Trade in Value Added and Labor Productivity

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Background of Japanese low productivity

- Industry`s productivity of Japan is related to International Competitiveness.
- We examine how the data of Trade in Value-Added is preferable much more than the data in gross trade data.
- Japanese industries are totally cautious to introduce foreign value added.

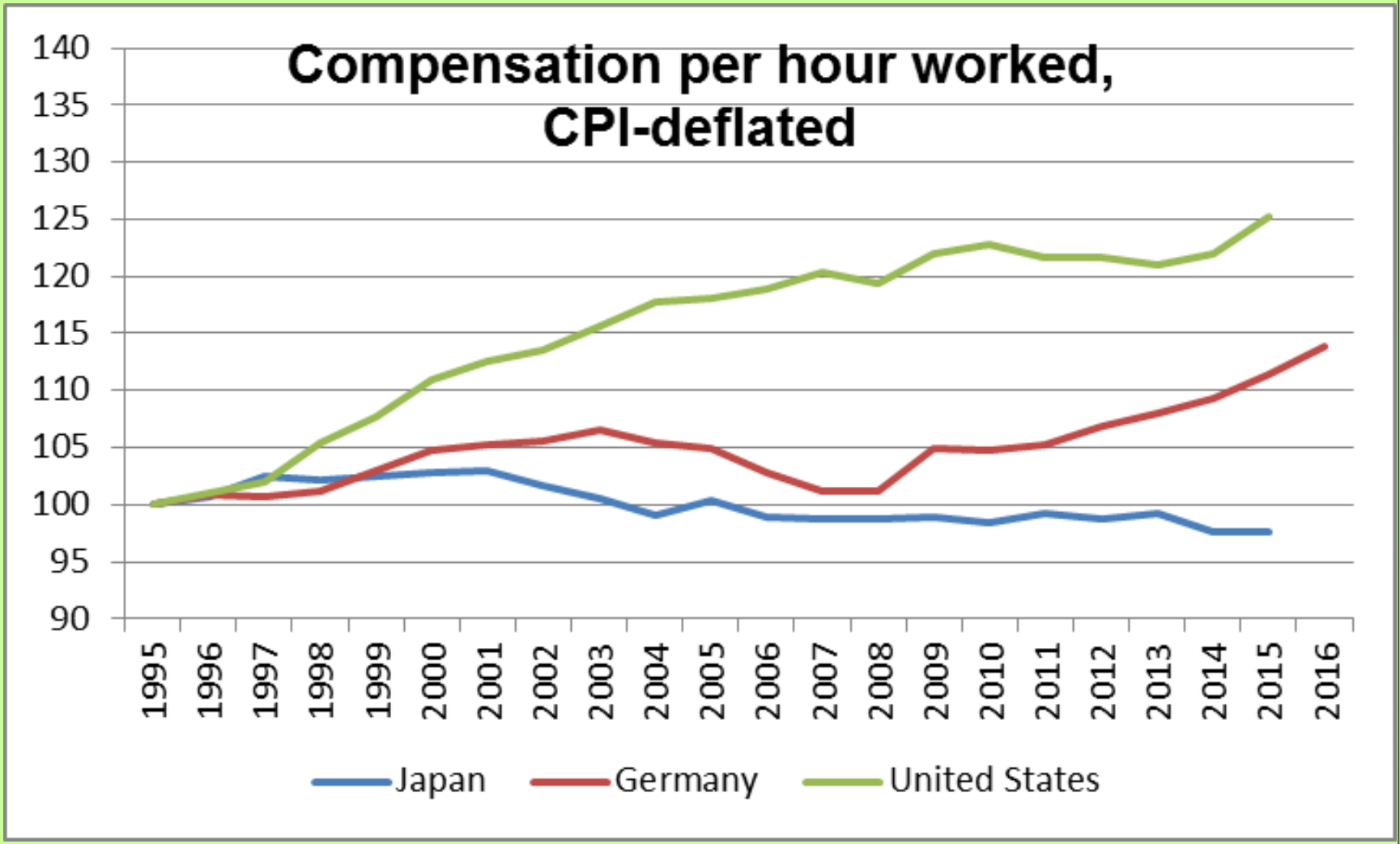
Labour Productivity Indicators

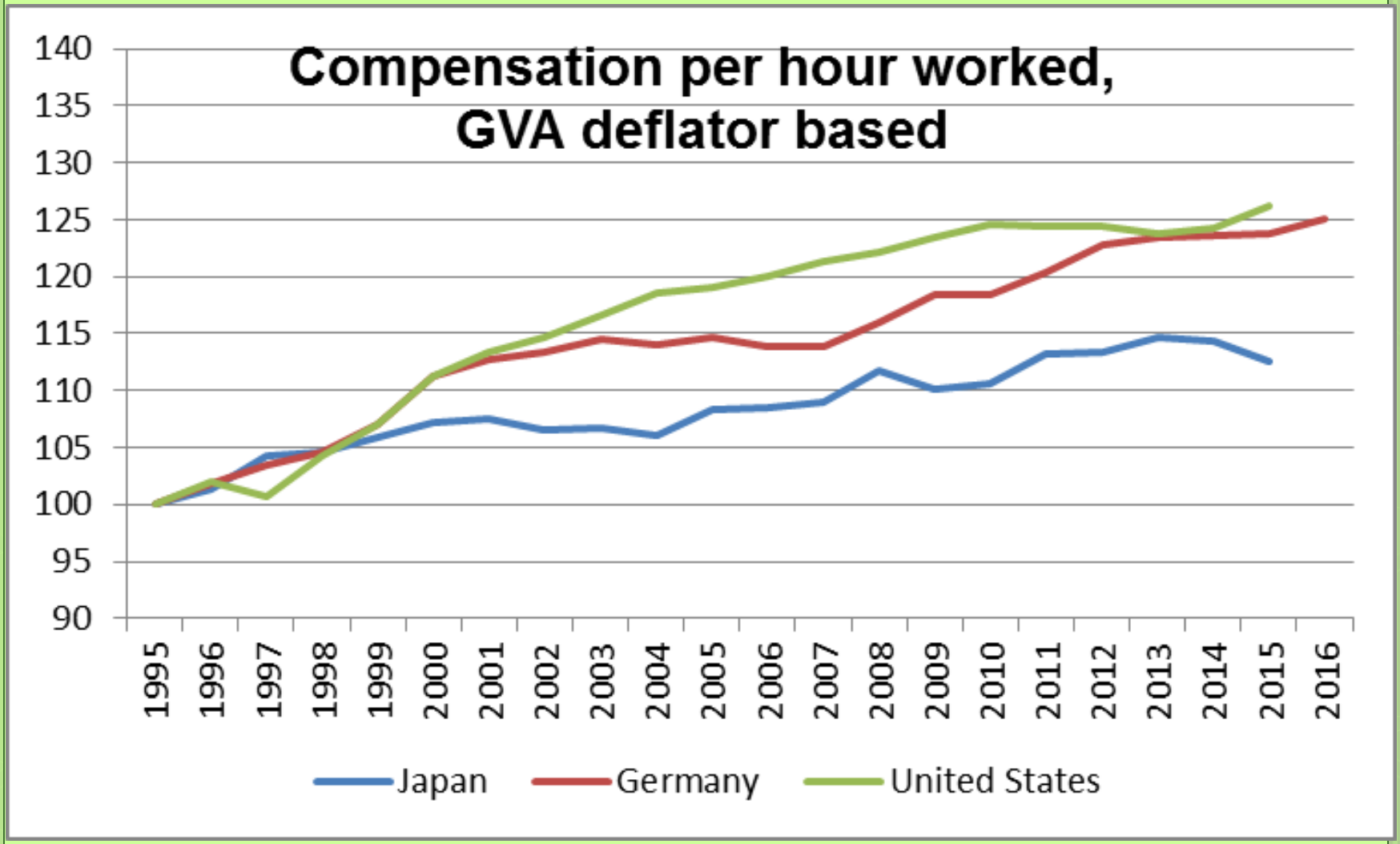
- OECD.STAT
- This dataset is an archived version of STAN Indicators in ISIC Rev.3 SNA93.
- Other data characteristics of Labour productivity index
- Labour productivity is here calculated as the ratio of value added volumes to number engaged. Labour productivity represents the amount of output per unit of input, output being here defined as value added while the input measure used is total employment.
- Although hours worked would be preferable as a measure of labour input, at the present time consistent hours worked data at the industry level are not available in STAN Database for all OECD countries.
- Series for this indicator are presented as indices, having data for the reference year of each country = 100 (most countries use 2000 as ref. year). This indicator is not calculated for zones (i.e. country groups).
- Concepts & Classifications
- This indicator is calculated as follows:
- **100 * (VALK_i / EMPN_i) / (VALK_i_2000 / EMPN_i_2000)**
- 1999-2009 for Japan,
- **VALK**: Value added, volumes
- **EMPN**: Number of persons engaged (total employment)

Change of Productivity & VA in Export in Japan, Germany and U.S.A.

- Selected OECD countries, GVA per hour worked and average hourly labour compensation, indices 1995=100
- Notes:
- Gross value added (GVA) at basic prices per hour worked (by total persons employed) is deflated using the GVA deflator.

- Average labour compensation per hour worked (by employees) is deflated using country's GVA deflator and the CPI (all items).
- Sources:
- OECD Compendium of Productivity Indicators 2017 - © OECD 2017
- OECD National Accounts Statistics (database), April 2017.
- OECD Productivity Statistics (database), April 2017.
- OECD Main Economic Indicators (database), April 2017.


Compensation per hour worked, CPI-deflated
140
135
130
125
120
115
110
105
100
95
90
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Japan
Germany
United States


