DECOUPLING OF WAGES FROM PRODUCTIVITY: MACRO FACTS AND MICRO MECHANISMS

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BETTER POLICIES FOR BETTER LIVES

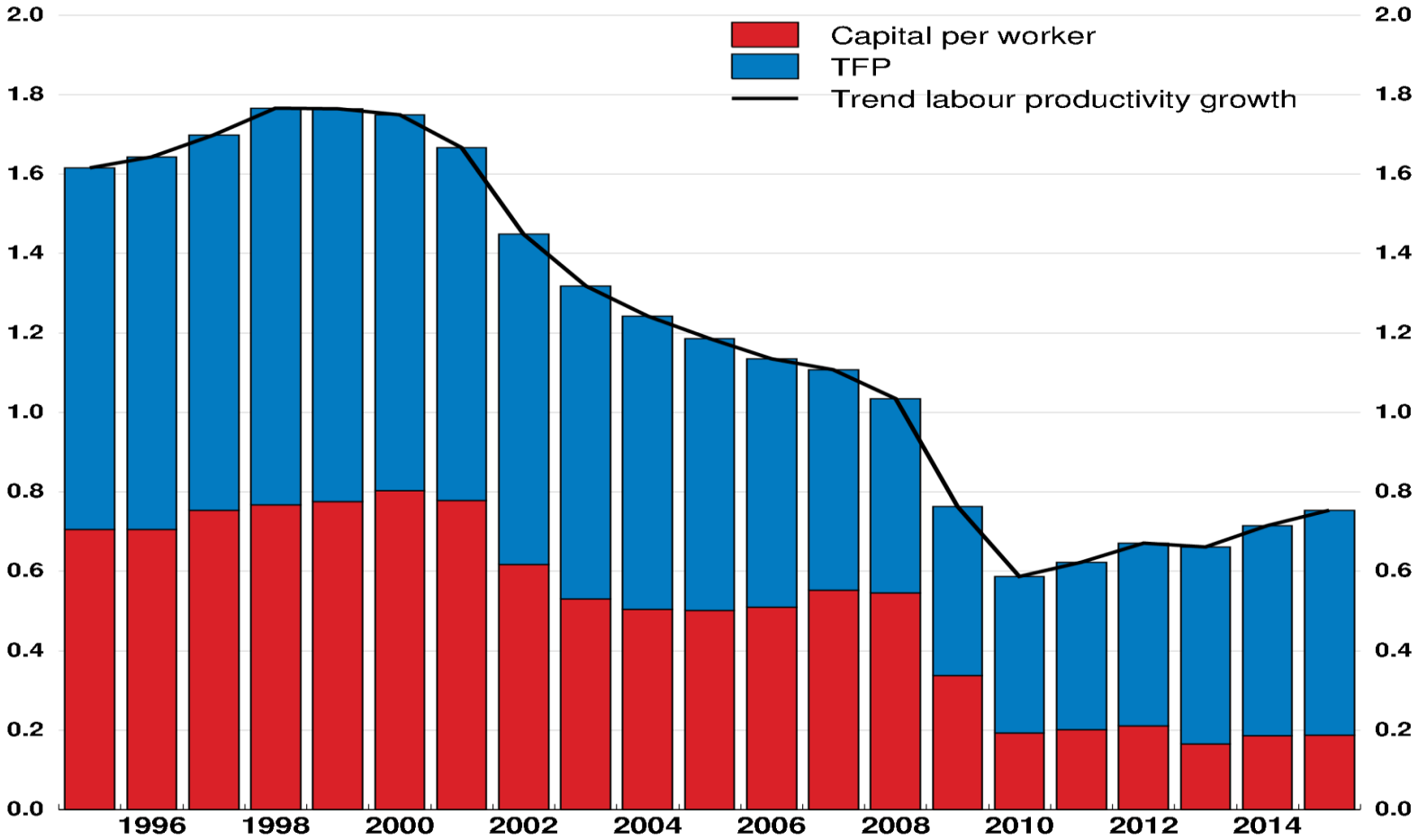
Overview

I. Macro facts
II. Micro mechanisms
III. Conclusion

MACRO FACTS

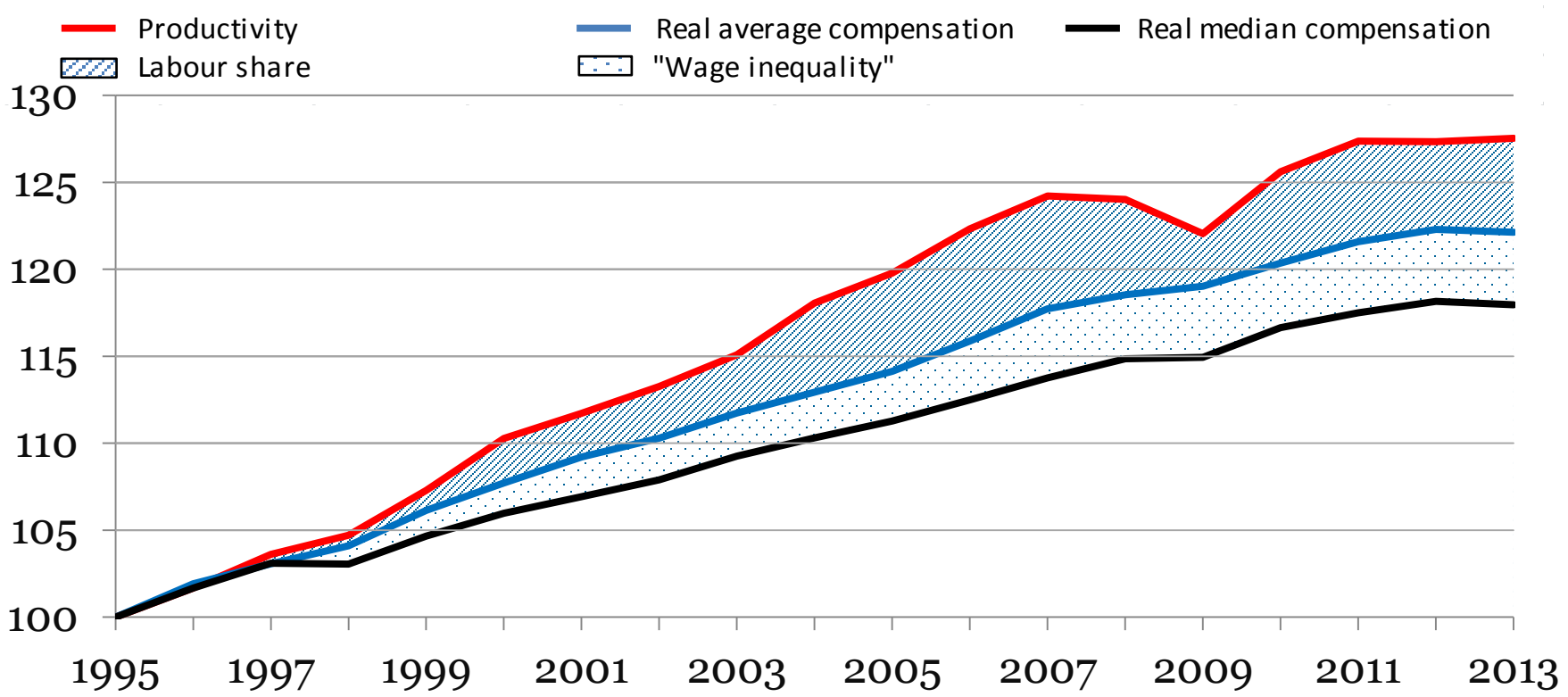
Labour productivity growth has slowed

Contributions to trend labour productivity growth in the OECD



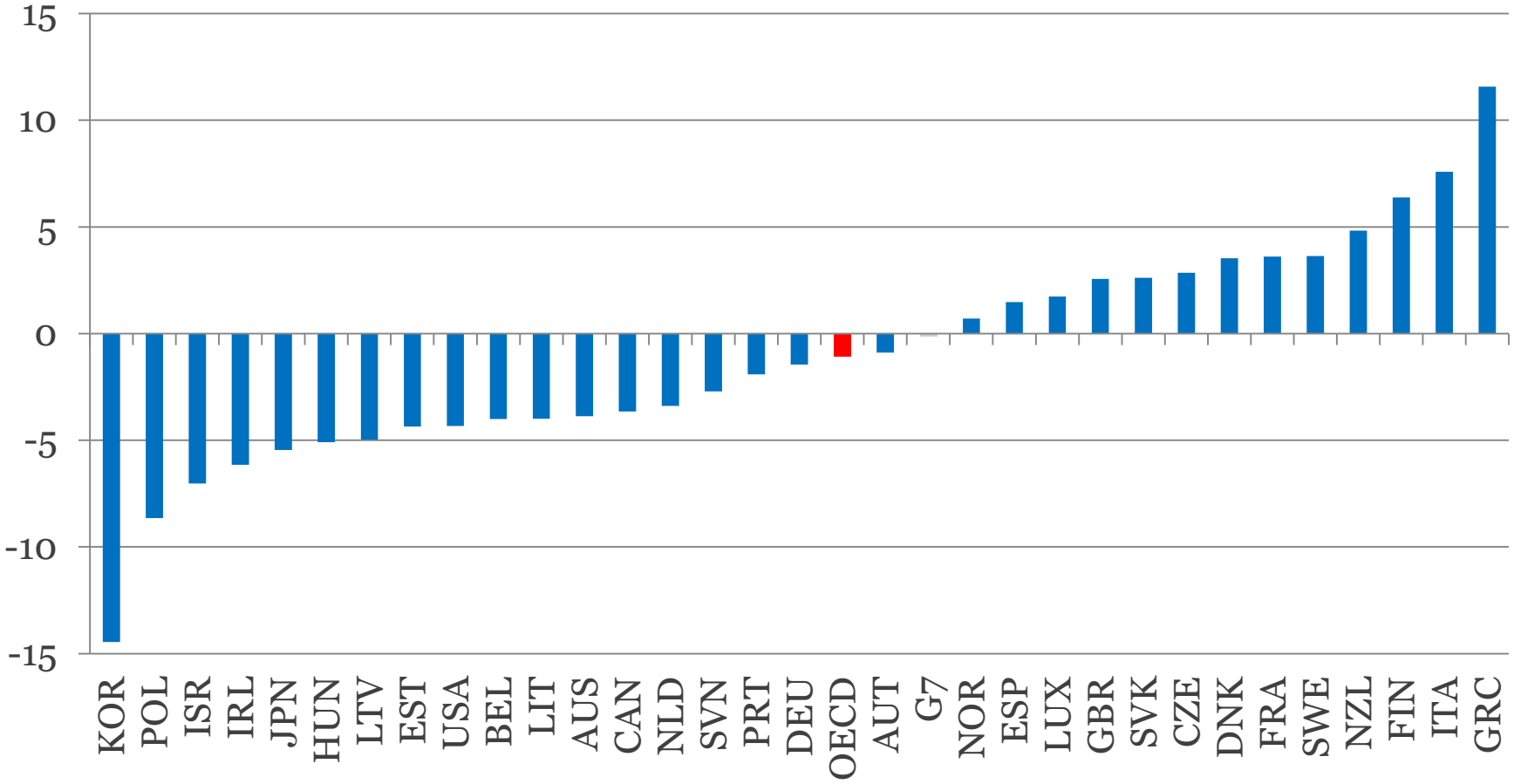
Source: OECD June 2016 Economic Outlook database; OECD calculations.

Low labour productivity gains do not fully trickle down to median wages



Note: Unweigthed average of 24 OECD countries. 1995-2013 for Austria, Belgium, Germany, Finland, Hungary, Japan, Korea, United Kingdom; 1995-2012 for Australia, Spain, France, Italy, Poland, Sweden; 1996-2013 for Czech Republic, Denmark; 1997-2012 for Canada, New Zealand; 1997-2013 for Norway, United States; 1998-2013 for Ireland; 1995-2010 for Netherlands; 2001-2011 for Israel; 2002-2013 for Slovak Republic. All series are deflated by the total economy value added price index.
Source: OECD National Accounts Database, OECD Earnings Database.

