DECOUPLING OF WAGES FROM PRODUCTIVITY

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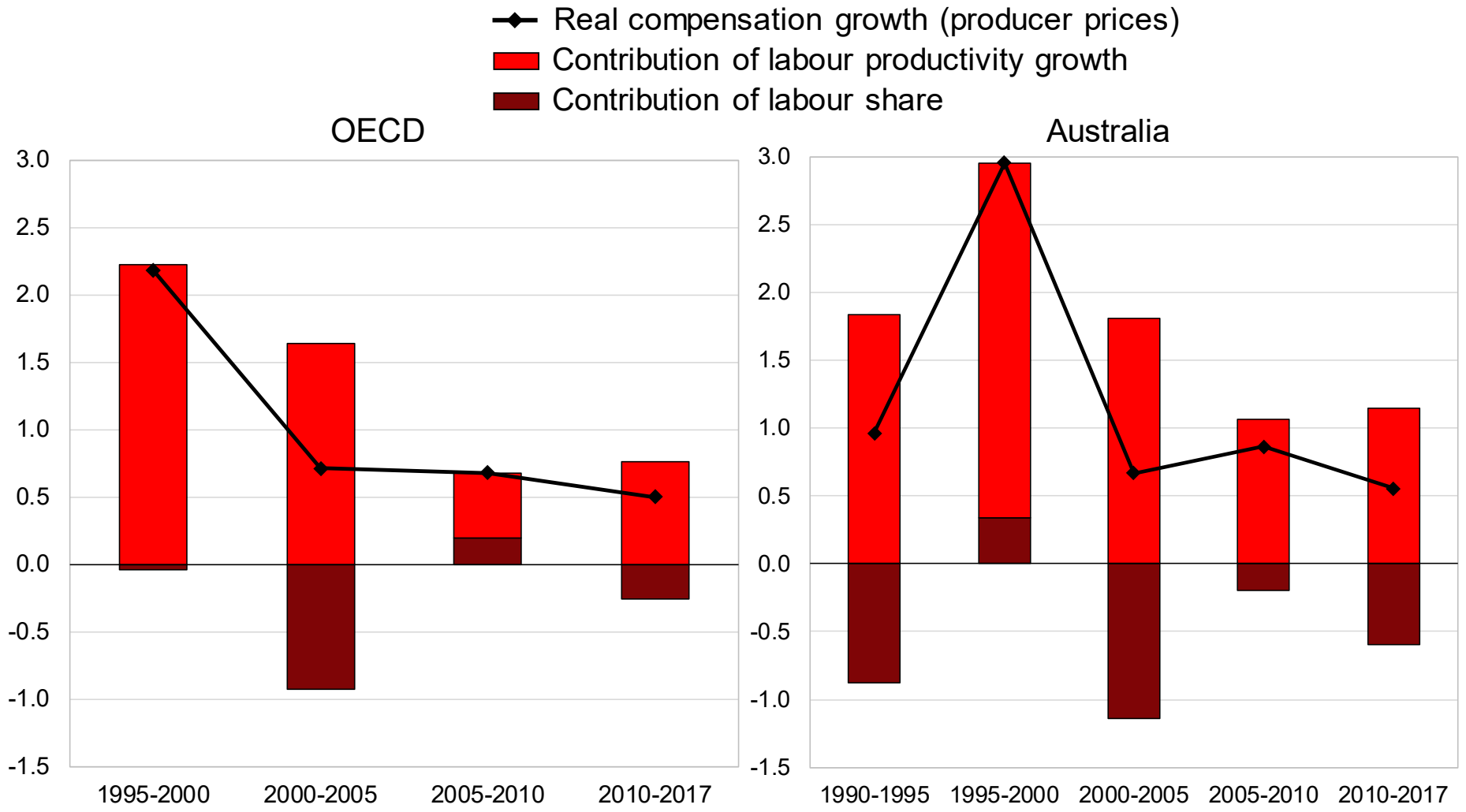
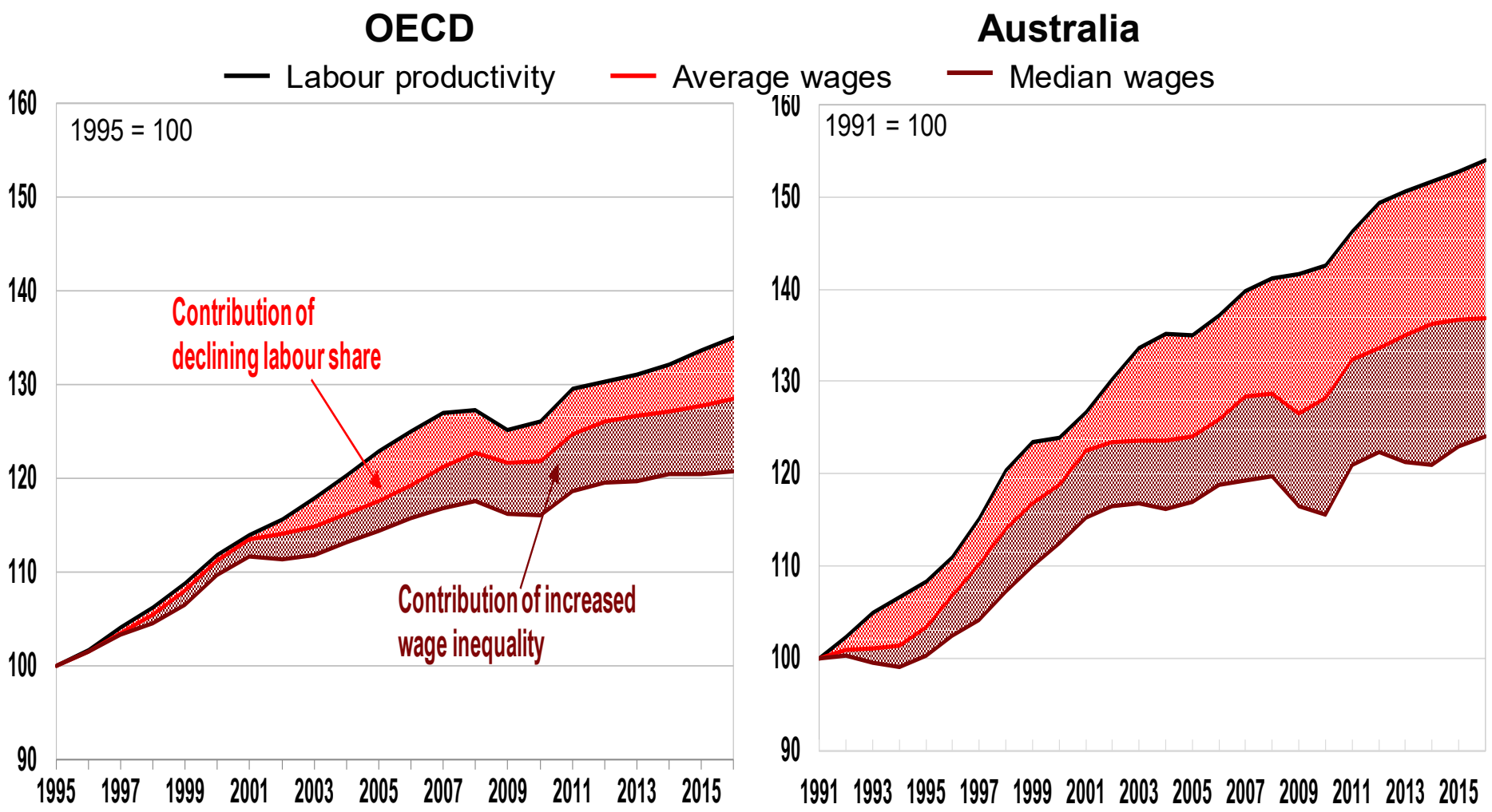
BETTER POLICIES FOR BETTER LIVES