Compensation per hour worked,
GVA deflator based
140
135
130
125
120
115
110
105
100
95
90
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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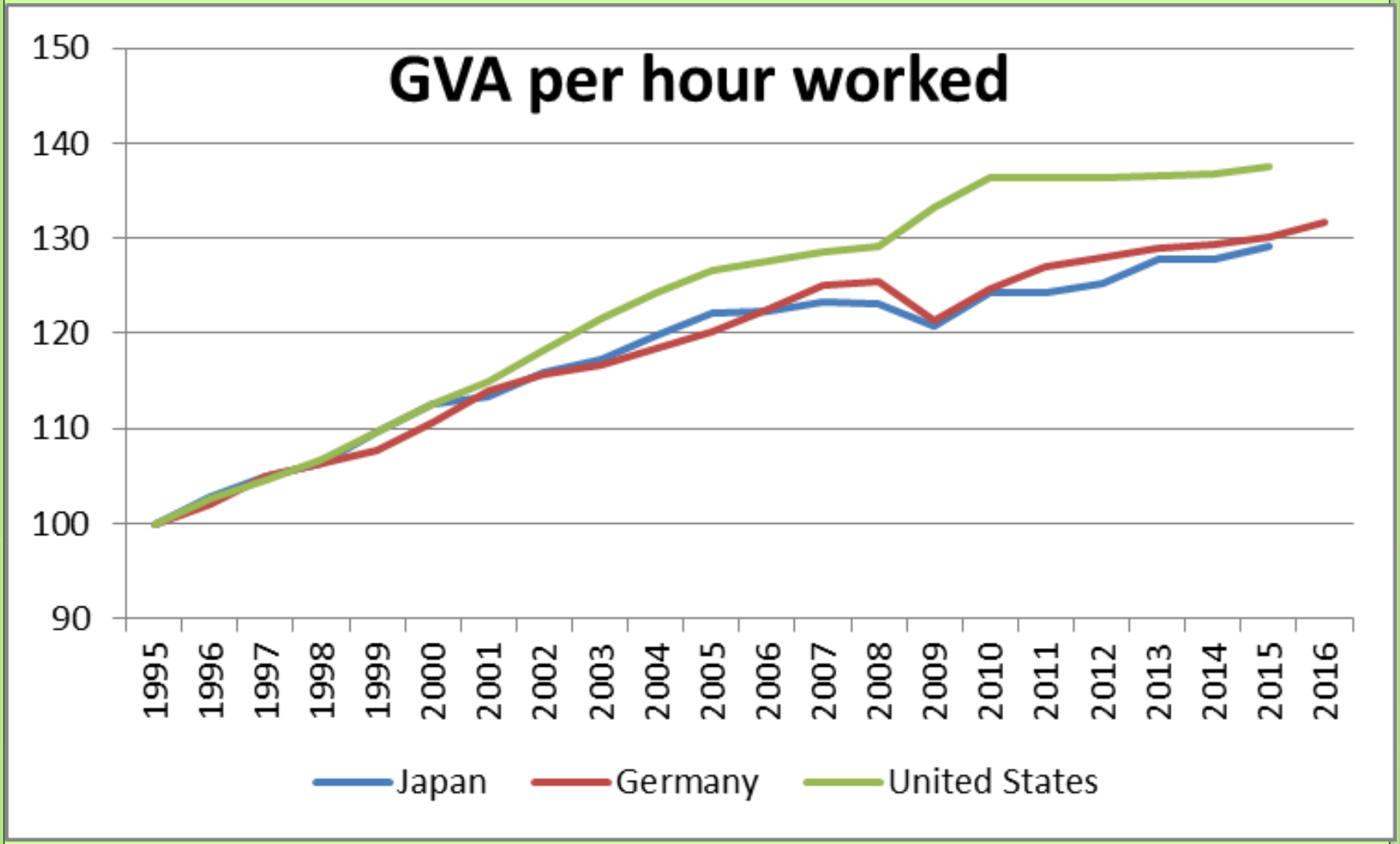
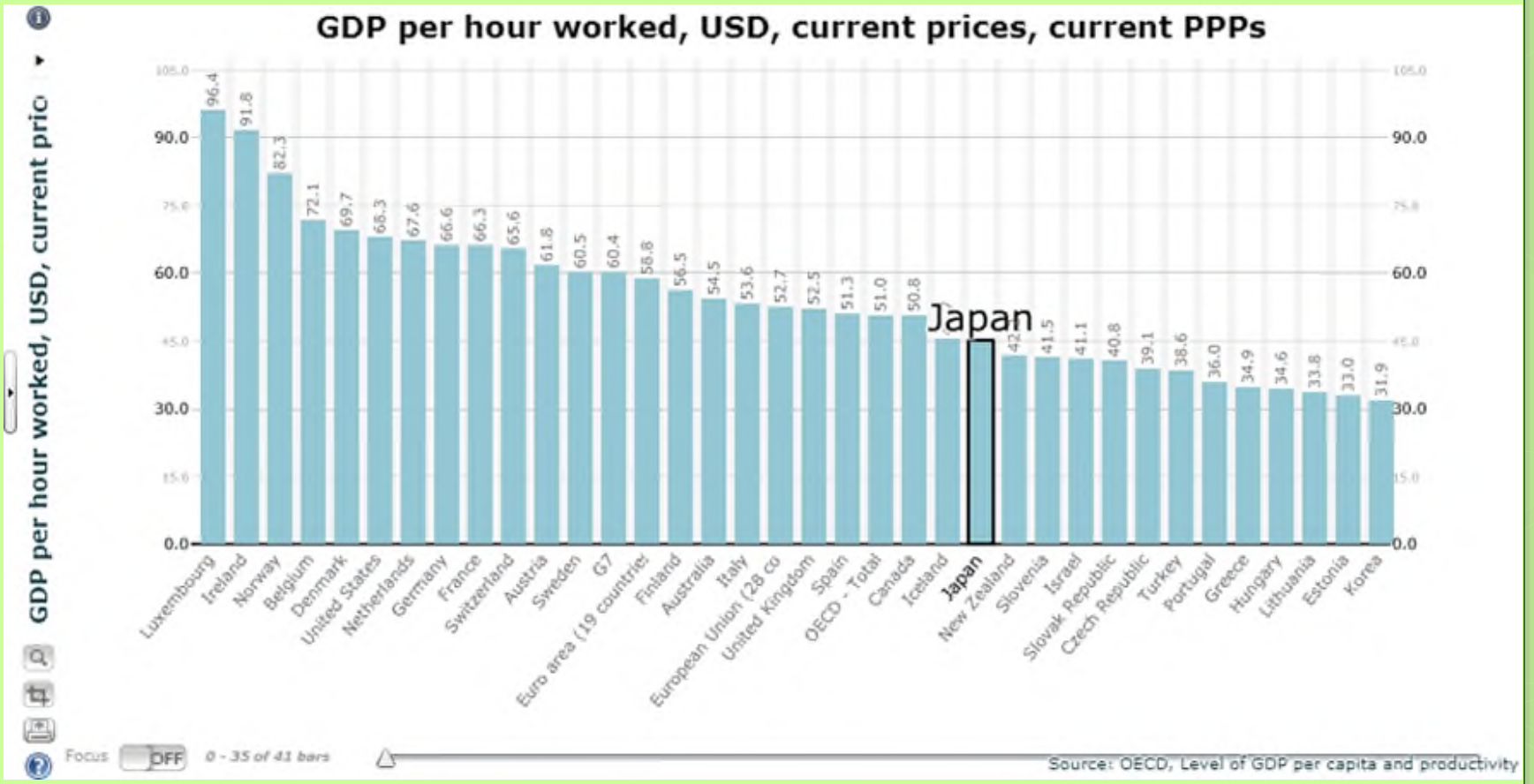
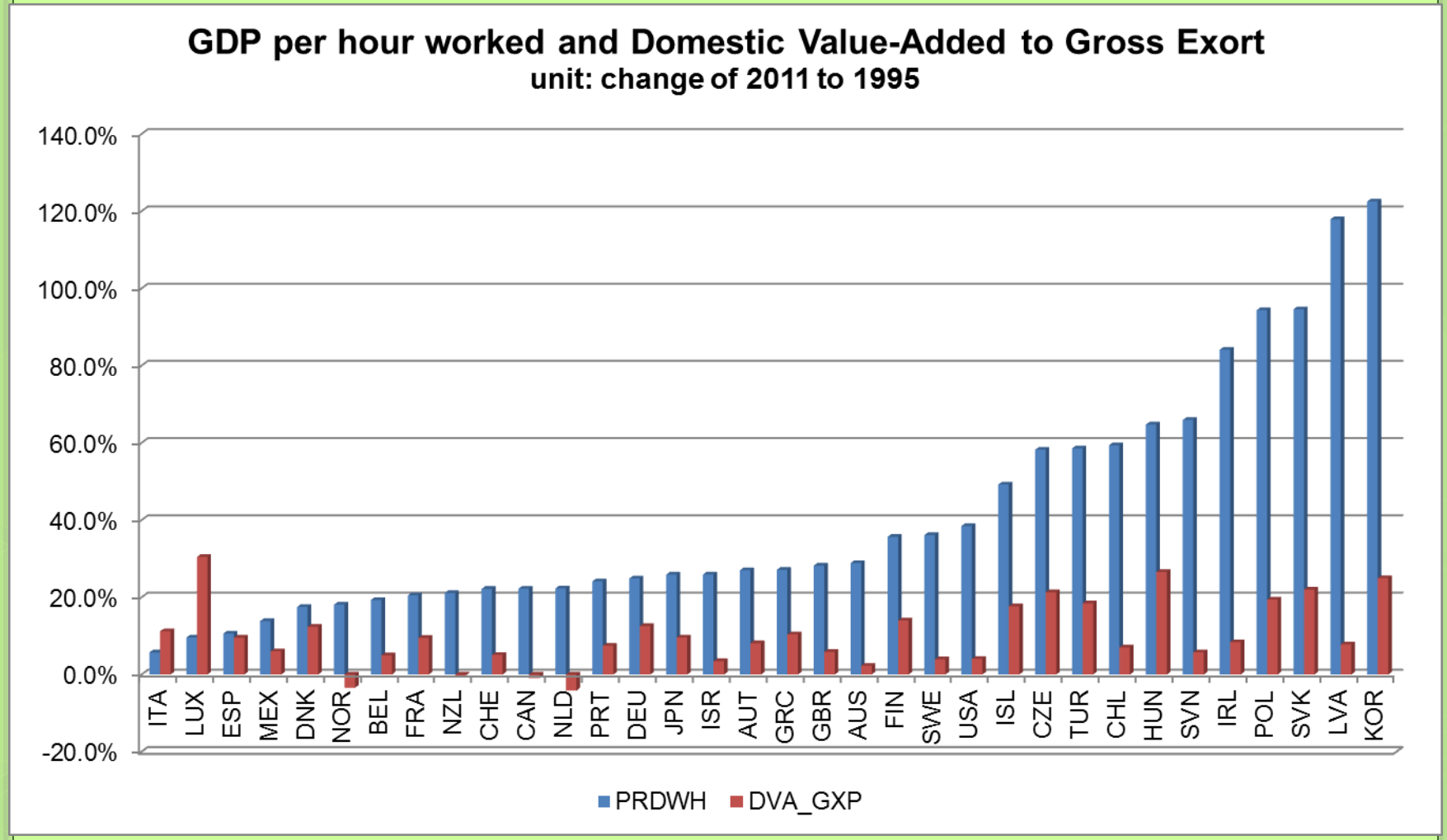
2011
2012
2013
2014
2015
2016
Japan
Germany
United States

