

Structural reforms for inclusive growth? Empirical evidence from the OECD

ECB-CBRT conference

***Balanced and sustainable growth – Operationalising the
G20 Framework***

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***The views expressed are personal and are not necessarily shared by the ECB.**

Structural reforms entail trade-offs

- They may increase growth, but with a lag
- They may create winners and losers → Political economy of reforms
- Inclusiveness – one key objective of Turkey's G20 presidency

Possible indicators of inclusiveness

- Inequality (income or wealth)
- Labour share of income
- Employment share
- Sectoral (e.g., manufacturing vs. services)

What we do in this research project

- We identify *reform episodes* (labour and product markets) in OECD countries, 1970-2015
- Identification inspired by structural models
- We look at the behaviour of several macro variables
 - “Standard” (GDP, inflation, unemployment..)
 - “Non-standard” (income distribution, labour share of income..) – **relevant for inclusiveness**
- We also look separately at reform episodes when accompanied (or not accompanied) by demand stimulus (fiscal or monetary accommodation)
- We also divide countries by country characteristics (size, openness, exchange rate regime)

Preview of key results

- **Preliminary results**, labour market reforms only
- Labour market reforms impact labour market variables.
- But no effect on income growth, neither on income inequality
- Some evidence (not very strong) that reforms may have a larger impact under supportive monetary/fiscal policies and in more open economies
- Overall, we find that labour market liberalisation may have a double-edged effect on *inclusive growth*. It may increase employment (good) but reduce the labour share of income (not necessarily good)

Reference literature: structural reforms

- Effect of structural reforms (product and labour market regulation) in calibrated DSGE/RBC models
 - Blanchard and Giavazzi QJE (2003)
 - Cacciatore and Fiori (2014)
- Empirical evidence
 - *Panel regressions*
 - Prati et al. (2013)
 - *Panel VAR*
 - Aiello, Ghironi and Di Mauro (2015)
 - Bertola and Lo Prete (2015)

Reference literature: inequality

- Obviously, Piketty's book and the enormous amount of commentary on that book
- Several recent papers on monetary policy and inequality (..)
- Khodaverdian (2015): link between income *level* and income *inequality* (presented in this conference)
- D'Errico, Macchiarelli and Serafini (2015): distributional consequences of the euro crisis

Data

- Covers 32 OECD countries, annual data, 1970-2015
- Reforms: EPL (OECD: summary of 18 individual items and 3 categories, range 0 to 6)
- Income inequality: Gini (0=perfect equality, 100=perfect inequality)

Identification of labour market reforms

- Labour market reform: episodes where Employment Protection Legislation (EPL) changes within the year, employment goes up, real wage down within a 3 year period
- Implemented by first regressing deviations of employment and the real wage from country specific trends (gaps) and a measure of the business cycle (y), the output gap