Productivity and wage slowdown



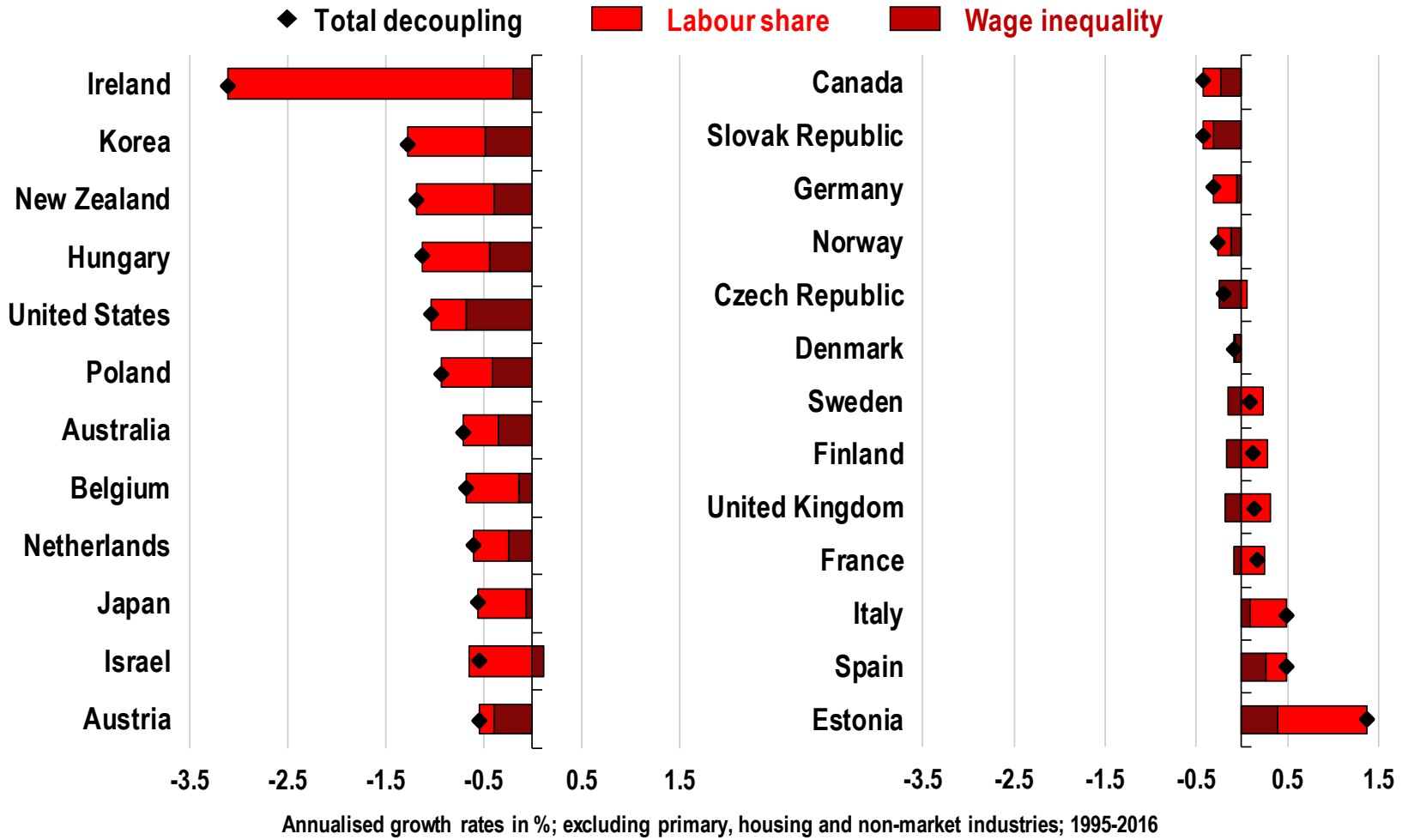
Note: Total economy excluding primary, housing and non-market industries. OECD is the GDP weighted average of 31 countries.
Source: OECD National Accounts Database.