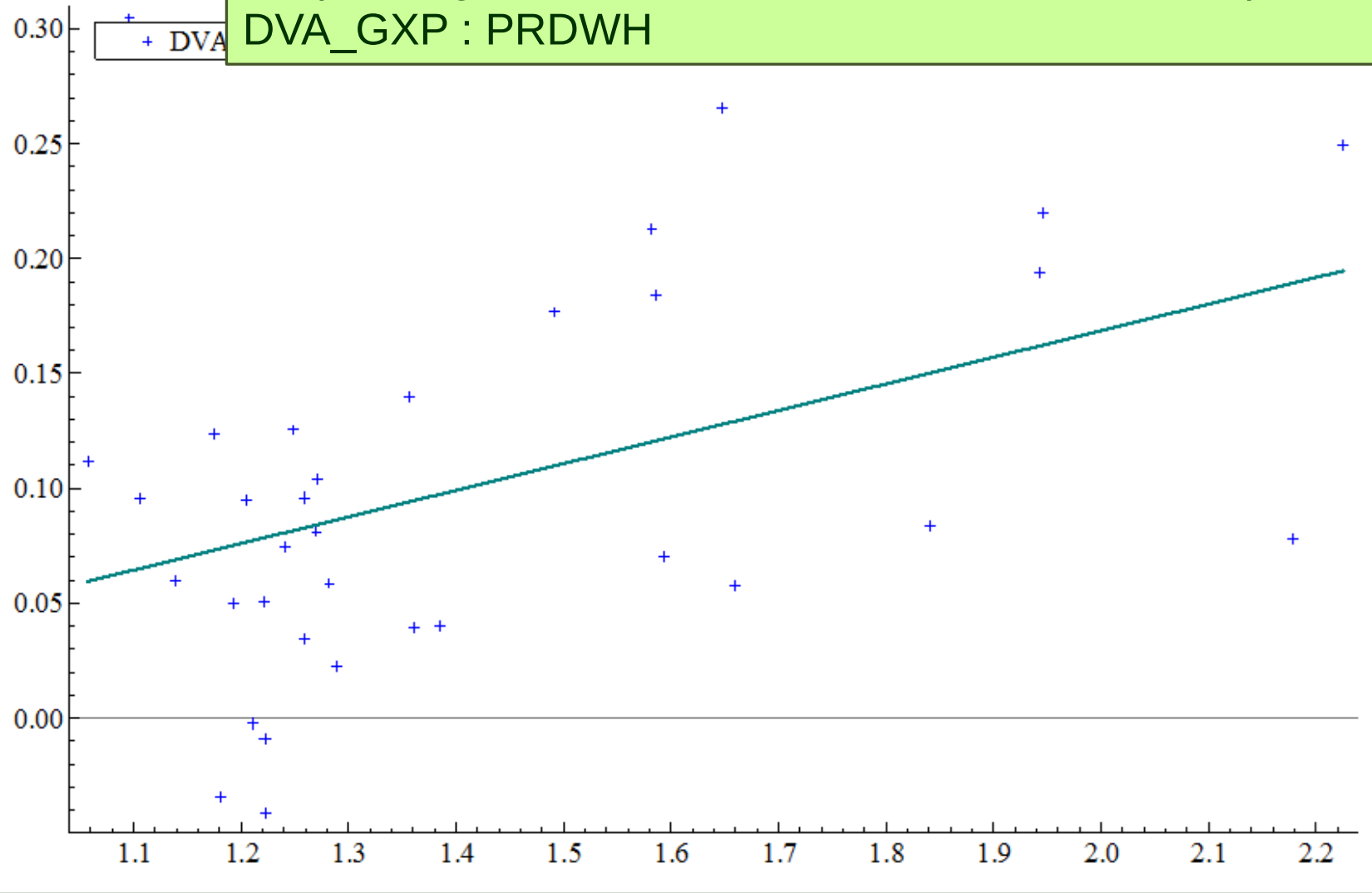

GVA per hour worked
150
140
130
120
110
100
90
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Japan
Germany
United States


GDP per hour worked, USD, current prices, current PPPs
GDP per hour worked, USD, current prio
90.0
60.0
30.0
0.0
96.4
91.8
82.3
72.1
69.7
68.3
67.6
66.6
66.3
65.6
61.8
60.5
60.4
58.8
56.5
54.5
53.6
52.7
52.5
51.3
51.0
50.8
Japan
41.5
41.1
40.8
39.1
38.6
36.0
34.9
34.6
33.8
33.0
31.9
Luxembourg
Ireland
Norway
Belgium
Denmark
United States
Netherlands
Germany
France
Switzerland
Austria
Sweden
G7
Euro area (19 countries
Finland
Australia
Italy
European Union (28 co
United Kingdom
Spain
OECD - Total
Canada
Iceland
Japan
New Zealand
Slovenia
Israel
Slovak Republic
Czech Republic
Turkey
Portugal
Greece
Hungary
Lithuania
Estonia
Korea
Focus
OFF
0 - 35 of 41 bars
Source: OECD, Level of GDP per capita and productivity


