



ECFIN Structural Reforms Workshop
Inequality and Structural Reforms
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EVIDENCE ON THE INCOME
DISTRIBUTION EFFECTS OF PRODUCT
AND LABOUR MARKET REFORMS

Alain de Serres

OECD | Economics Department (ECO)

Head of Structural Policies Surveillance Division



Main findings / messages (In search of robustness)

Impact of pro-competition product market reforms, technological progress and trade are difficult to disentangle as they can reinforce each other in various ways

- Only technology/innovation is found to impact on HH disposable income inequality
- A significant impact of trade on wage dispersion is found only in specific cases

More synergies and trade-offs are found in the case of labour market reforms, especially if focus is at the lower-end of the distribution

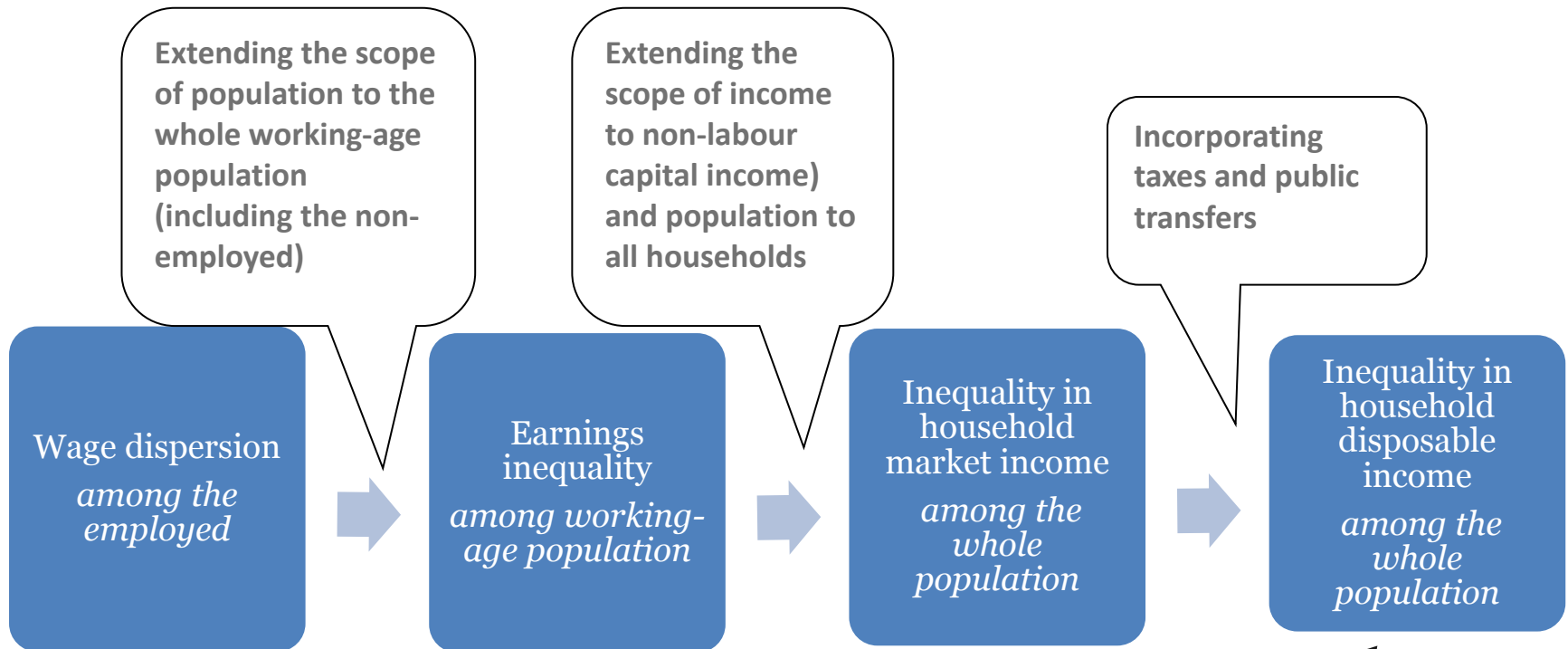
- LM regulation induces offsetting effects between wage dispersion and employment
- LM institutions favourable to employment also good for wage and income inequality
- Lower tax wedges raise both employment and inequality; opposite for family benefits

There is little evidence of adverse inequality effects of competition at the macro level

- No evidence of adverse employment impact even in industries directly affected by the reform but workers see reduced wage premium and higher risk of losing jobs



The impact of policies may vary across measures of income and population covered



Most empirical evidence relates to measures at the two ends of the chain

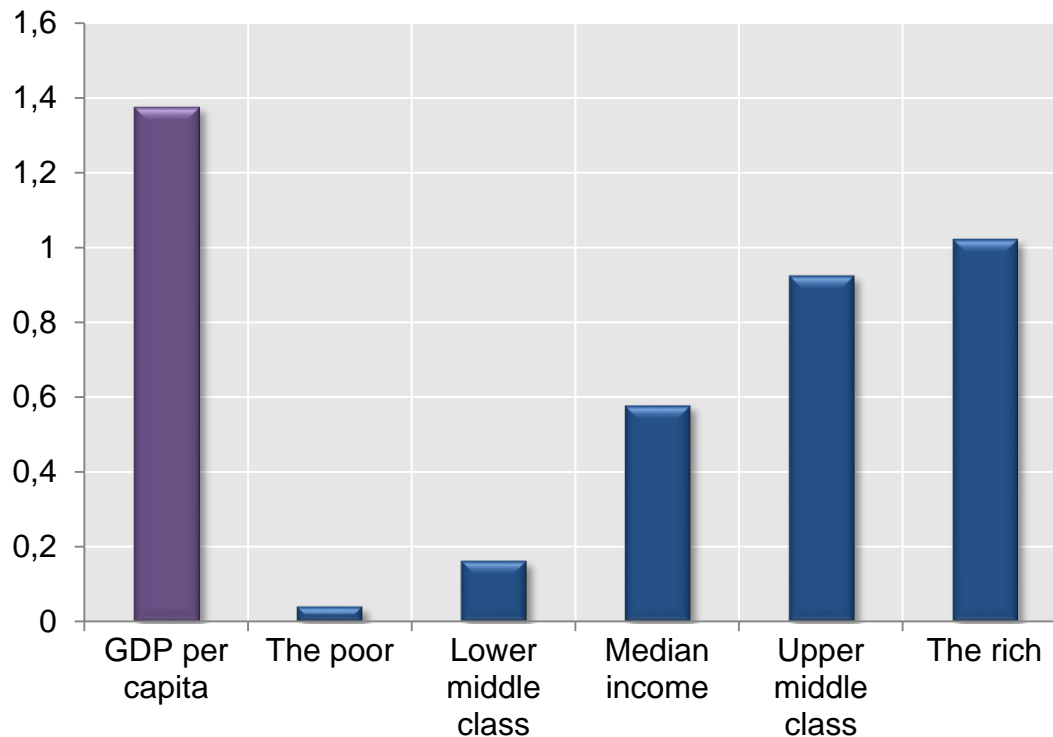


Growth has on average been associated with rising income inequality

Gains in disposable income have been stronger in the upper-half of the distribution

Average annual growth of GDP per capita and household disposable income (1995-2011)

Weighted average over 26 OECD countries



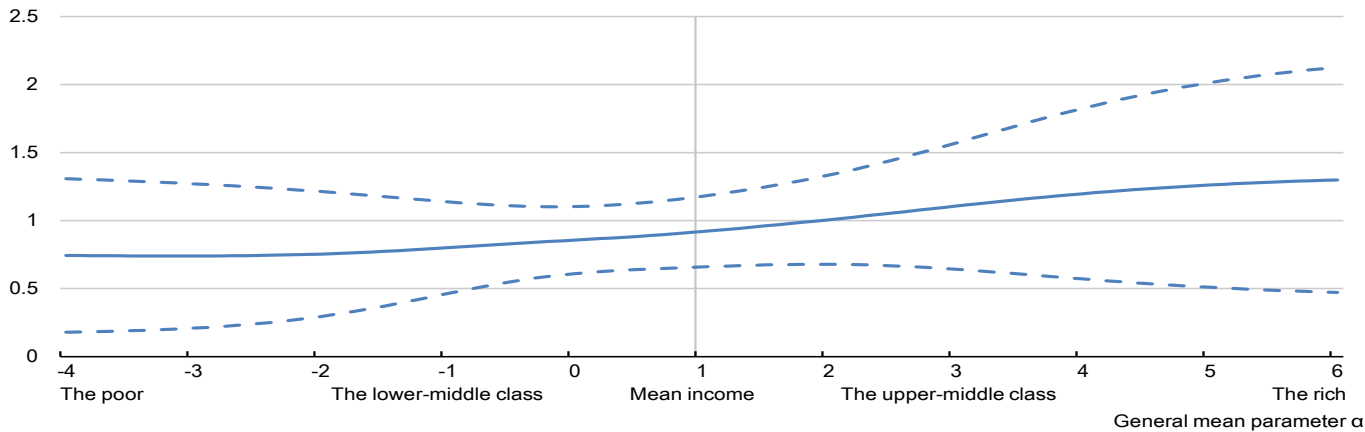
Relevant question is whether some of the forces driving GDP growth -- including policy changes -- may have also fuelled inequalities.