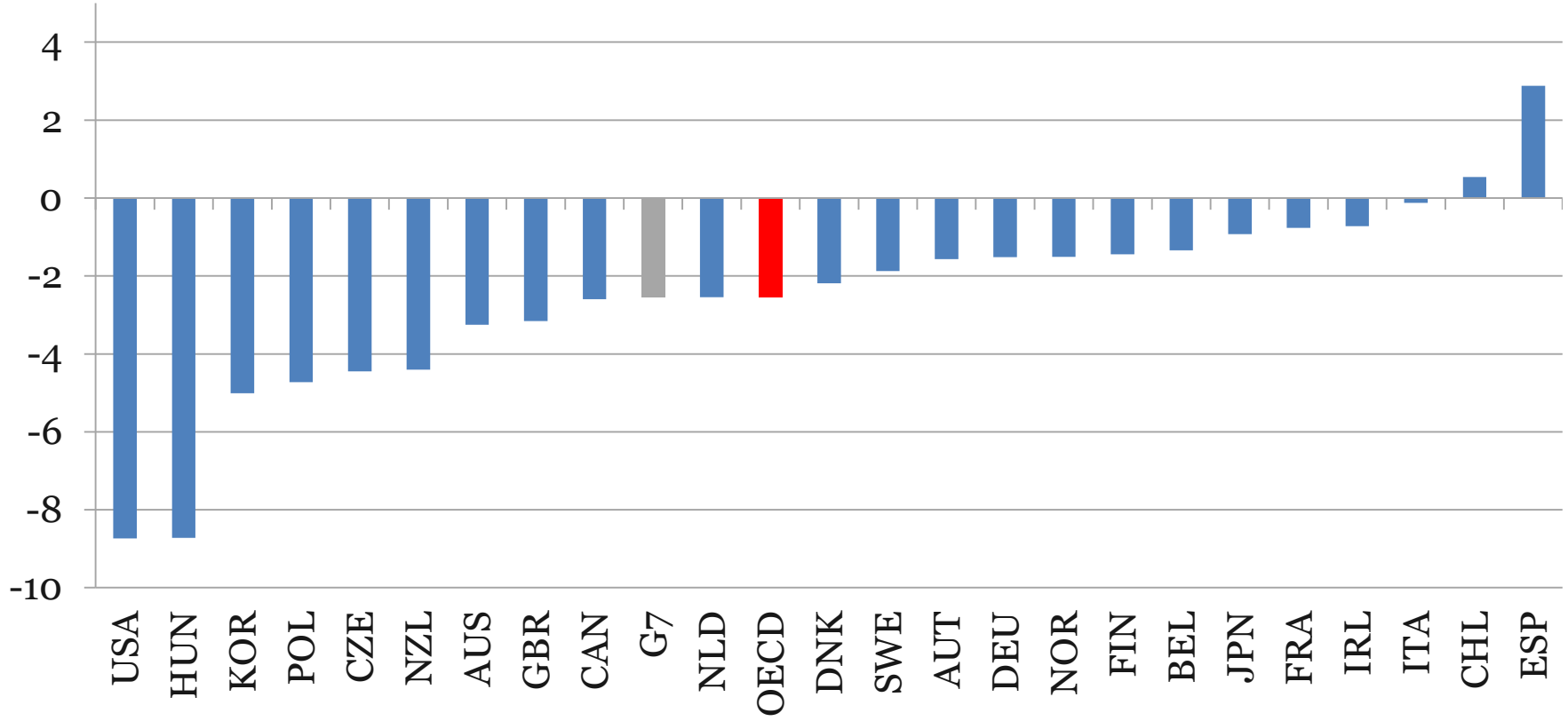
In a number of OECD countries, decoupling reflects declines in labour shares



Note: Excluding the primary, housing and non-market sectors. Three-year averages starting and ending in indicated years. OECD and G7 refer to unweighted averages for the relevant countries included in the Figure. 