Productivity gains no longer translate into broadly shared wage gains



Note: OECD is the employment weighted average of 25 countries (two-year moving averages ending in the indicated years
All series are deflated by the value added price index excluding the primary, housing and non-market industries.
Source: OECD National Accounts Database, OECD Earnings Database.

Large heterogeneity in decoupling across countries



Note: Total economy excluding primary, housing and non-market industries. 1995-2015 for Korea and Japan; 1996-2016 for Austria, Belgium, Germany, Hungary, Ireland, Italy, Poland and United Kingdom; 1996-2015 for France; 1996-2014 for Netherlands; 1996-2012 for Spain; 1997-2016 for Czech Republic; 1998-2015 for New Zealand and Norway; 1995-2013 for Sweden; 1998-2013 for Canada; 2002-2015 for Israel; 2003-2016 for Slovak Republic; 2003-2014 for Estonia.

Source: OECD National Accounts Database, OECD Earnings Database

Objective: Understand the structural and policy drivers of decoupling

Go beyond macro-level correlations by using industry- and micro-level data

Approach: Industry-level regressions allowing cleaner identification of structural and policy drivers, complemented with firm-level analyses to focus on selected mechanisms

Focus: Labour share developments w/ some evidence on between-firm wage inequality

Key policy question: Do declines in labour shares reflect the market response to secular trends, such as technological change and globalisation, or do they reflect changes in public policies?

Drivers of labour shares

Technological change: Capital-augmenting technological change or technology-driven declines in equipment prices raise capital intensity, which reduces labour shares if the elasticity of substitution is above unity (Karabarbounis and Neiman, 2014; IMF, 2017).

Globalisation: Offshoring of the most labour-intensive stages of production or increased import competition may lead to worker displacement and an increase in capital intensity (Elsby et al., 2013; IMF, 2017).

Changes in market structure: Rising market shares of highly-productive "superstar firms" with low labour shares (Autor et al., 2017; De Loecker, Eeckhout & Unger, 2018).

Product and labour market policies: Markups, relative factor prices and bargaining position (IMF, 2017; Barkai, 2017; Machin, 2016)

Roadmap

Data and descriptive statistics

- Digression: “Winner-takes-most” dynamics?

Structural drivers: Baseline model and results

- Digression: Firm-level labour shares vs reallocation?

Policies: Diff-in-diff model and results

Conclusion

Data

Sample: OECD countries over 1995-2016 excluding primary, housing and non-market industries

Industry-level labour shares: Labour compensation / value added, where labour compensation is the sum of compensation of salaried workers and the imputed compensation of self-employed workers (OECD STAN, EU-KLEMS).

Relative investment prices: Investment price / value added price (OECD SNA, OECD STAN, EU-KLEMS).

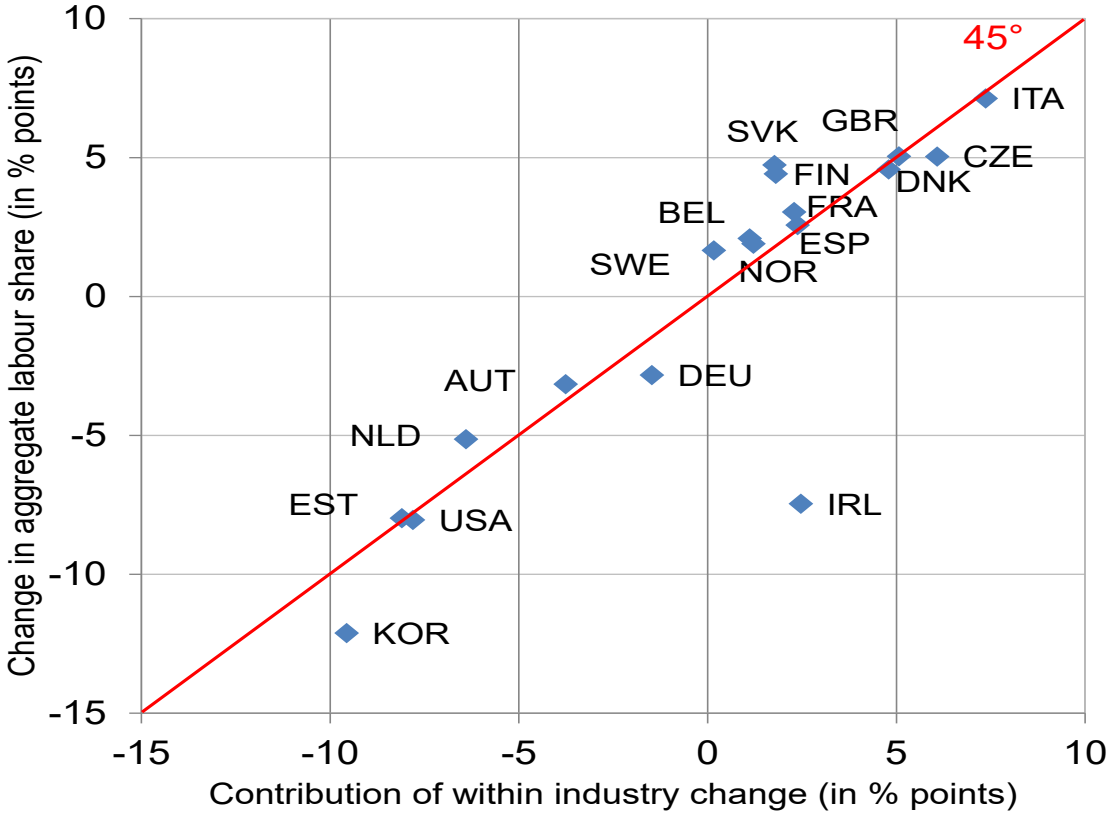
Global value chain participation: (Backward + forward linkages) / value added (OECD TiVA).