If so, which ones matter most?



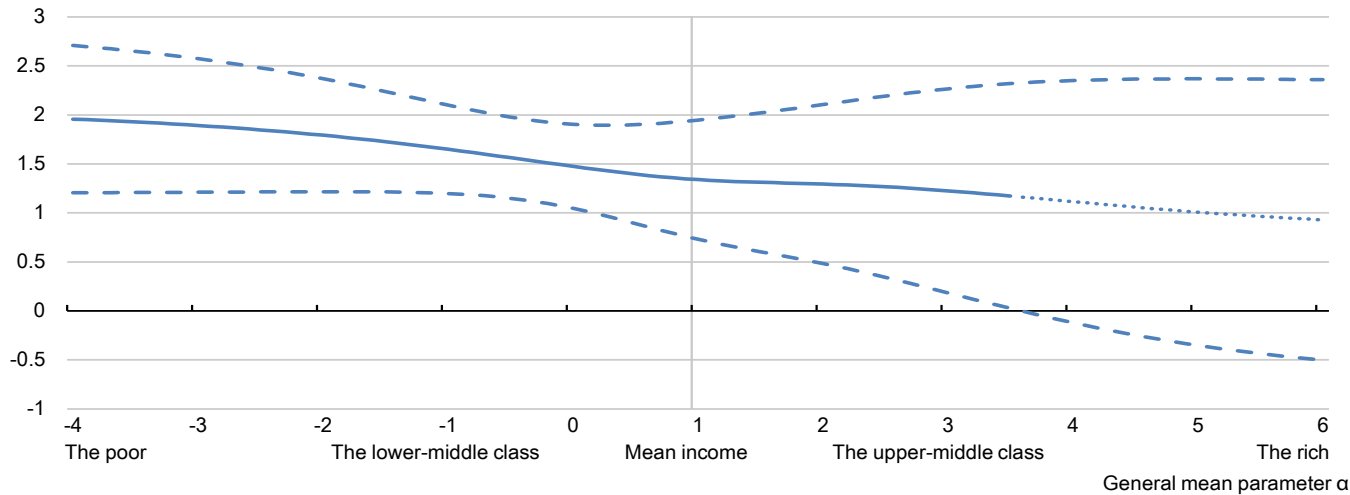
The contrasting impact of productivity and employment on HHDI distribution

Effect on HHDI at different points of the distribution of an increase in productivity



Higher productivity has been associated with growing inequality

Effect on HHDI at different points of the distribution of an increase in employment



The opposite has been observed in the case of stronger employment



Policy synergies and trade-offs between growth and income distribution

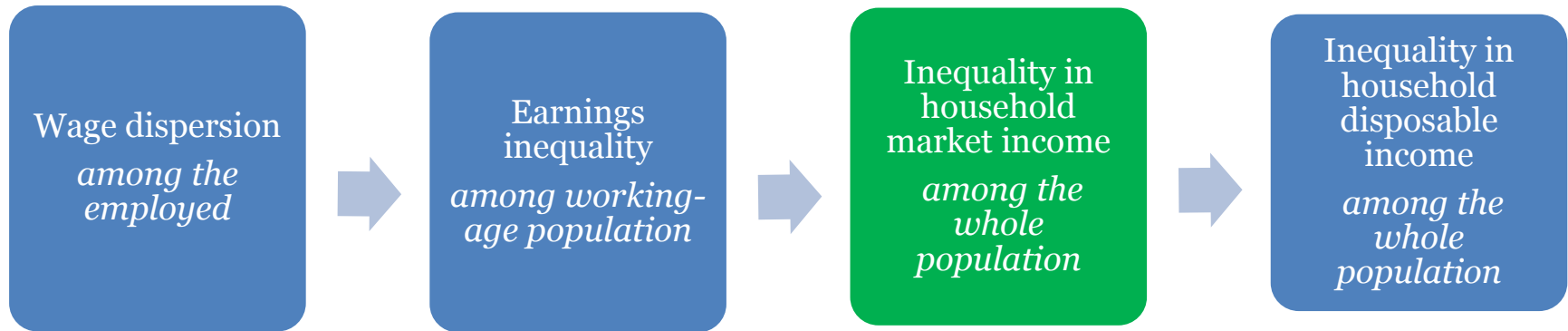
Structural reforms	Effect on equity objectives	
	Under weak inequality aversion (1)	Under strong inequality aversion (2)
Labour market and welfare policies		
Reducing UB replacement rates for all unemployed	Bad	Bad
Increasing spending on ALMPs	Good	Neutral
Increasing the legal retirement age	Neutral	Good
Increasing public spending on families with children (in kind family benefits)	Neutral	Good
Reducing the legal extension of collective agreements	Neutral	Good
Encouraging a higher degree of wage bargaining coordination	Neutral	Good
Reducing minimum relative to median wage	Neutral	Neutral
Tax policy		
Lowering labour tax wedges (unfinanced)	Neutral	Bad
Education		
Increasing public spending on education	Neutral	Good
Innovation and Technology		
Increasing incentives for R&D spending	Neutral	Neutral
Increasing incentives for patent application	Neutral	Bad
Product market regulation		
Reducing barriers to competition	Neutral	Neutral

More trade-offs and synergies are found at the bottom of the distribution than around the middle

None of the standard measures of globalisation turned out significant



The evidence on measures of incomes before taxes and transfers



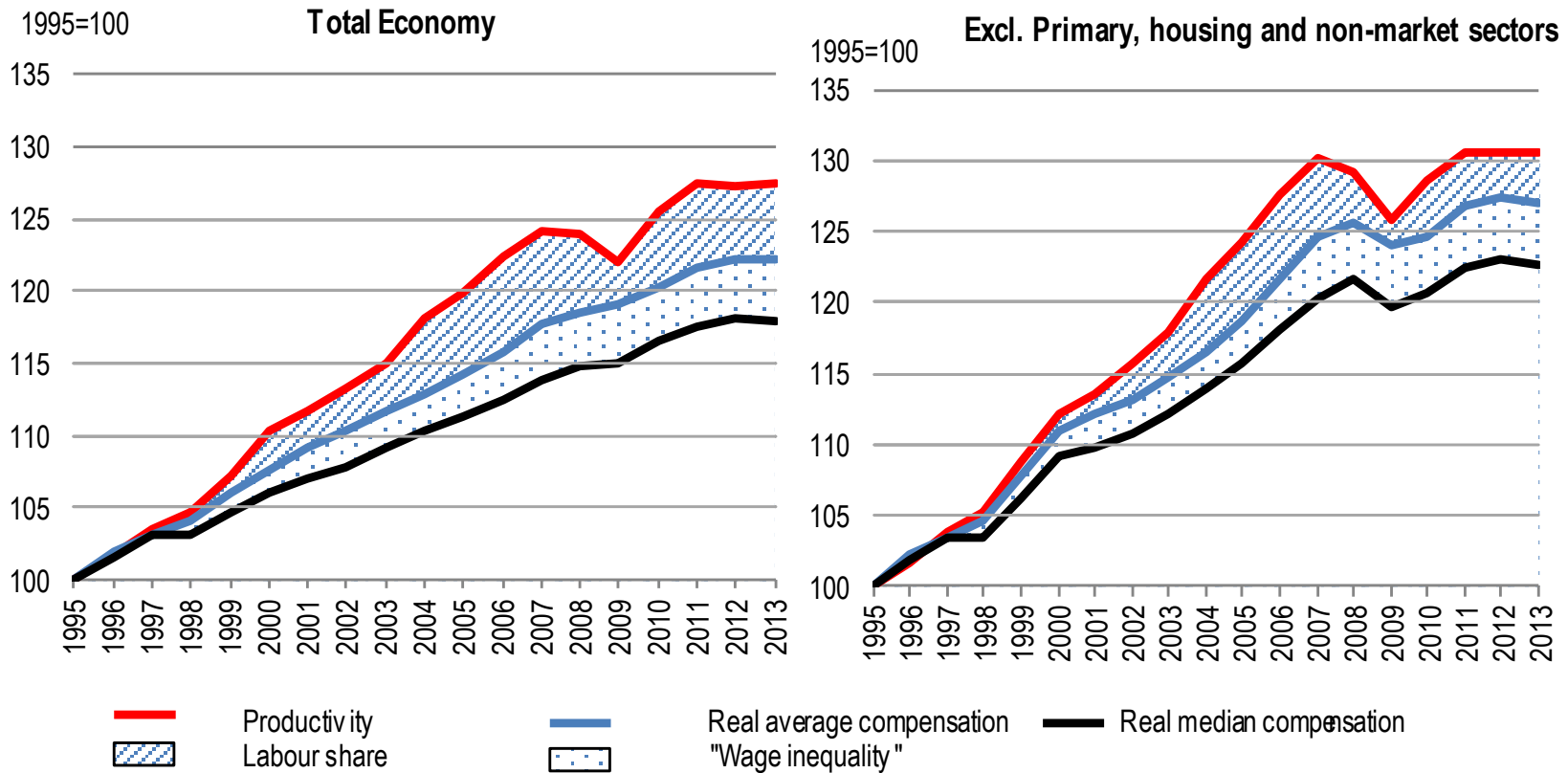
Growing market income inequality can be decomposed in 3 sources:

- Widening dispersion of labour income
- Widening dispersion of capital income
- Shift from labour to capital income share



Growing market income inequality reflects both falling wage share and wage dispersion

Un-weighted average across 24 OECD countries, 1995-2013





The labour share: both technology and trade are found to have an impact

The association between labour shares and their possible determinants (1995-2013)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable	Business labour share excluding housing and primary sectors									
R&D ratio	-5.78** (2.04)									0.42 (1.63)
Value added imports (high-income countries)		-0.15 (0.12)								
Value added imports (low-/middle-income ex. China)			-0.35*** (0.08)							
Value added imports (China)				-2.97** (0.89)						-3.34*** (0.88)
Strictness of product market regulation					0.00 (0.00)					
Union density						-0.01 (0.02)				
Collective bargaining coverage							-0.01 (0.02)			
Minimum wage ratio								-0.05 (0.05)		
Strictness of employment protection									-0.00 (0.00)	
Output gap	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Share of high-skilled in population	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	386	455	455	455	498	507	490	336	463	338
Number of countries	29	29	29	29	29	29	29	22	29	29
Adjusted R ²	0.91	0.90	0.90	0.91	0.90	0.90	0.90	0.92	0.90	0.93
Within R ²	0.20	0.13	0.14	0.20	0.11	0.11	0.14	0.17	0.09	0.28

But the origin of imports matters

No direct impact from product or labour market policies



Wage dispersion around the middle: A broadly similar picture

The association between wage inequality and their possible determinants (1995-2013)

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Ratio of median to average wages									
R&D ratio	-1.24** (0.35)									-0.64 (0.47)
Value added imports (high-income countries)		0.14** (0.04)								
Value added imports (low-/middle-income ex. China)			0.04 (0.11)							
Value added imports (China)				-0.62** (0.20)						-0.73** (0.25)
Strictness of product market regulation					0.00 (0.00)					
Union density						0.12*** (0.02)				
Collective bargaining coverage							-0.00 (0.02)			
Minimum wage ratio								-0.01 (0.02)		
Strictness of employment protection									-0.01* (0.00)	
Output gap	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Share of high-skilled in population	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	339	412	412	412	439	454	439	270	411	306
Number of countries	25	26	26	26	26	26	26	18	25	25
Adjusted R ²	0.94	0.97	0.97	0.97	0.97	0.96	0.96	0.92	0.93	0.94
Within R ²	0.36	0.37	0.36	0.37	0.34	0.40	0.35	0.41	0.41	0.37

A more mixed picture on trade

Some LM policies have an impact

Source: Schwelnus, Kappeler and Pionnier, 2017



Taking stock: the impact of product market drivers and policies on income distribution

A pro-growth change in:	Wage dispersion	Labour share	HHDI dispersion
Technology		BAD	
ICT intensity	+		
Trend R&D intensity	+	-	
Patent applications			+
Globalisation		NEUTRAL / BAD	
Trade integration / openness	=	=	
Trade in VA with EMEs	+	-	
FDI openness (index)	-		
Product market competition		NEUTRAL (with caveats)	
Regulatory barriers to entry	+	=	=
Education / Human capital		GOOD	
High-to-low skill ratio	-		
Public spending on education			-

Evidence on the adverse impact of **technology** is pretty consistent across

More difficult to find consistent evidence on the impact of **trade** but more disaggregated measures point to some effects on wages

Very patchy evidence of adverse effect of pro-**competition** regulatory reforms



Taking stock: the impact of labour market policies on income distribution

<i>A pro-employment change in:</i>	Wage dispersion	Labour share	HHDI dispersion
LM Policies: regulation	BAD / NEUTRAL		
Easing EPL (overall protection)	+	=	=
(Lower) minimum wage	+	=	=
LM Policies: taxes and transfers	GOOD and BAD (depends on policy)		
Lower UI benefit RR			+
Higher ALMPs			-
Lower tax wedges	+		+
Higher family benefits (in-kind)	-		-
Higher legal retirement age			-
LM Policies: institutions	(MOSTLY) GOOD		
(lower) union density	+	=	
Lower legal extension of col. ag.			-
Stronger wage coordination	-	=	-

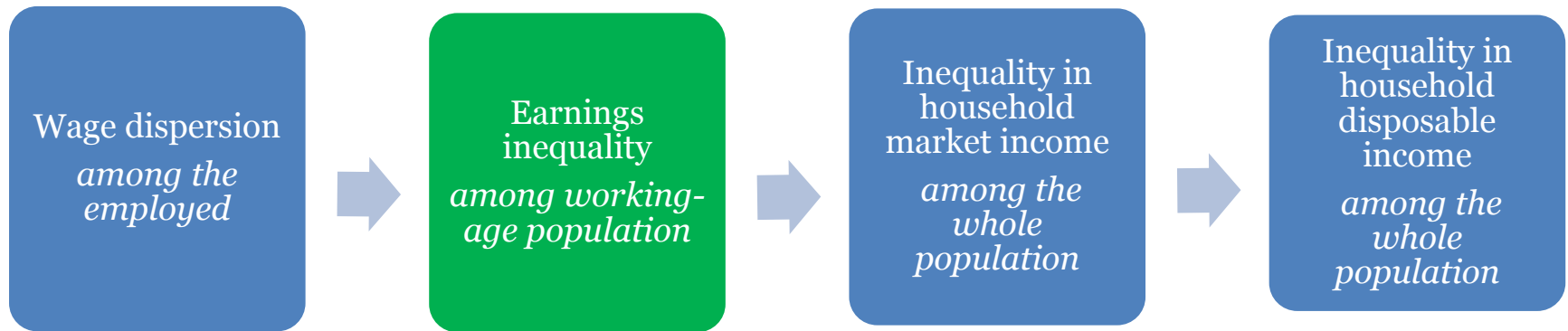
Evidence of adverse effect of LM **regulation** is limited to wage dispersion

More consistent results across for **taxes and transfers** policies, at least for tax wedges and family benefits

Also more consistency in the case of **bargaining institutions**: arrangements favourable to employment also tend to reduce inequality.