1996-2013 for Chile, Czech Republic, Denmark; 1995-2012 for Australia, Spain, France, Italy, Poland, Sweden; 1997-2013 for Norway, New Zealand; 1998-2013 for Canada; 1995-2010 for Netherlands.
Source: OECD Earnings Database.

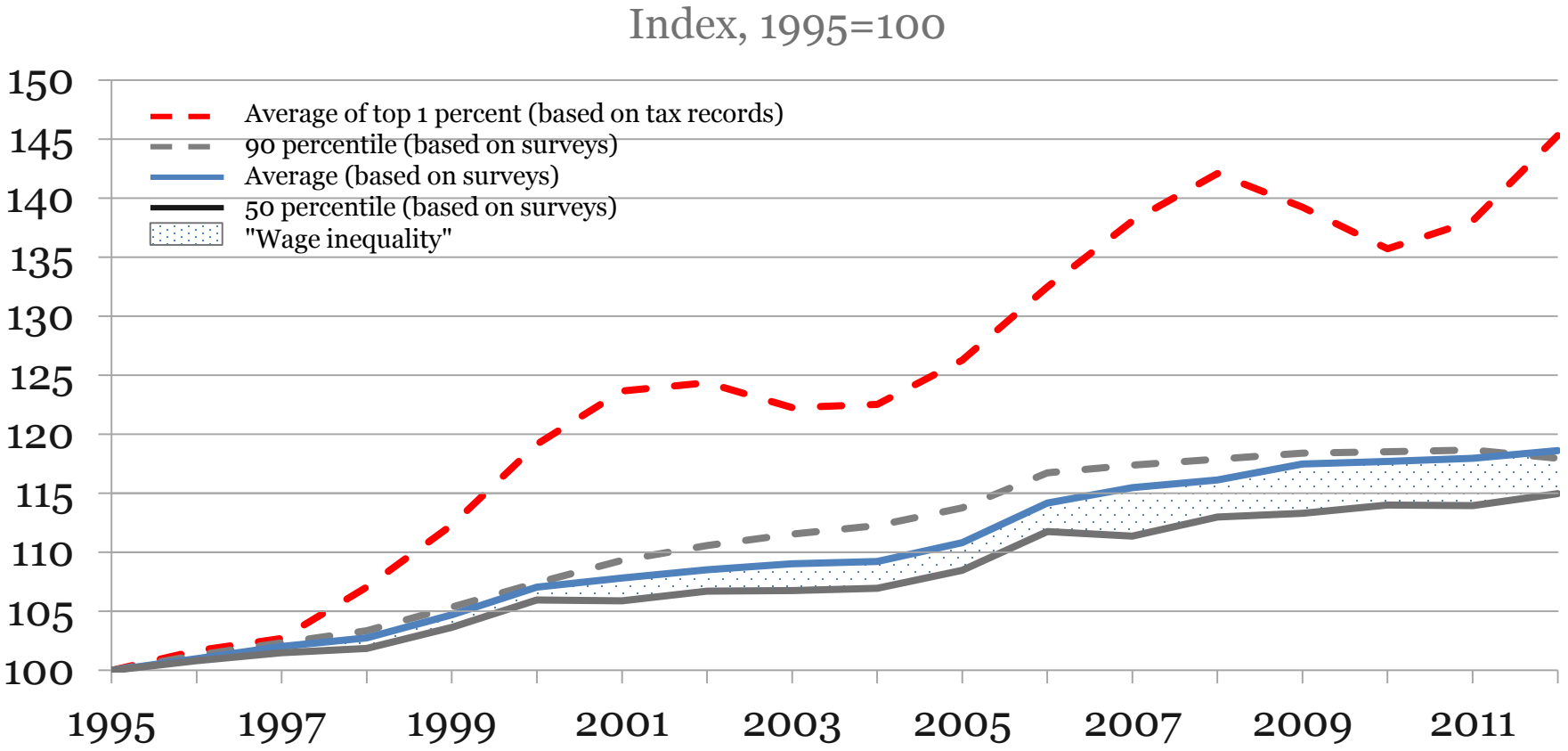
In a wide range of OECD countries, median wages have decoupled from average wages