GDP per hour worked and Domestic Value-Added to Gross Exort
unit: change of 2011 to 1995
140.0%
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
-20.0%
ITA
LUX
ESP
MEX
DNK
NOR
BEL
FRA
NZL
CHE
CAN
NLD
PRT
DEU
JPN
ISR
AUT
GRC
GBR
AUS
FIN
SWE
USA
ISL
CZE
TUR
CHL
HUN
SVN
IRL
POL
SVK
LVA
KOR
PRDWH
DVA_GXP

Economies with Higher Productivity have not necessarily adopted higher Domestic Value-Added to Gross Export

DVA_GXP : PRDWH



Compared between countries, Productivity is not necessarily correlated to domestic value-added.

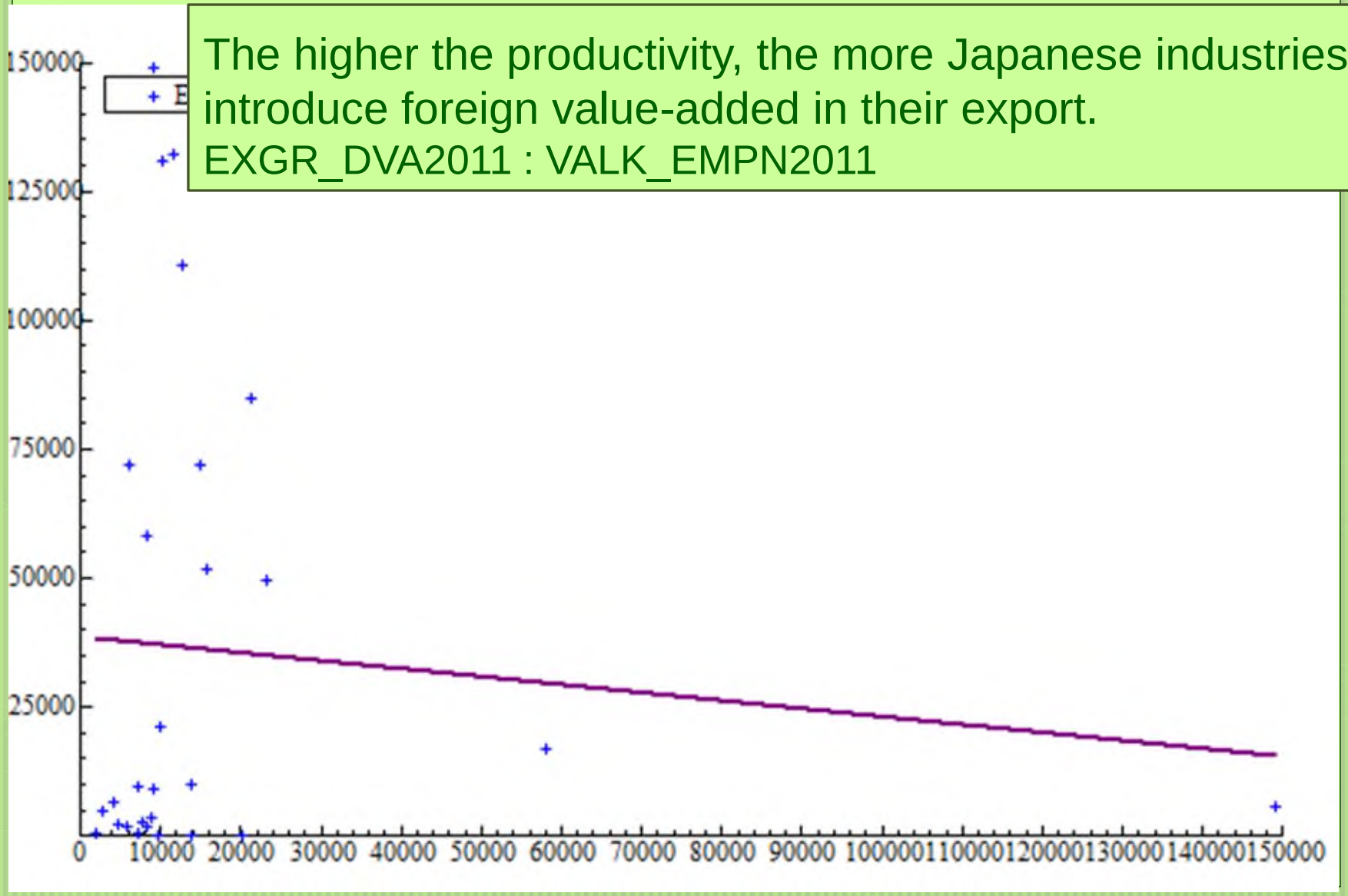
Method of estimation = Ordinary Least Squares