Industry characteristics and policy indicators: Variety of institutional and academic data sources.

Firm-level data: ORBIS (Bureau van Dijk)

Descriptive statistics

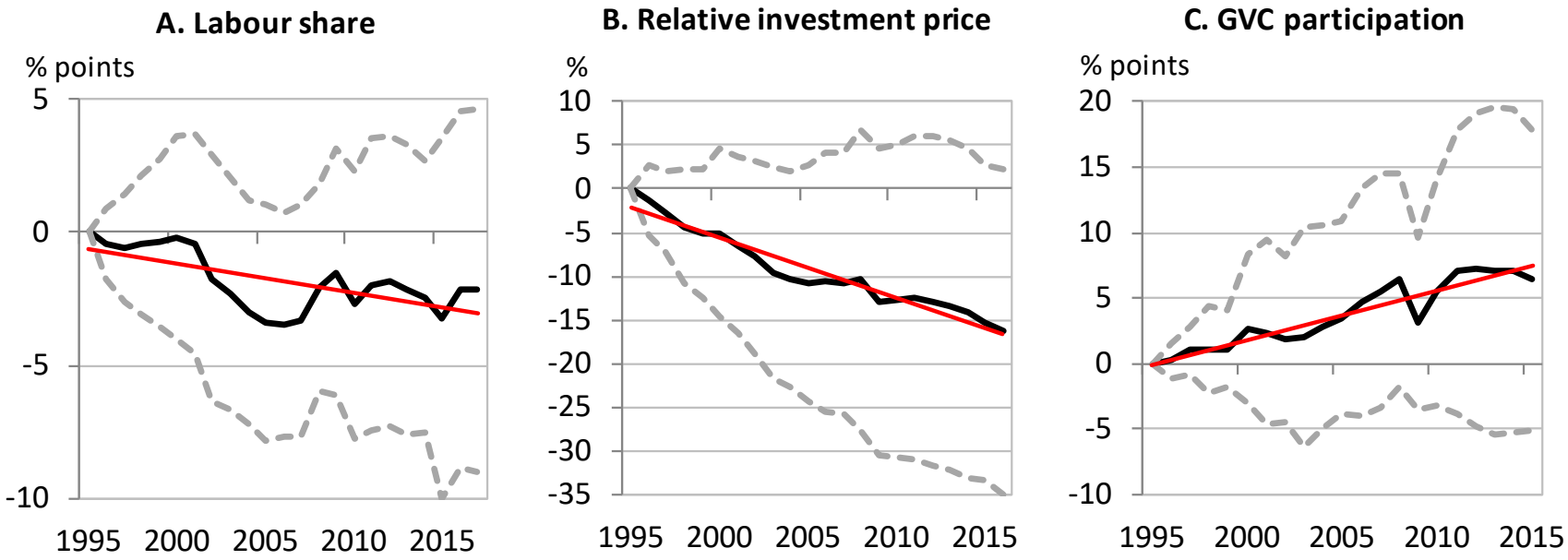
Declines in labour shares overwhelmingly reflect within-industry developments rather than cross-industry reallocation of value added



Note: Based on a shift-share decomposition of aggregate changes in labour shares.
Source: OECD National Accounts Database.

Descriptive statistics

Declines in labour shares coincided with falls in relative investment prices and the expansion of GVCs