Some of the inconsistencies can be explained by the impact on employment



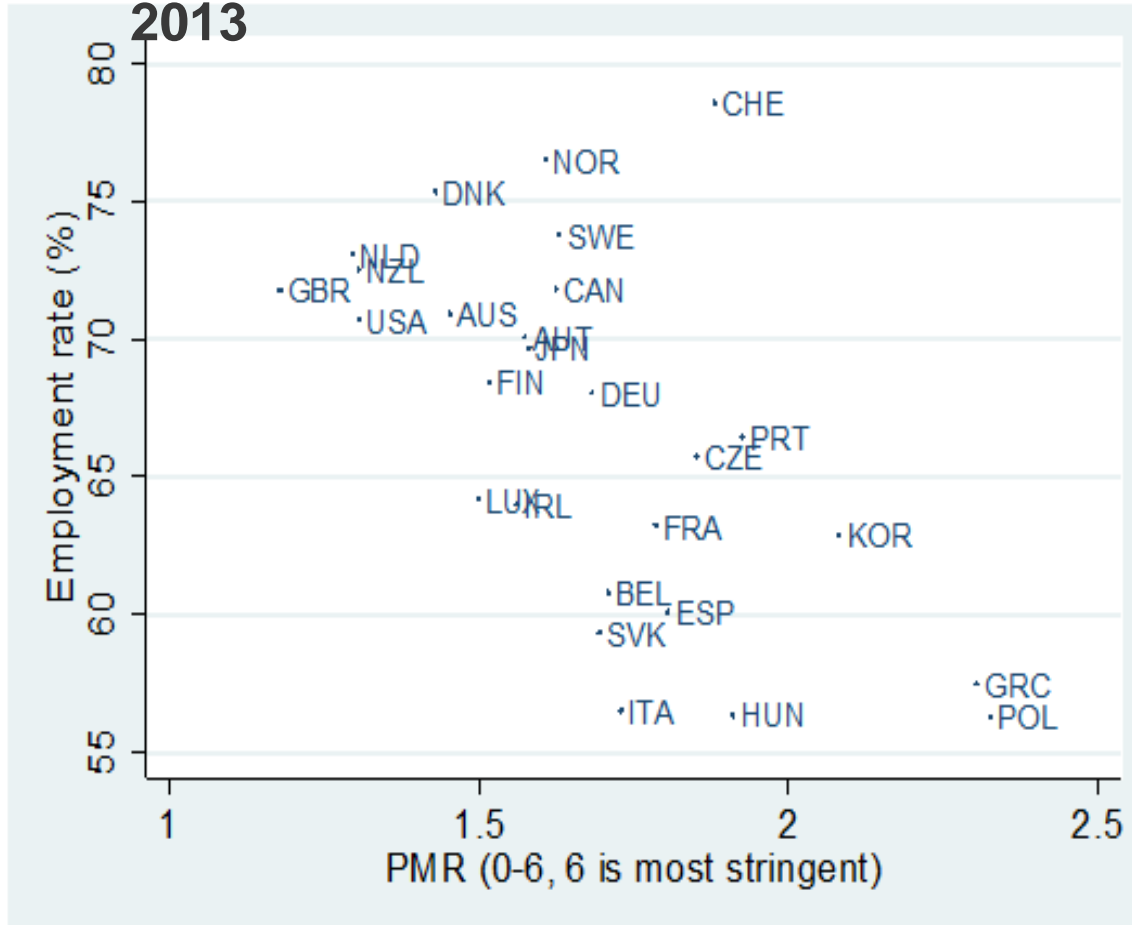
One important difference between wage dispersion among people employed and earnings inequality across the working-age population is the impact of the reforms on employment

One example is the effect of pro-competition PM reforms



Competition-friendly regulations are associated with more employment

Average values between 1998 and 2013



The negative relationship among advanced economies is visible from a simple scatterplot

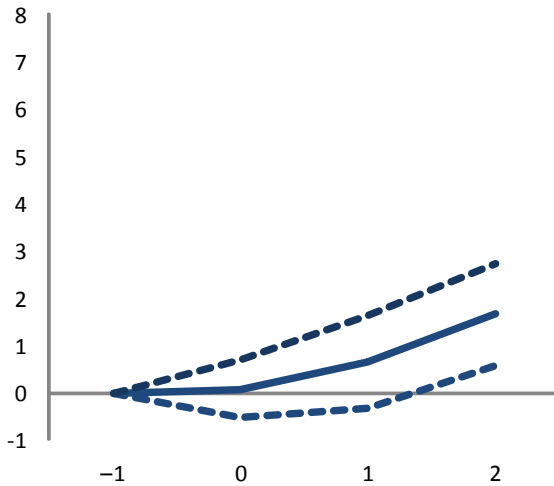
Employment rates defined as total employed over population aged 15-64. Annual Labour Force Statistics



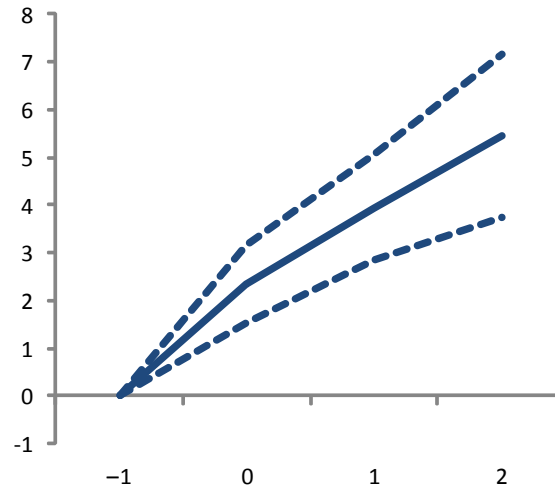
No short-term employment effect following pro-competition reforms in specific industries

Percentage change in the outcome variable of interest in years after the reform due to a major reduction in the overall restrictiveness of PMR

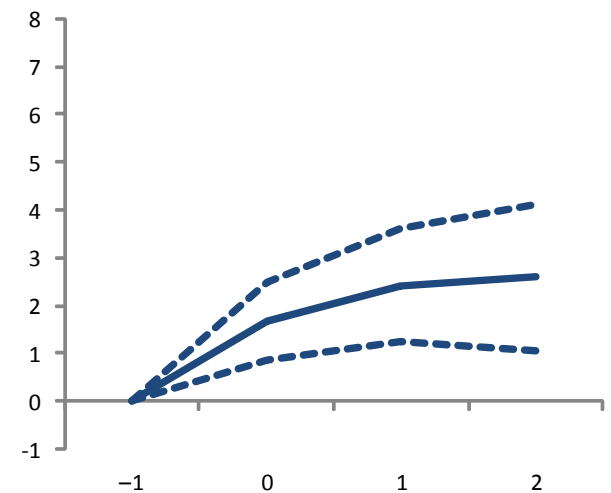
Employment



Capital



Output

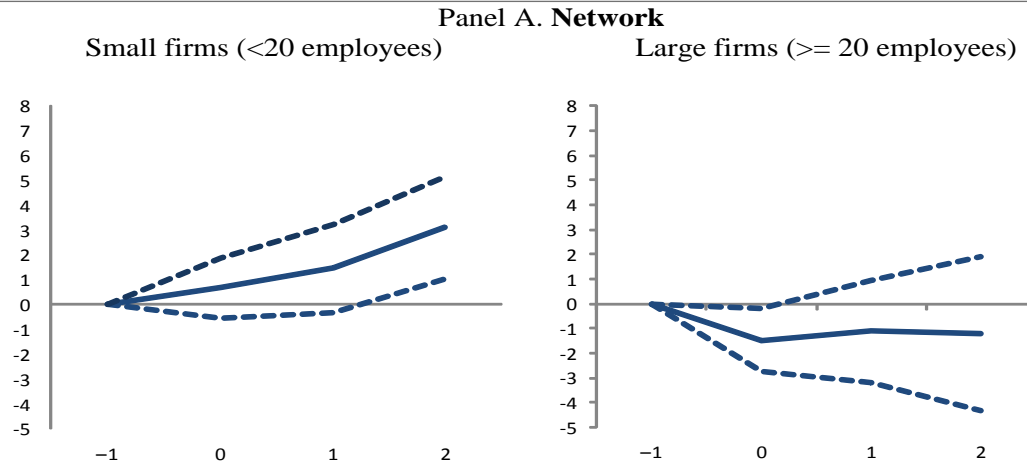


Impulse response functions with 90% confidence interval

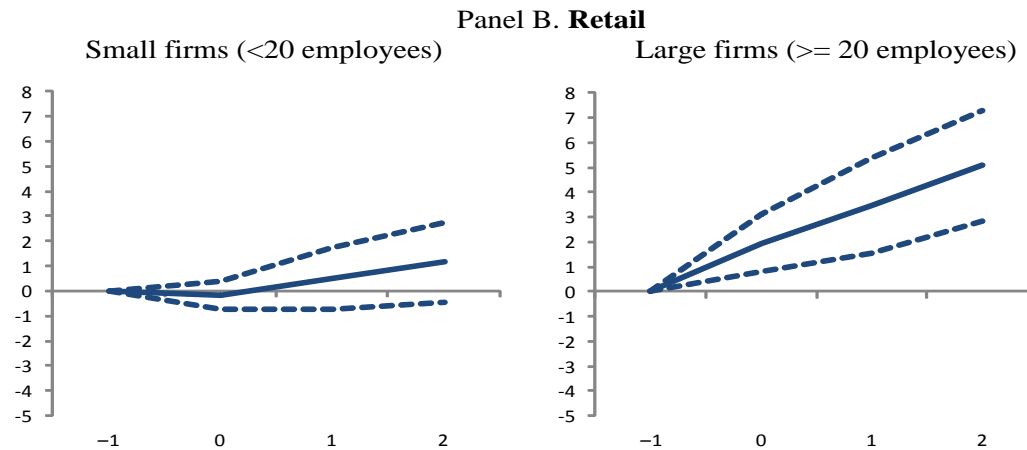
Source: Gal, P. and A. Hijzen (2016), "The short-term impact of product market reforms: A cross-country firm-level analysis", *OECD Economics Department Working Papers*, No. 1311, OECD Publishing, Paris.