Dependent variable: PRDWH Number of observations: 34

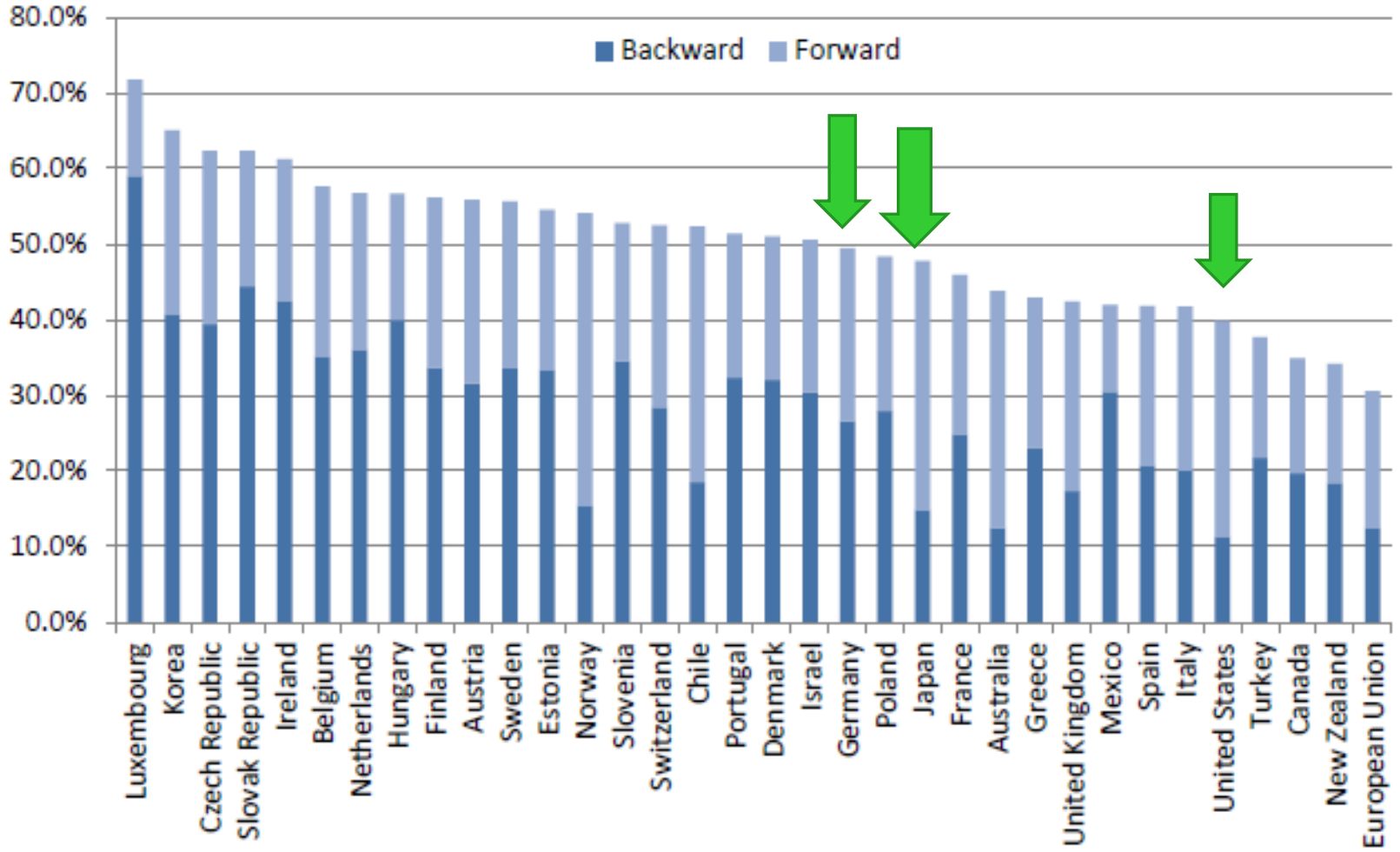
Mean of dep. var. = 1.41017	LM het. test = 4.40486 [.036]
Std. dev. of dep. var. = .308473	Durbin-Watson = 1.95361 [<.492]
Sum of squared residuals = 2.57624	Jarque-Bera test = 5.77631 [.056]
Variance of residuals = .080508	Ramsey's RESET2 = .180940 [.674]
Std. error of regression = .283739	F (zero slopes) = 7.00429 [.013]
R-squared = .179578	Schwarz B.I.C. = 7.90979
Adjusted R-squared = .153939	Log likelihood = -4.38343

Variable	Estimated Coefficient	Standard Error	t-statistic	P-value
C	1.25435	.076385	16.4214	[.000]
DVA_GXP	1.55227	.586521	2.64656	[.013]