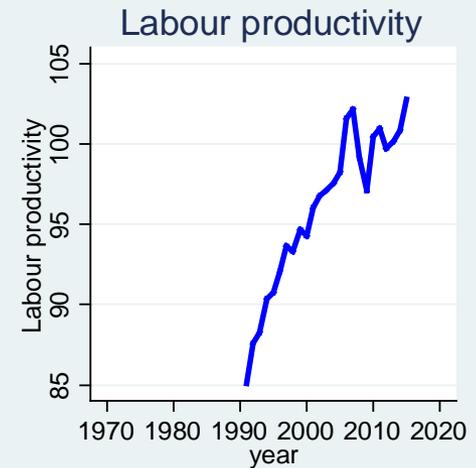
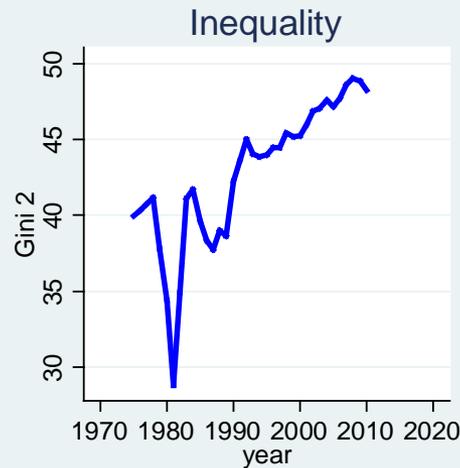
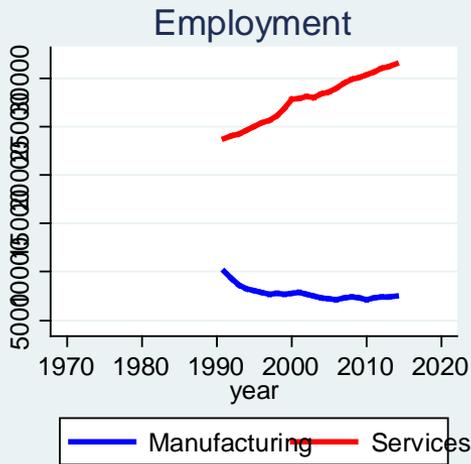
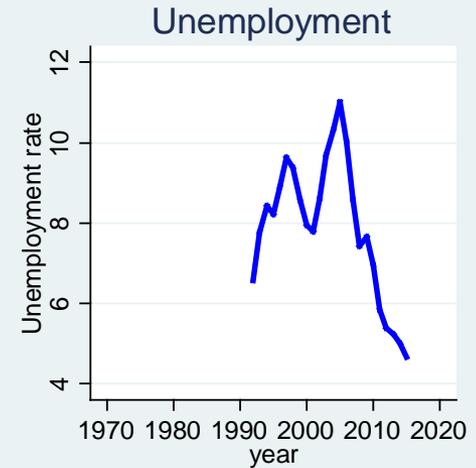
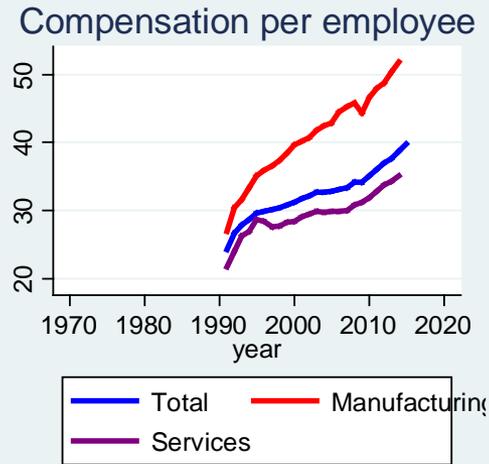
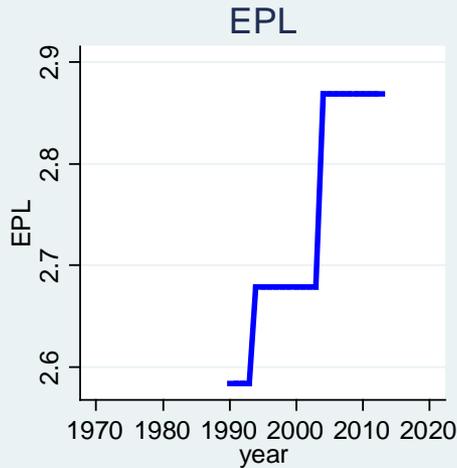
$$gap_{it} = \alpha_i + \beta y_{it} + \varepsilon_{it}$$

- A reform episode (dummy 0,1) is one which is associated with (i) change in EPL at time t , (ii) negative average *epsilon* for the real wage between t and $t+2$, (iii) positive average *epsilon* for employment between t and $t+2$