But the employment impact varies greatly across firm size



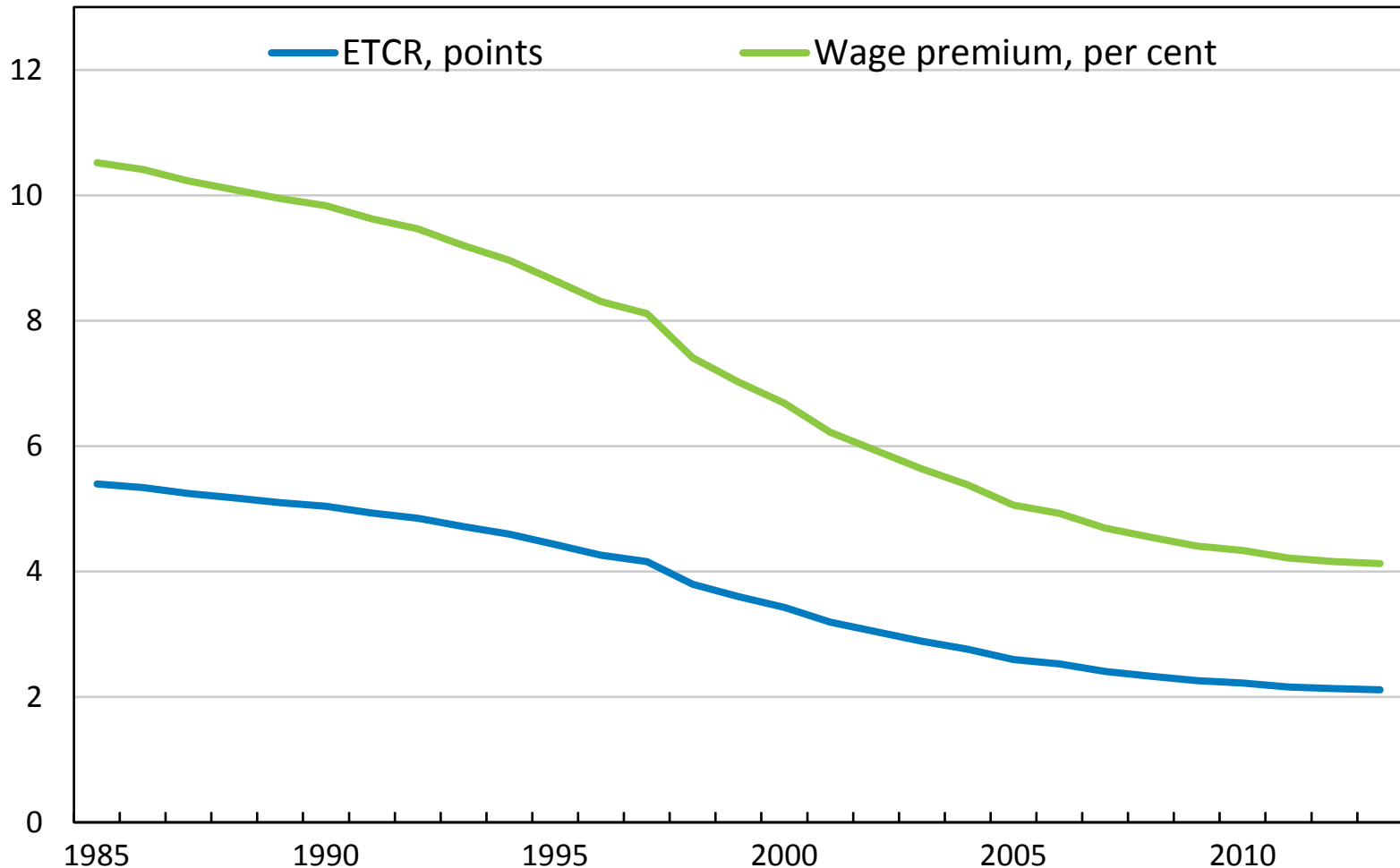
In network industries, employees from big firms hit hardest



Source: Gal, P. and A. Hijzen (2016), "The short-term impact of product market reforms: A cross-country firm-level analysis", *OECD Economics Department Working Papers*, No. 1311, OECD Publishing, Paris.



And competition reduces the wage premium for workers in these industries

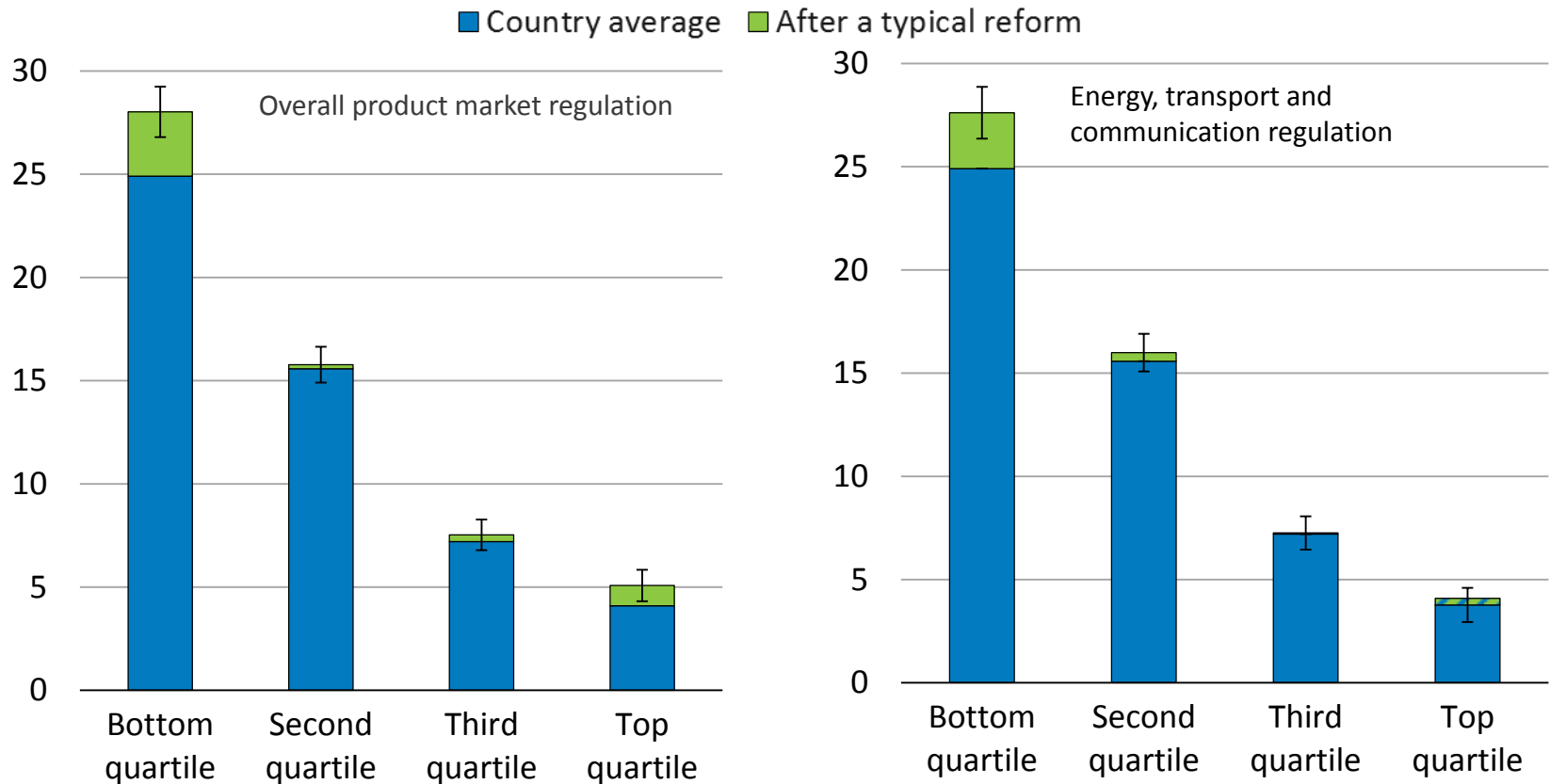


Note: ETCR stands for energy, transport and communications regulation, measured with the OECD ETCR indicator.
Source: OECD calculations using national household surveys for Australia (HILDA), Germany (SOEP), Korea (KLIPS), Switzerland (SHP), the United Kingdom (BHPS&UKHLS) and the United States (PSID).