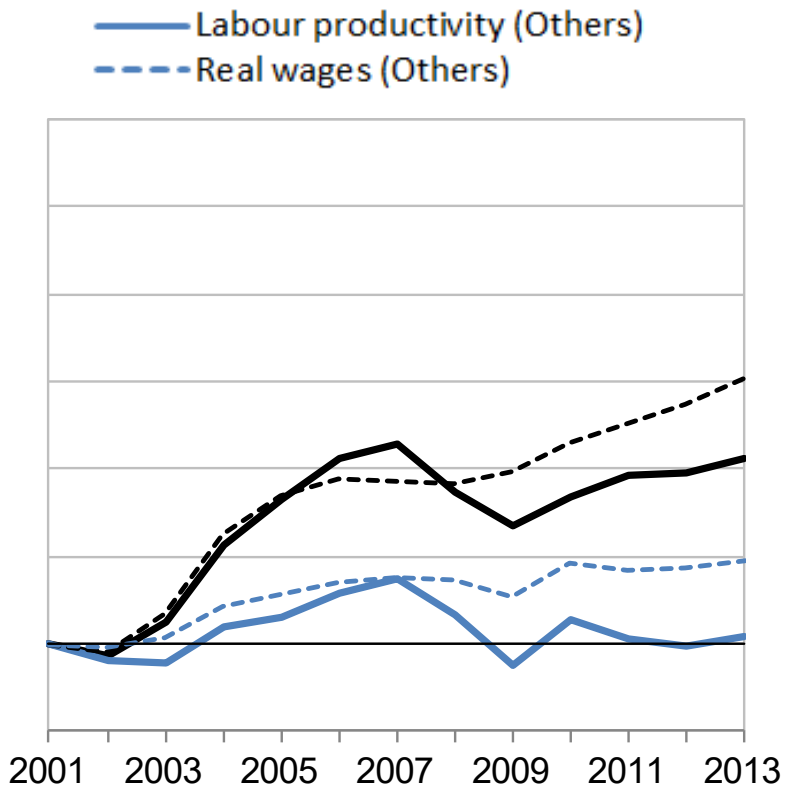
Note: Total economy excluding primary, housing and non-market industries. GDP weighted average of 20 OECD countries included in the industry-level regressions. The black lines indicate cumulated changes; the red lines indicate the corresponding trends; and the dotted lines indicate +/- 1 standard deviation around the weighted average. 1995-2017 for labour share, 1995-2016 for relative investment price and 1995-2015 for GVC participation.
Source: OECD National Accounts Database and OECD TiVA Database.

Firm-level digression: “Winner takes most?”

Labour productivity and real wages (2001 = 100)

Panel A: Countries with declines in labour shares

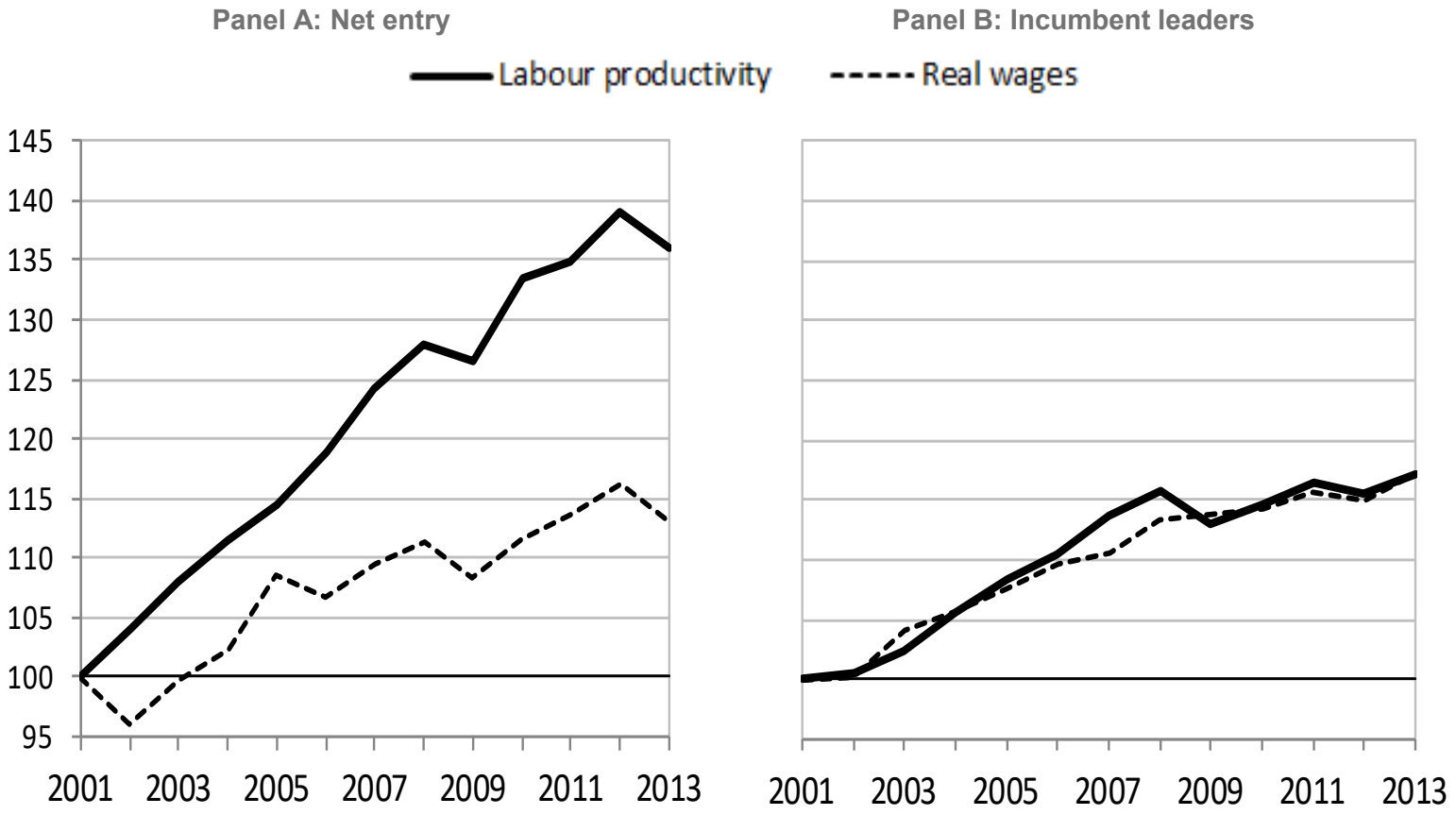
Panel B: Countries with increases in labour shares



Note: Labour productivity and real wages are computed as the unweighted mean across firms of real value added per worker and real labour compensation per worker. Leaders are defined as the top 5% of firms in terms of labour productivity within each country group in each industry and year. The countries with a decline in the labour share excluding the primary, housing, financial and non-market industries over the period 2001-2013 are: Belgium, Denmark, Germany, Ireland, Japan, Korea, Sweden, United Kingdom and United States. The countries with an increase are: Austria, Czech Republic, Estonia, Finland, France, Italy, Netherlands and Spain.
Source: OECD Economic Outlook November 2018.