Change in the ratio of median to average wages, percentage points, 1995-2013



Note: Three-year averages starting and ending in indicated years. OECD and G7 refer to unweighted averages for the relevant countries included in the Figure. 1996-2013 for Chile, Czech Republic, Denmark; 1995-2012 for Australia, Spain, France, Italy, Poland, Sweden; 1997-2013 for Norway, New Zealand; 1998-2013 for Canada; 1995-2010 for Netherlands.
Source: OECD Earnings Database.

Wages of the top 1% of income earners have diverged from the average and the median



Note: Indices based on unweighted average for nine OECD countries: Australia (1995-2010), Canada (1997-2000), Spain (1995-2012), France (1995-2006), Italy (1995-2009), Japan (1995-2010), Korea (1997-2012), Netherlands (1995-1999) and United States (1995-2012), for which data on wages of the top 1% of income earners are available. All series are deflated by the same total economy value added price index.

Source: OECD Earnings Database; World Wealth and Income Database.

Decoupling is associated with technological change and globalisation

Dependent variable	Labour compensation / Gross value added	Median wage / average wage
R&D ratio	- (**)	- (**)
Value added imports (high-income countries)	not significant	+ (**)
Value added imports (low-/middle-income ex. China)	- (***)	not significant
Value added imports (China)	- (**)	- (**)
Strictness of product market regulation	not significant	not significant
Union density	not significant	+ (***)
Collective bargaining coverage	not significant	not significant
Minimum wage ratio	not significant	not significant
Strictness of employment protection	not significant	- (*)
Output gap	YES	YES
Share of high-skilled in population	NO	YES
Country fixed effects	YES	YES
Year fixed effects	YES	YES

Notes: Based on the model $y_{it} = \beta_1 structrend_{it} + \beta_2 pol_{it} + \beta_3 z_{it} + \alpha_i + \alpha_t + \varepsilon_{it}$. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