...Pro-competition reforms also imply more frequent transitions out of a job for low-income workers

Average transition probabilities out of employment, percentages



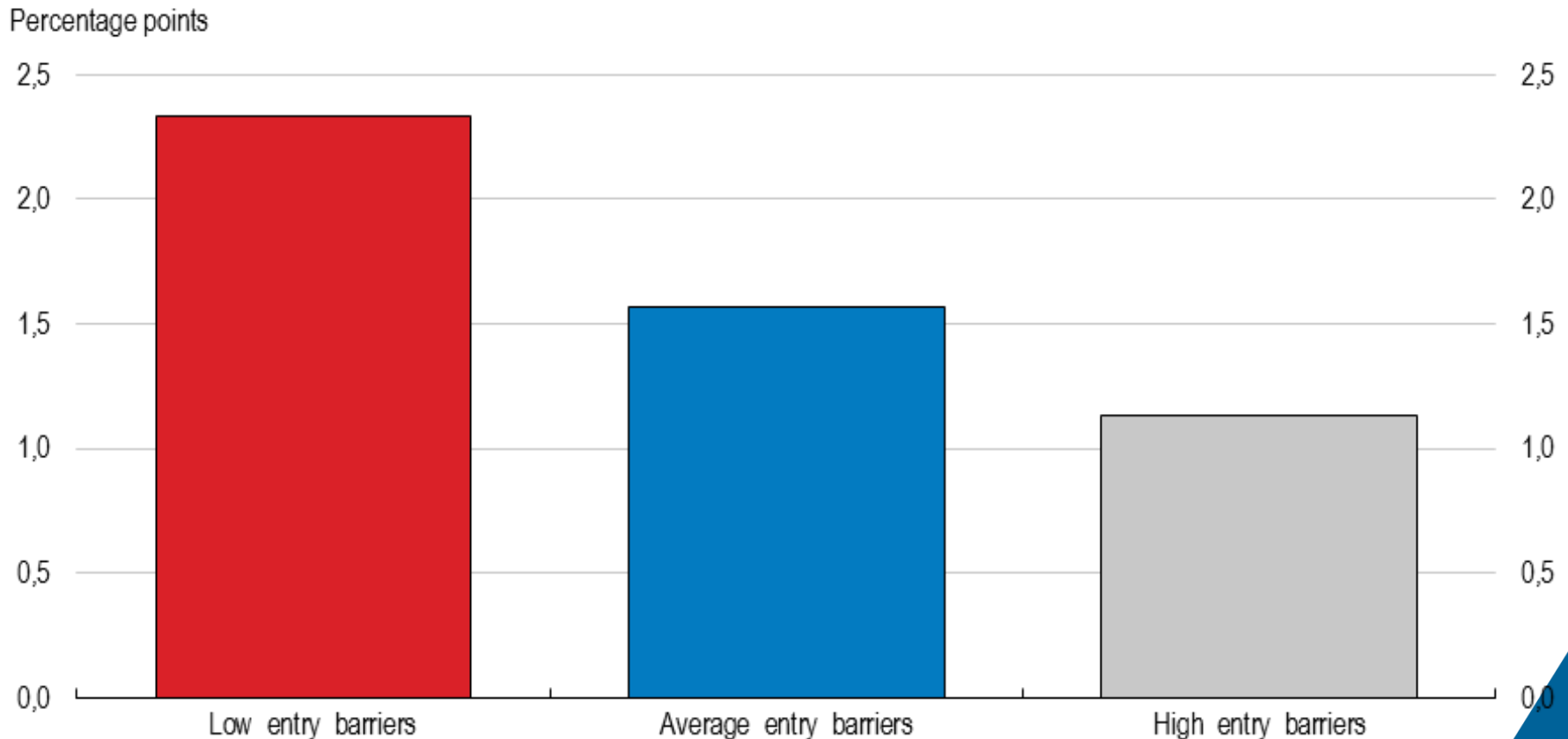
Note: A typical reform is defined as the average 5-year policy change over reform episodes in the OECD indicator of regulation in product markets (PMR, left panel) or energy, transport and communication (ETCR, right panel). Hatched areas indicate negative effects.

Source: Cournède, Denk and Garda (2016).



Job-search support will help workers coping with firm exit: And this is more effective when firm entry barriers are low

Effect of a 0.1% of GDP increase in ALMP spending on the re-employment probability – conditional on the regulatory barriers to entry





BACKUP SLIDES



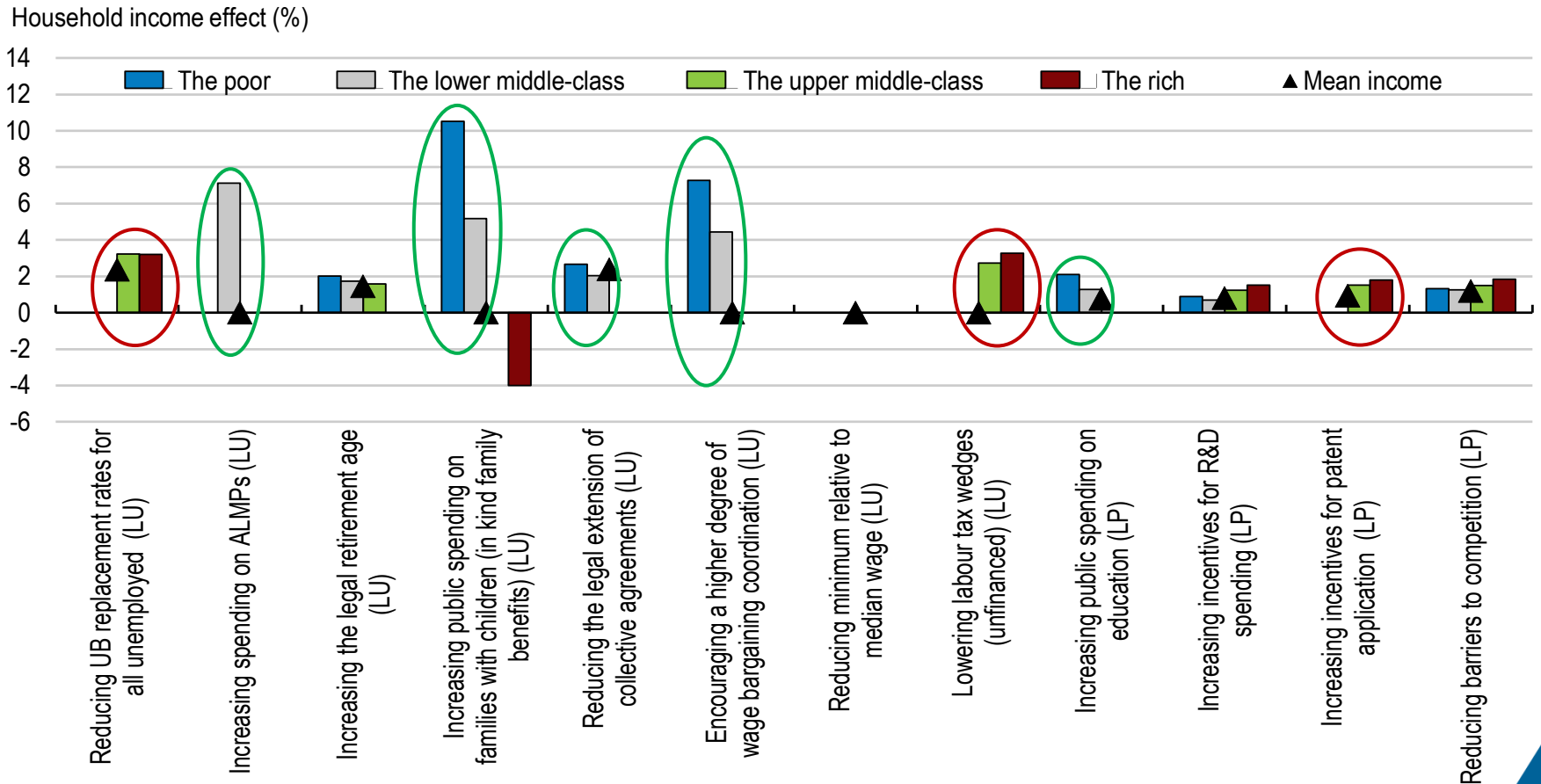
Earnings across the working-age population: Can employment gains offset the rising wage gap?

