 46 Architecture and engineering activities; technical testing and analysis |
| 15 Manufacture of basic metals | 47 Scientific research and development |
| 16 Manufacture of fabricated metal products, except machinery and equipment | 48 Advertising and market research |
| 17 Manufacture of computer, electronic and optical products | 49 Other professional, scientific and technical activities; veterinary activities |
| 18 Manufacture of electrical equipment | 50 Rental and leasing activities |
| 19 Manufacture of machinery and equipment n.e.c. | 51 Employment activities |
| 20 Manufacture of motor vehicles, trailers and semi-trailers | 52 Travel agency, tour operator reservation service and related activities |
| 21 Manufacture of other transport equipment | 53 Security and investigation activities; services to buildings and landscape |
| 22 Manufacture of furniture; other manufacturing | 54 Public administration and defence; compulsory social security |
| 23 Repair and installation of machinery and equipment | 55 Education |
| 24 Electricity, gas, steam and air conditioning supply | 56 Human health activities |
| 25 Water collection, treatment and supply | 57 Social work activities |
| 26 Sewerage; waste collection, treatment and disposal activities; materials | 58 Creative, arts and entertainment activities; libraries, archives, museums and |
| 27 Construction | 59 Sports activities and amusement and recreation activities |
| 28 Wholesale and retail trade and repair of motor vehicles and motorcycles | 60 Activities of membership organisations |
| 29 Wholesale trade, except of motor vehicles and motorcycles | 61 Repair of computers and personal and household goods |
| 30 Retail trade, except of motor vehicles and motorcycles | 62 Other personal service activities |
| 31 Land transport and transport via pipelines | 63 Activities of households as employers of domestic personnel and |
| 32 Water transport | 64 Activities of extraterritorial organisations and bodies |

Results



- PPPPs for
 - 2008-2017
 - EU28, Switzerland, Iceland, Norway
 - 64 National Accounts branches (NACE A*64)
- Assessment: coverage, reliability, plausibility
- Example: comparison of price level indices at GDP/GVA level

Sectoral productivity analysis

- Comparison of productivity levels across countries
- At the heart of discussions about competitiveness

- PPP-adjusted labour productivity at A*64, A*21 and A*10 levels
- Limitation: single deflation rather than double deflation

Next steps



- Publish results as [experimental statistics](#)
- With detailed quality analyses

- Future work: address the biggest methodological challenges
- E.g. further experiment with data sources and adjustments

- Most importantly: extend coverage for intermediate consumption
- This would allow calculating value-added PPPs



THANK YOU

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(thank you to all colleagues involved)