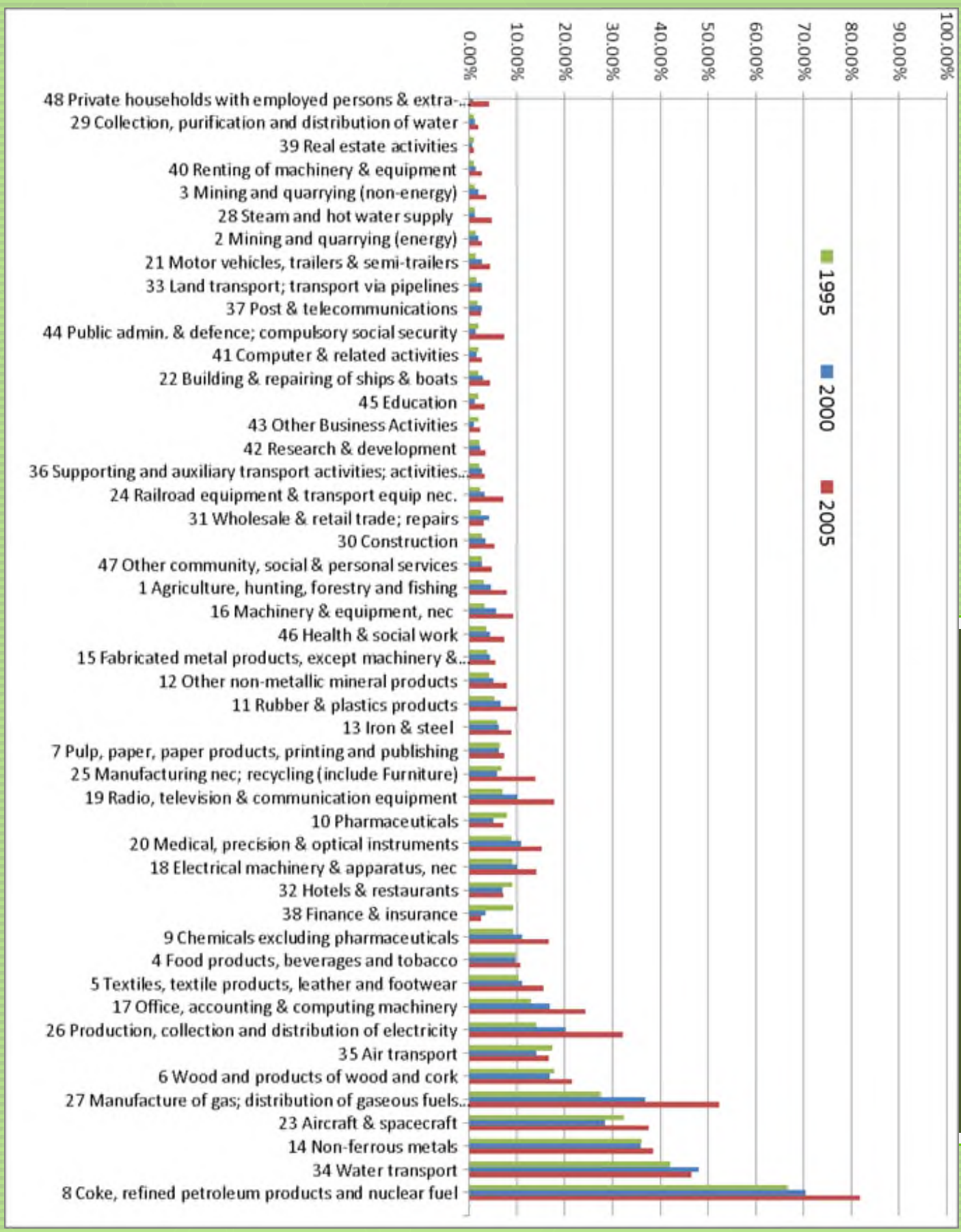
The higher the productivity, the more Japanese industries introduce foreign value-added in their export.
EXGR_DVA2011 : VALK_EMPN2011



Foreign inputs (backward participation) and domestically-produced inputs used in their countries' exports (forward participation), as a share of gross exports (%).



Source: Authors' calculations using the OECD ICIO model, May 2013 release.


0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%
70.00%
80.00%
90.00%
100.00%
1995
2000
2005
48 Private households with employed persons & extra-...
29 Collection, purification and distribution of water
39 Real estate activities
40 Renting of machinery & equipment
3 Mining and quarrying (non-energy)
28 Steam and hot water supply
2 Mining and quarrying (energy)
21 Motor vehicles, trailers & semi-trailers
33 Land transport; transport via pipelines
37 Post & telecommunications
44 Public admin. & defence; compulsory social security
41 Computer & related activities
22 Building & repairing of ships & boats
45 Education
43 Other Business Activities
42 Research & development
36 Supporting and auxiliary transport activities; activities...
24 Railroad equipment & transport equip nec.
31 Wholesale & retail trade; repairs
30 Construction
47 Other community, social & personal services
1 Agriculture, hunting, forestry and fishing
16 Machinery & equipment, nec
46 Health & social work
15 Fabricated metal products, except machinery &...
12 Other non-metallic mineral products
11 Rubber & plastics products
13 Iron & steel
7 Pulp, paper, paper products, printing and publishing
25 Manufacturing nec; recycling (include Furniture)
19 Radio, television & communication equipment
10 Pharmaceuticals
20 Medical, precision & optical instruments
18 Electrical machinery & apparatus, nec
32 Hotels & restaurants
38 Finance & insurance
9 Chemicals excluding pharmaceuticals
4 Food products, beverages and tobacco
5 Textiles, textile products, leather and footwear
17 Office, accounting & computing machinery
26 Production, collection and distribution of electricity
35 Air transport
6 Wood and products of wood and cork
27 Manufacture of gas; distribution of gaseous fuels...
23 Aircraft & spacecraft
14 Non-ferrous metals
34 Water transport
8 Coke, refined petroleum products and nuclear fuel

Thank you for listening