<i>A pro-employment change in:</i>	Wage dispersion	Employment	HDDI dispersion
LM Policies: regulation	OFFSETTING WAGE DISP AND EMP EFFECTS		
Easing EPL (overall protection)	+	+ (L-SK)	=
(Lower) minimum wage	+	+	=
LM Policies: taxes and transfers	EMPLOYMENT GAINS NOT SUFFICIENT		
Lower UI benefit RR		+	+
Higher ALMPs		+	-
Lower tax wedges	+	+	+
Higher family benefits (in-kind)	-	+ (Women)	-
Higher legal age of retirement		+ (Older)	-
LM Policies: institutions	WAGE DISP AND EMP EFFECTS GO TOGETHER		
Lower legal extension of col. ag.		+	-
Stronger wage coordination	-		-



Many pro-growth reforms have little distributional impacts

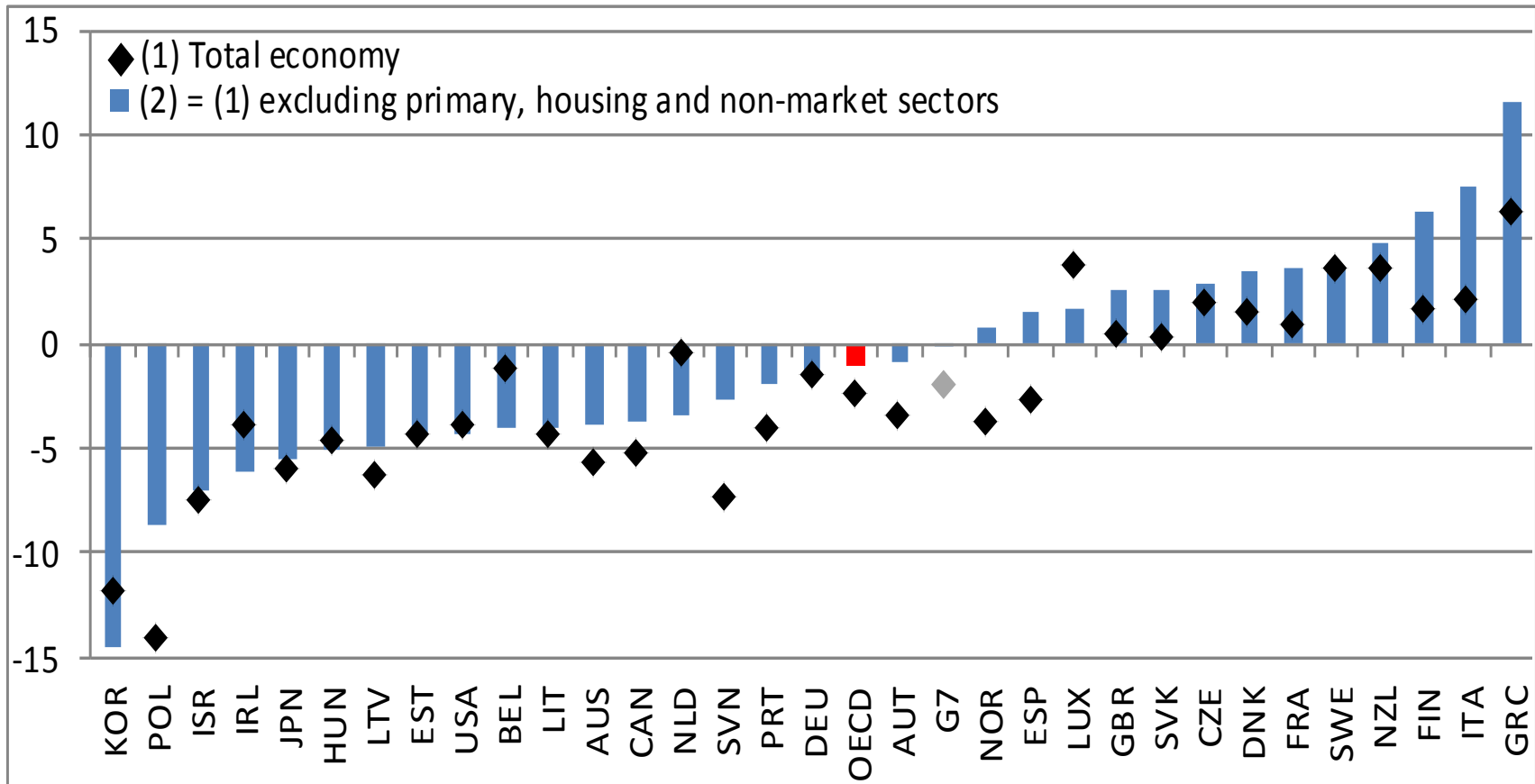
Reforms standardised to deliver 1% increase in productivity (LP) or labour utilisation (LU)





The change in the labour share is far from uniform across countries

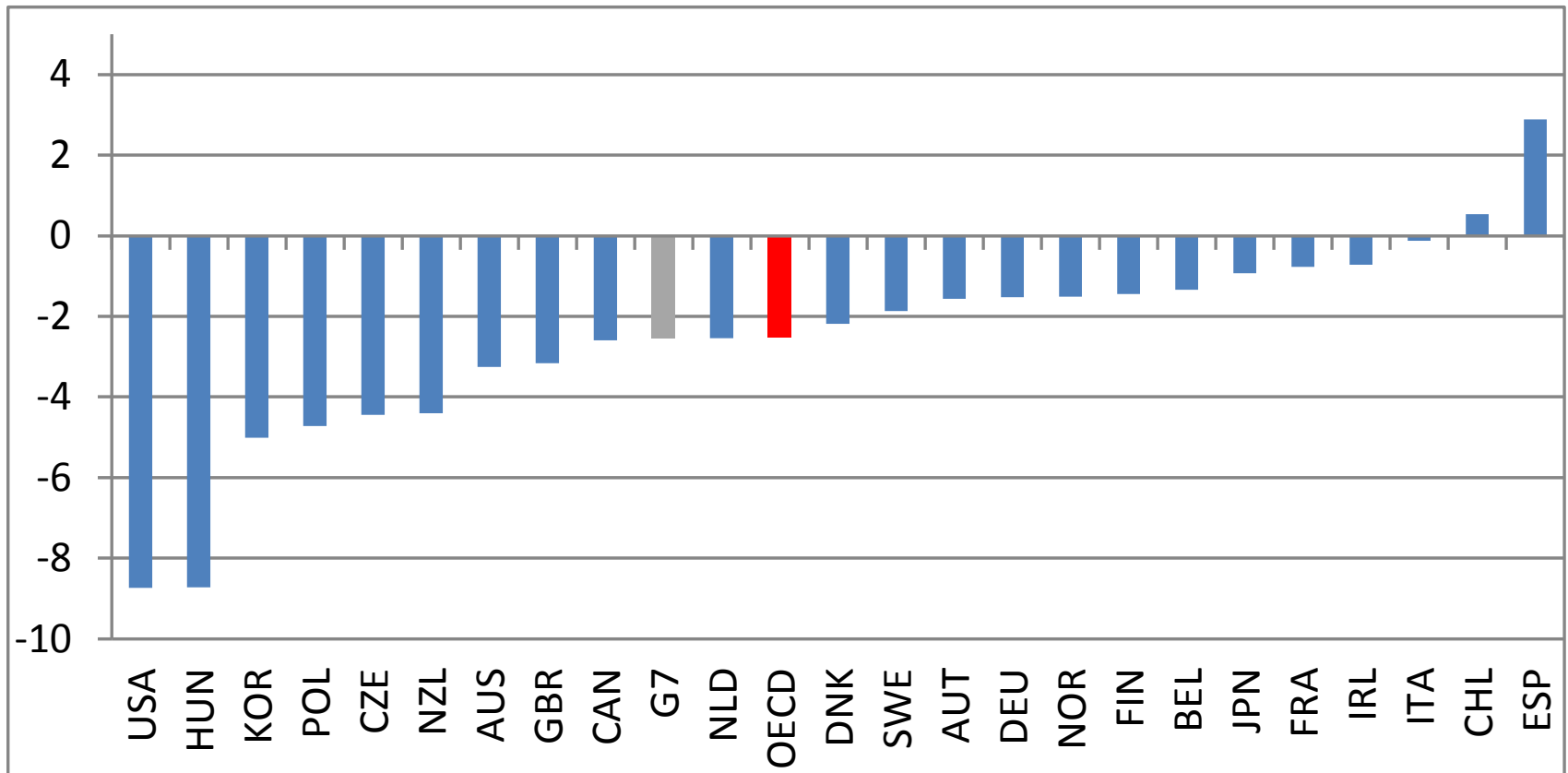
Change in total-economy and non-housing labour shares, percentage points, 1995-2014





Higher wage dispersion has contributed to rising income inequality in more countries