MICRO MECHANISMS

Decoupling from a firm-level perspective

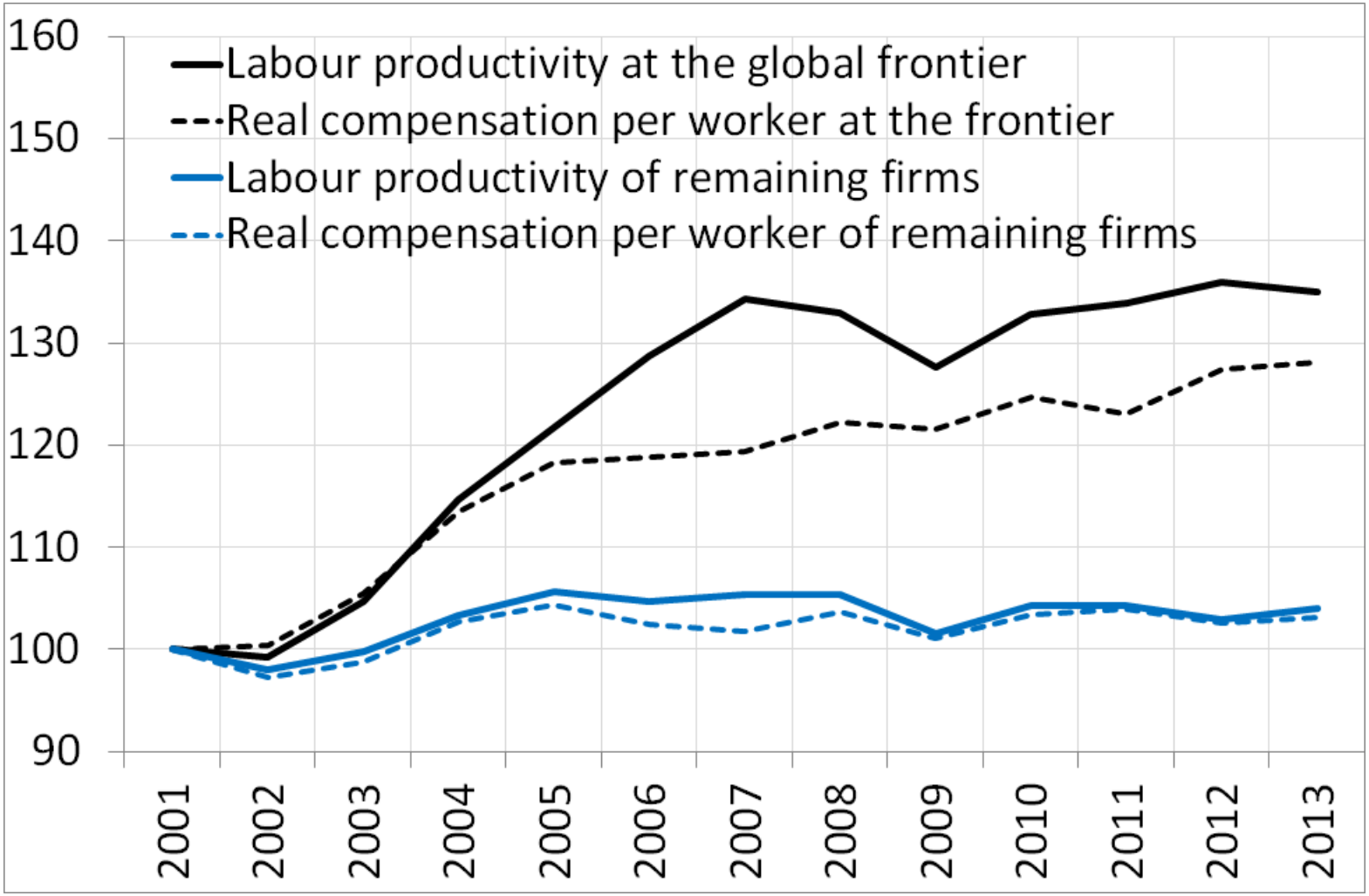
What is feasible w/ firm-level data?

- Labour share decline: degree of pass-through of productivity gains to workers
- Increase in wage inequality: partly explained by increases in cross-firm wage dispersion
- Cross-firm wage dispersion: link with cross-firm productivity dispersion

What is infeasible w/o linked employer-employee data?

- Pass-through of productivity gains to top executives vs other workers
- Role of assortative matching

Is wage divergence solely a productivity divergence story?



What explains the decline in the labour share of top firms?

	(1)	(2)	(3)	(4)
Dependent variable	Wage growth			
Sample	Total economy			
Productivity growth (firm)	0.55***	0.56***	0.56***	0.57***
	(0.02)	(0.02)	(0.02)	(0.02)
Productivity growth (sector)		0.21***		0.20***
		(0.03)		(0.03)
Productivity growth (firm) × frontier			-0.27***	-0.27***
			(0.01)	(0.01)
Productivity growth (sector) × frontier				0.15***
				(0.02)
Observations	1,804,837	1,804,837	1,687,603	1,687,603
Sector by country by year FE	YES	NO	YES	NO
Sector FE	NO	YES	NO	YES
Country by year FE	NO	YES	NO	YES
Adjusted R^2	0.51	0.49	0.50	0.49

Note: Based on the model $\Delta ln(w_{icst}) = \beta_1 \, \Delta ln(p^I_{icst}) + \beta_2 ln(p^S_{cst}) + a_{cst} + \varepsilon_{cst}$. Constituent terms included but not reported. Standard errors clustered by sector. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

What explains wage divergence?