Firm-level digression: “Winner takes most?”

Contributions to labour productivity and real wage growth at the frontier, countries with declines in labour shares



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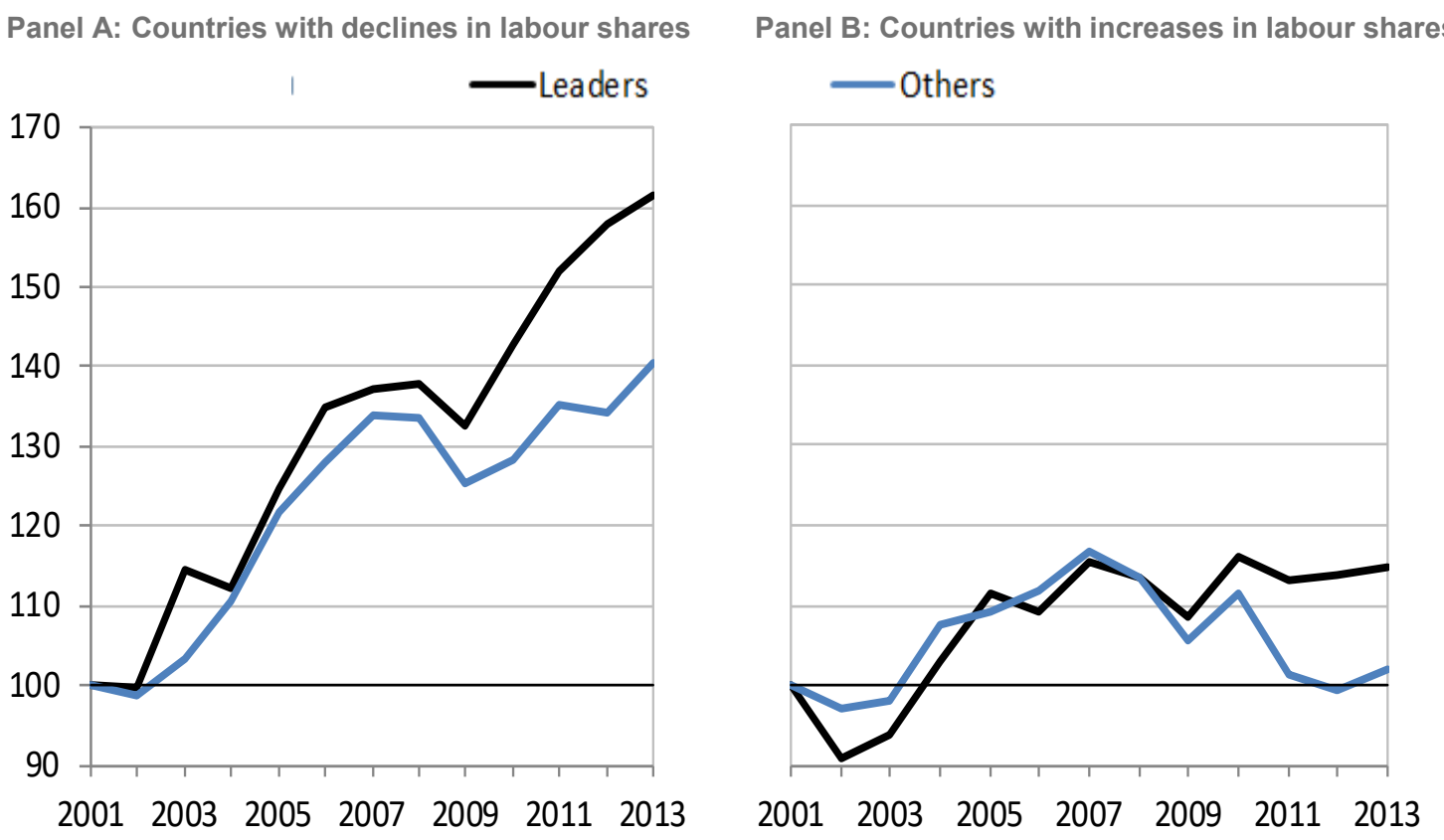
Source: Schwellnus et al. (2018).

Firm-level digression: “Winner takes most?”

Real value added (2001=100)



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Source: Schwellnus et al. (2018).