The ratio of median to average wages, percentage points, 1995-2013

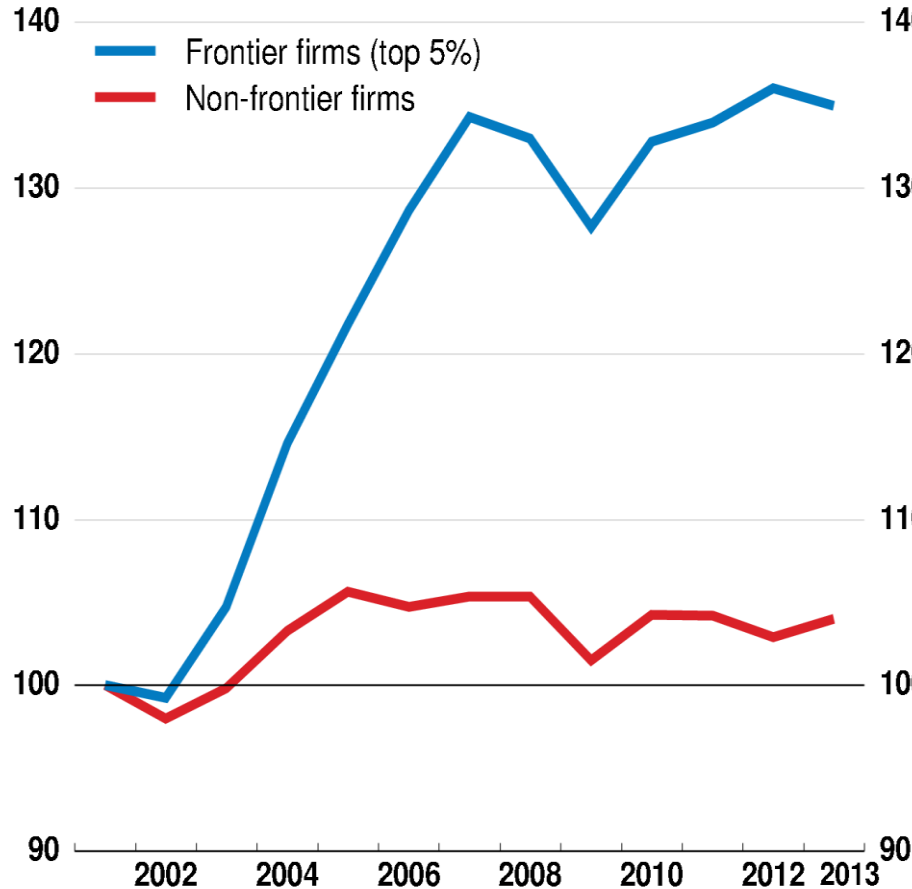




The growing wage dispersion across firms has paralleled the widening productivity gap

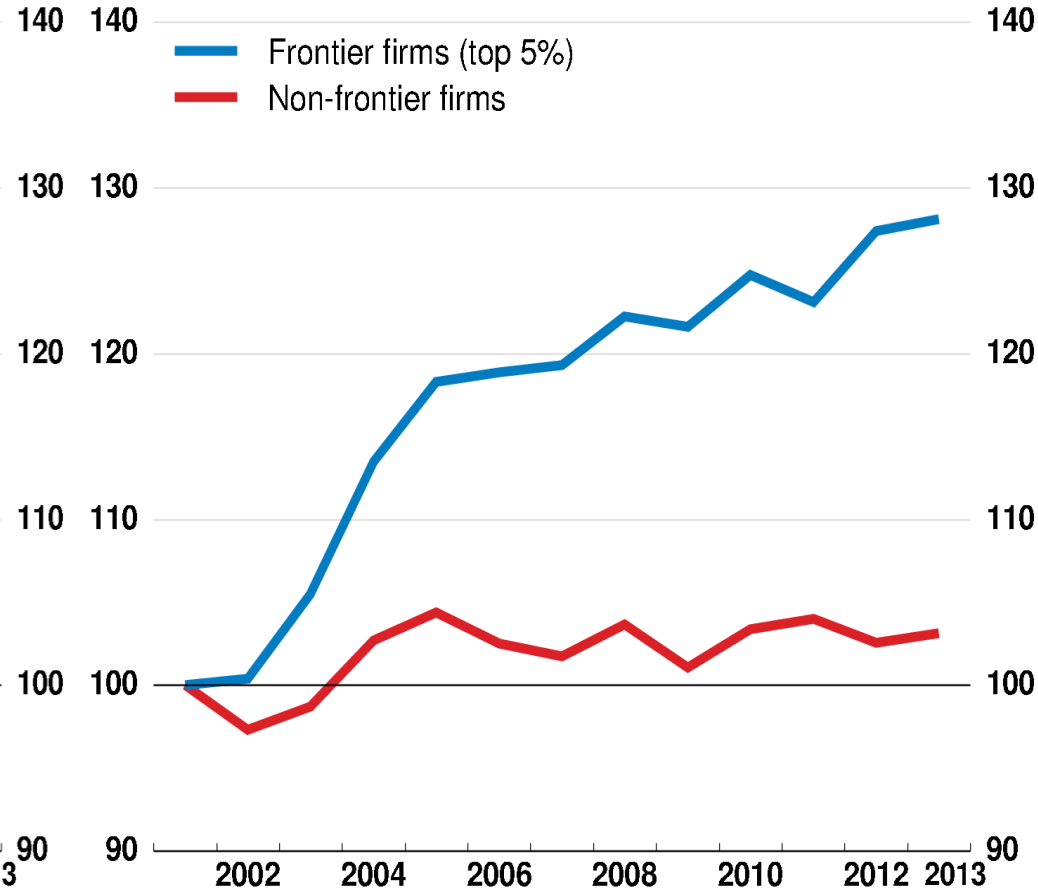
Labour productivity

Index, 2001 = 100



Real compensation per worker

Index, 2001 = 100



Note: Frontier firms are the 5% of firms with the highest labour productivity by year and sector. Industries included are manufacturing and business services, excluding the financial sector, for firms with at least 20 employees.

Source: Andrews, D., Criscuolo C., and Gal P. (2016), "The Best versus the Rest: The Global Productivity Slowdown, Divergence across Firms and the Role of Public Policy", OECD Productivity Working Papers, No. 05; Orbis data of Bureau van Dijk; and OECD calculations.



More labour market policies are found to have an impact on wage dispersion at firm level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log MFP_W (90-10)	0.467*** (0.074)	0.075* (0.043)	0.494*** (0.062)	0.063 (0.041)	0.622*** (0.173)	0.437** (0.173)	0.064 (0.130)	0.370*** (0.121)	0.757*** (0.082)	0.285** (0.121)
Real Min Wage (hour)	-0.016 (0.028)	-0.369*** (0.077)								
Log MFP_W (90-10) × Real Min Wage (hour)	-0.139** (0.069)	0.054* (0.028)								
Relative Min Wage (wrt av)			-0.093* (0.049)	-0.124*** (0.038)						
Log MFP_W (90-10) × Relative Min Wage (wrt av)			-0.135** (0.063)	0.059*** (0.020)						
EPL (indiv. and coll.)					-0.106 (0.075)	-0.091** (0.036)				
Log MFP_W (90-10) × EPL (indiv. and coll.)					-0.546* (0.316)	-0.152 (0.107)				
Trade union density							-0.093 (0.093)	-0.361*** (0.062)		
Log MFP_W (90-10) × Trade union density							-0.688** (0.281)	0.016 (0.085)		
Wage Setting									-0.081* (0.042)	-0.103*** (0.021)
Log MFP_W (90-10) × Wage Setting									-0.832*** (0.130)	-0.132*** (0.050)
N	1804	1804	1804	1804	3456	3456	3456	3456	3456	3456
Adj. R-Square	0.662	0.970	0.656	0.967	0.296	0.966	0.346	0.968	0.486	0.966
Year FE	YES		YES		YES		YES		YES	
Country-sector year FE		YES		YES		YES		YES		YES
Num. Countries	7	7	7	7	13	13	13	13	13	13

The impact of EPL conflicts with previous result but union density is consistent





Technology and trade also found to be drivers of wage dispersion using firm-level data

	(1)	(2)	(3)	(4)	(5)	(6)
Log MFP_W (90-10)	0.802*** (0.132)	0.795*** (0.125)	0.810*** (0.128)	0.351** (0.143)	0.171* (0.100)	0.664*** (0.147)
Log Import (goods)	0.073 (0.061)					
Log MFP_W (90-10) × Log Import (goods)	0.290*** (0.053)					
Log Export (goods)		0.191** (0.078)				
Log MFP_W (90-10) × Log Export (goods)		0.402*** (0.071)				
Log Openness			0.149** (0.070)			0.092* (0.048)
Log MFP_W (90-10) × Log Openness			0.355*** (0.059)			0.215*** (0.052)
Sh. of ICT in fixed assets				0.139** (0.063)		0.074 (0.057)
Log MFP_W (90-10) × Sh. of ICT in fixed assets				0.028 (0.091)		0.048 (0.097)
Sh. high-skilled (in total hours)					-0.057 (0.049)	
Log MFP_W (90-10) × Sh. high-skilled (in total hours)					0.042 (0.060)	
N	1779	1779	1779	1917	2190	1051
Adj. R-Square	0.919	0.922	0.921	0.962	0.969	0.946
Country-sector year FE	YES	YES	YES	YES	YES	YES
Num. Countries	12	12	12	8	11	8

Exports matters, except results are sensitive to using MFP instead of LP

The magnifying effect of trade is robust