In a perfectly competitive labour market

- Productivity divergence

Frictions in the labour market that hamper wage or employment adjustment

- Directly by affecting wage dispersion at a given level of productivity dispersion
- Indirectly by affecting productivity dispersion
- Indirectly by affecting the transmission of productivity dispersion to wage dispersion

What explains wage divergence?

In a perfectly competitive labour market

- Productivity divergence. Explains around 50%.

Labour market frictions that hamper wage or employment adjustment

- Directly by affecting wage dispersion at a given level of productivity dispersion. Insignificant.
- Indirectly by affecting productivity dispersion. Not analysed in this paper.
- Indirectly by affecting the transmission of productivity dispersion to wage dispersion.

The transmission of productivity divergence to wage divergence

Dependent variable	Long difference in wage dispersion
Interaction with long difference productivity dispersion of:	
Strictness of EPL	+ (**)
High minimum wages	- (*)
Strictness of PMR	not significant
Union density	not significant

Note: Based on the model $\Delta ln\left(\frac{w^F}{w^{NF}}\right)_{cst} = \beta_1 \Delta ln\left(\frac{p^F}{p^{NF}}\right)_{cst} + \beta_2 \Delta X_{ct} + \beta_3 X_{ct} + \beta_4 \Delta ln\left(\frac{p^F}{p^{NF}}\right)_{cst} \times X_{ct} + a_t + \varepsilon_{cst}$. Standard errors clustered by country. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

CONCLUSIONS

Summary

1. Some decoupling on average but significant cross-country heterogeneity
2. Increase in relative wages of top earners
3. Coincident with labour share decline of top firms and cross-firm wage divergence
4. Labour share decline of top firms consistent with increased market power
5. Cross-firm wage divergence overwhelmingly reflects cross-firm productivity divergence
6. Labour market frictions shape the transmission of productivity divergence to wage divergence

Thank you

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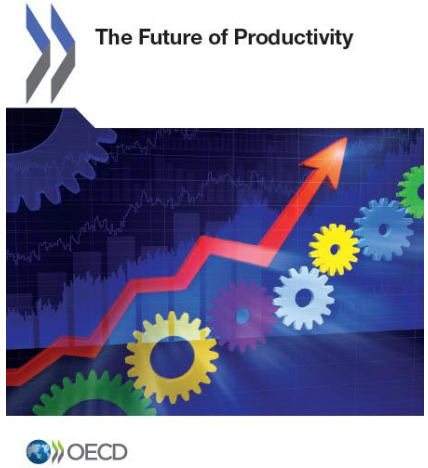
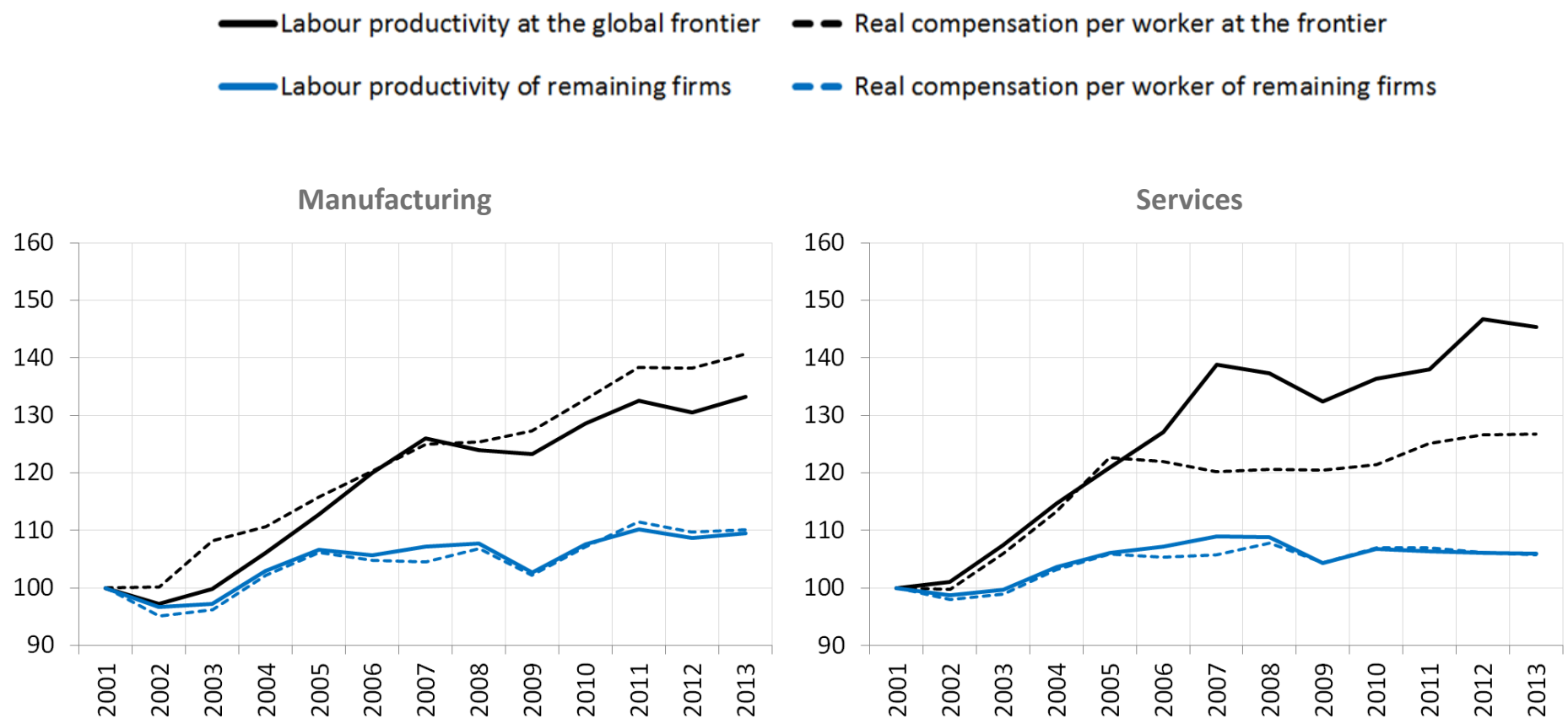
GLOBAL FORUM ON PRODUCTIVITY