Structural drivers

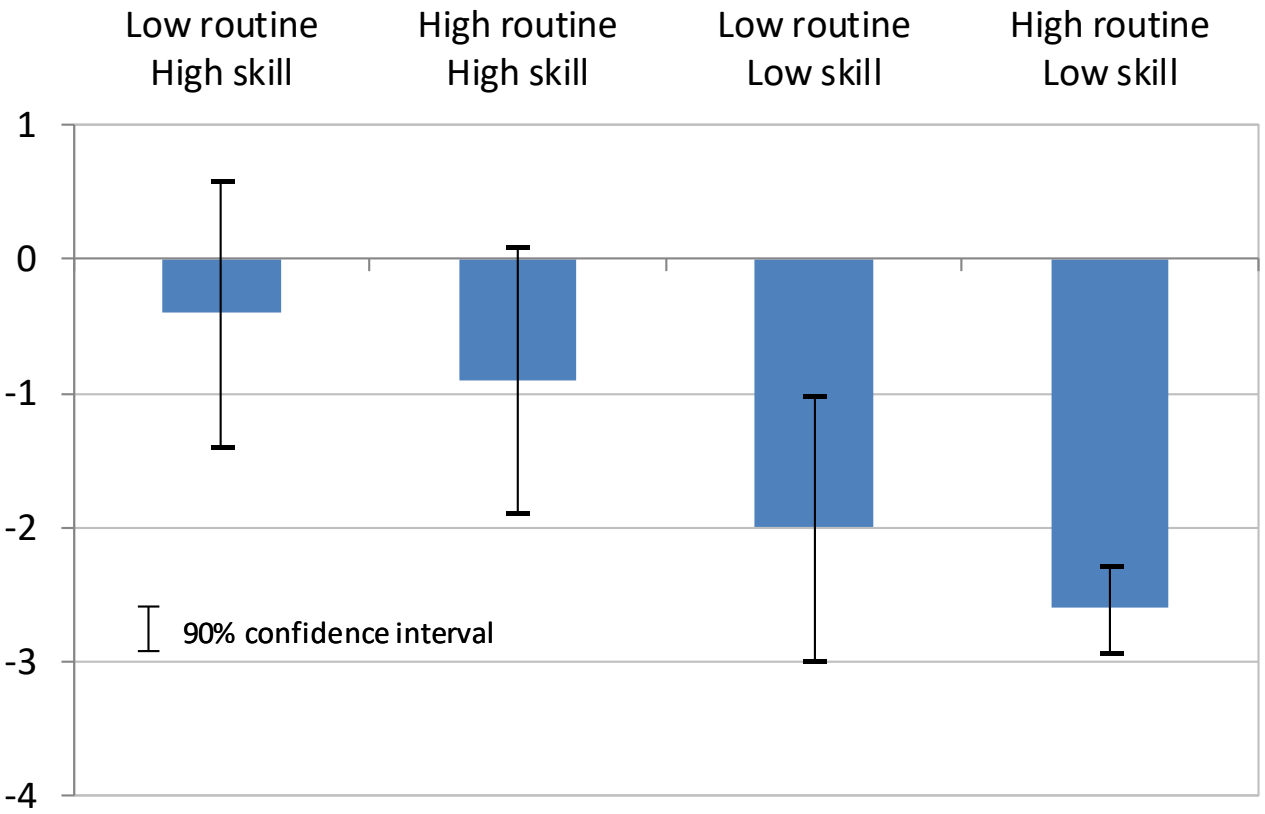
$$\Delta LS_{ijt} = \beta_1 \Delta P_{ijt}^{Inv} + \beta_2 \Delta T_{ijt} + \beta_3 \left(RTI_{ijt}^{0} \times \Delta P_{ijt}^{Inv}\right) + \beta_4 \left(RTI_{ijt}^{0} \times \Delta T_{ijt}\right) + \beta_4 X_{ijt} + \alpha_i + \alpha_{jt} + \varepsilon_{ijt}$$

	(1)	(2)	(3)	(4)
Dependent variable	Change in business labour share excluding primary, coke and housing industries			
Change in relative investment price	0.19***	0.18***	0.11***	0.18***
	(0.03)	(0.03)	(0.04)	(0.03)
Change in GVC participation	-0.10**	-0.11**	-0.11**	-0.09*
	(0.04)	(0.04)	(0.04)	(0.04)
High routine intensity x Change in relative investment price			0.11**	
			(0.05)	
High routine intensity x Change in GVC participation				-0.04
				(0.05)
Change in output gap	-0.47***			
	(0.11)			
High routine intensity	YES	YES	YES	YES
Industry x period fixed effects	YES	YES	YES	YES
Country x period fixed effects	NO	YES	YES	YES
Country fixed effects	YES	NO	NO	NO
Observations	959	968	968	968
Number of countries	20	20	20	20
Number of industries	19	19	19	19
Adjusted R^2	0.26	0.28	0.30	0.28

Note: Changes denote 5-year differences. Weighted OLS, with the share of sector-level value added in total value as weights. Standard errors clustered at the country level. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

Structural drivers: Skills

Change in the labour share in response to a 10% decrease in the relative investment price, % points



Note: Based on the industry-level results for numeracy skills reported in Schwellnus et al. (2018).

Source: Schwellnus et al. (2018)

Firm-level digression: Within firms or reallocation?

$$\Delta LS_{cjit} = \beta_1 \Delta P_{ijt}^{Inv} + \beta_2 \Delta T_{ijt} + \beta_3 \left(C_{cji0} \times \Delta P_{cjt}^{Inv} \right) + \gamma' X_{cji0} + \alpha_{cj} + \alpha_t + \varepsilon_{cji}$$

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Change in firm-level labour share				
Change in relative investment price	0.14***	0.13**	0.18***	0.17***	
	(0.05)	(0.06)	(0.05)	(0.06)	
Change in GVC participation	-0.02	-0.01	-0.02	-0.01	
	(0.05)	(0.05)	(0.05)	(0.05)	
Leader x Change in relative investment price		0.19***		0.19***	0.18**
		(0.07)		(0.07)	(0.07)
Leverage x Change in relative investment price			-0.06**	-0.05**	-0.06**
			(0.02)	(0.03)	(0.02)
Initial leverage and/or initial leader	NO	YES	YES	YES	YES
Firm-level controls	YES	YES	YES	YES	YES
Country x industry fixed effects	YES	YES	YES	YES	NO
Year fixed effects	YES	YES	YES	YES	NO
Country x industry x year fixed effects	NO	NO	NO	NO	YES
Observations	416,888	416,888	416,888	416,888	416,888
Adjusted R^2	0.21	0.22	0.21	0.22	0.22

Note: The included countries are Belgium, Germany, Spain, Finland, France, Italy, Korea, Sweden and United Kingdom. A leader is defined as belonging to the top 5% firms within an industry with the highest labour productivity across the countries covered by the analysis. Firm-level financial leverage is proxied by the ratio of current liabilities and long term debt to total assets. Standard errors are clustered at the country-industry level. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

Product and labour market policies

Capital-labour substitution: Public policies that affect labour costs or the cost of capital, such as corporate taxes, tax wedge or minimum wages (IMF, 2017; Bassanini & Manfredi, 2012).

Size of product market rents: In an imperfectly-competitive economy, value added does not only include the marginal products of the factors of production but also product market rents (Barkai, 2017; Furman & Orszag, 2015).

Sharing of product market rents: In an imperfectly competitive labour market, workers and capital owners bargain over the distribution of rents formally or informally (IMF, 2017; Machin, 2016).

Product and labour market policies

Augment the baseline specification by a "**difference-in-differences**" setup

Assumes that the response of labour shares to a given policy reform depends on some **observable industry characteristic**

> **Example:** Changes in the minimum wage can plausibly be assumed to have larger effects on average wages in industries with high shares of low-wage workers.
>
> In the **short term**, the increase in wages tends to raise the labour share if the employment response is modest
>
> In the **medium term**, the increase in wages triggers capital-labour substitution

Product and labour market policies

Estimated equation: $\Delta LS_{ijt} = \beta_1 \left(Exp_j^k \times \Delta Pol_{it}^k \right) + \beta_2 \Delta P_{ijt}^{Inv} + \beta_3 \Delta T_{ijt} + \beta_4 X_{ijt} + \alpha_{it} + \alpha_{jt} + \varepsilon_{ijt}$

Controlling for:	(1) Change in PMR x EXPO: Firm turnover	(2) Change in EPL x EXPO: Worker reallocation	(3) Change in ALMP x EXPO: Low-skilled workers	(4) Change in minimum wage x EXPO: Low-wage workers
EXPO x Change in PMR	**-0.31****	-0.25*	1.01*	-0.08**
	(0.13)	(0.12)	(0.52)	(0.03)
EXPO x Change in EPL	-0.20*	**-0.24***	1.09*	-0.08**
	(0.11)	**(0.13)**	(0.61)	(0.04)
EXPO x Change in ALMP	-0.25*	-0.22	**1.10***	-0.08**
	(0.12)	(0.13)	**(0.61)**	(0.03)
EXPO x Change in CB coverage	-0.31**	-0.24	0.71	-0.09***
	(0.13)	(0.14)	(0.51)	(0.03)
EXPO x Change in CB decentralisation	-0.30**	-0.26	1.12	-0.08*
	(0.13)	(0.15)	(0.65)	(0.04)
EXPO x Change in minimum wage	-0.21	-0.18	1.03*	**-0.08****
	(0.15)	(0.11)	(0.51)	**(0.03)**
EXPO x Change in tax wedge	-0.31**	-0.23*	0.80	-0.08**
	(0.12)	(0.12)	(0.49)	(0.03)
EXPO x Change in corporate tax	-0.32**	-0.28*	1.10*	-0.06
	(0.12)	(0.15)	(0.53)	(0.04)

Note: PMR stands for product market regulation; EPL for employment protection legislation; ALMP for active labour market policies; CB for collective bargaining; and EXPO for exposure variable. The table reports the estimated coefficients on the interaction term in the column heading, with each row reporting the estimate when controlling for the interaction term in the row heading. Coefficients in bold font show the baseline estimates in Table 2 above. Public policies and institutions denote 5-year differences. Standard errors are clustered at the country level. Weighted OLS, with the share of industry-level value added in total value as weights. *, **, *** denote statistical significance at the 10%, 5% and 1% levels.

Summary

	Ratio of average wages to labour productivity	Ratio of median to average wages or ratio of bottom to top firm-level wages
	Labour share[1]	Inverse measure of wage inequality[2]
Technological change	↘	↘
Trade integration	↘	↘
High skills	↗	↗
Competition-friendly product market reform	↗	↘
Loosening of employment protection	↗	↘
Minimum wage reduction	↗	↘
Collective bargaining decentralisation	⊘	↘
ALMP spending increase	↗	?

Note: ⊘ indicates statistical insignificance and ? indicates that drivers have not been subject to robust empirical analysis in the context of the studies reviewed in this chapter.

1. Based on Schwellnus et al. (2018) and Pak and Schwellnus (2018).
2. Based on De Serres and Schwellnus (2018) and Berlingieri, Blanchenay and Criscuolo (2017).

Summary

Some decoupling on average but **significant cross-country heterogeneity**

Technology-driven declines in relative investment prices and increased global value chain participation **partly explain the decoupling of wage growth from productivity growth**

Public policies and institutions that affect the scope for capital-labour substitution as well as the size and the distribution of producer rents can help explain **large differences in decoupling across countries**

Labour share declines have been particularly pronounced at the technological frontier and wage dispersion between firms has increased, which may reflect technology- and globalisation-induced **"winner-takes-most" dynamics**

References

Country-level evidence:

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