OECD Global Forum on Productivity: http://oe.cd/GFP

Manufacturing or services?



Source: ORBIS, OECD calculations

Within-firm transmission of productivity shocks to wages: Setup

Baseline model: idiosyncratic shocks only

$$ln(w_{icst}) = \beta_1 ln(p^I_{icst}) + \alpha_i + \alpha_{cst} + \varepsilon_{icst}$$

$$\rightarrow \Delta ln(w_{icst}) = \beta'_1 \Delta ln(p^I_{icst}) + a'_{cst} + \varepsilon'_{cst}$$

Extended model: allow for sector-level shocks

$$\Delta ln(w_{icst}) = \beta''_1 \Delta ln(p^I_{icst}) + \beta_2 ln(p^S_{cst}) + a''_{cst} + \varepsilon''_{cst}$$

The link between wage and productivity divergence: Setup

Baseline model:

$$ln\left(\frac{w^F}{w^{NF}}\right)_{cst} = \beta_1 ln\left(\frac{p^F}{p^{NF}}\right)_{cst} + a_{cs} + a_t + \varepsilon_{cst}$$

$$\rightarrow \Delta ln\left(\frac{w^F}{w^{NF}}\right)_{cst} = \beta_1 \Delta ln\left(\frac{p^F}{p^{NF}}\right)_{cst} + a_t + \varepsilon_{cst}$$

Extended model: allow for labour market frictions (X_{ct})

$$\Delta ln\left(\frac{w^F}{w^{NF}}\right)_{cst} = \beta_1 \Delta ln\left(\frac{p^F}{p^{NF}}\right)_{cst} + \beta_2 \Delta X_{ct} + \beta_3 X_{ct} + \beta_4 \Delta ln\left(\frac{p^F}{p^{NF}}\right)_{cst} \times X_{ct} + a_t + \varepsilon_{cst}$$

Frontier vs non-frontier firms 2001-2013

	Manufacturing					
	Non-frontier firms			Frontier firms		
Variables	Mean	St.dev.	N	Mean	St.dev.	N
Labour productivity	57,643	29,662	496,528	205,925	837,982	25,428
MFP	55,052	131,153	496,528	177,508	524,516	25,428
Real wage per worker	38,024	18,296	496,528	75,202	497,001	25,428
Labour share (%)	68.72	17.77	496,528	39.48	17	25,428
Number of employees	267	4,390	496,528	598	7,868	25,428
Real value added (PPP)	2.23E+07	5.08E+08	496,528	1.08E+08	1.21E+09	25,428

	Services					
	Non-frontier firms			Frontier firms		
Variables	Mean	St.dev.	N	Mean	St.dev.	N
Labour productivity	51,980	36,065	706,917	340,002	1,646,207	35,526
MFP	53,448	47,190	706,917	218,544	545,385	35,526
Real wage per worker	34,836	18,818	706,917	93,819	620,244	35,526
Labour share (%)	73.15	17.37	706,917	41.55	23.67	35,526
Number of employees	561	7,171	706,917	447	3,618	35,526
Real value added (PPP)	3.05E+07	4.38E+08	706,917	1.13E+08	9.40E+08	35,526