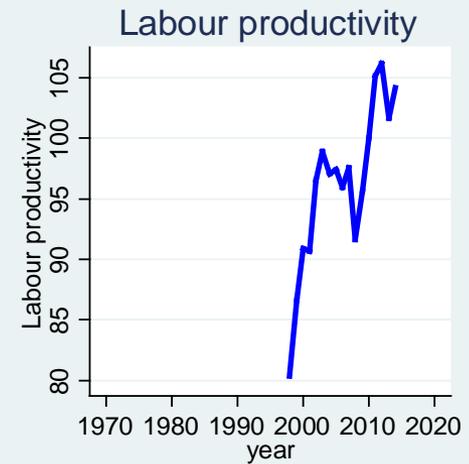
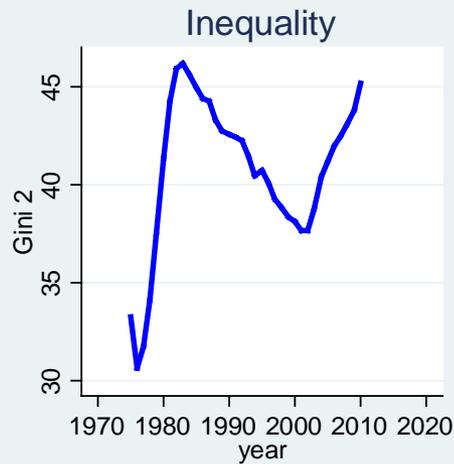
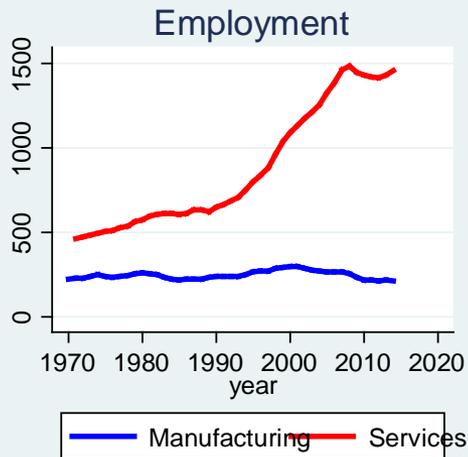
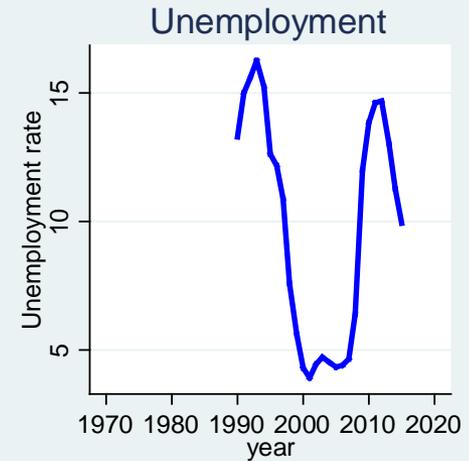
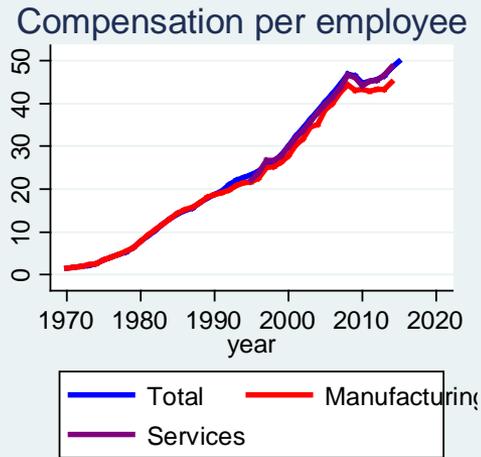
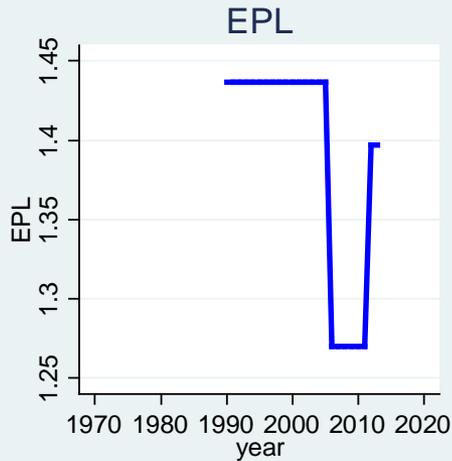
Some caveats and qualifications

- This measure does not capture all labour market reforms – only those which have the intended effect on employment and the real wage
- Identified reforms are not necessarily associated with looser regulation (example: Germany 2003)
- We do not wish to distinguish “surprise” and/or “exogenous” reforms – it is difficult to do it and we do not think this matters much in the present context

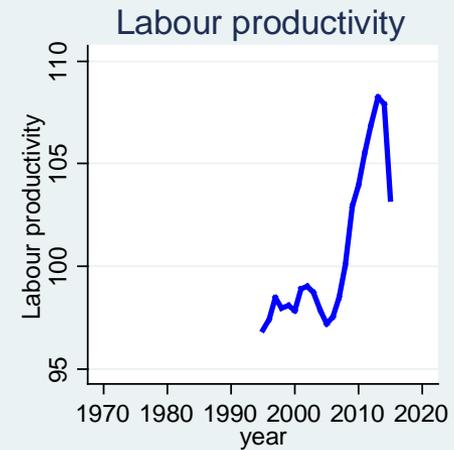
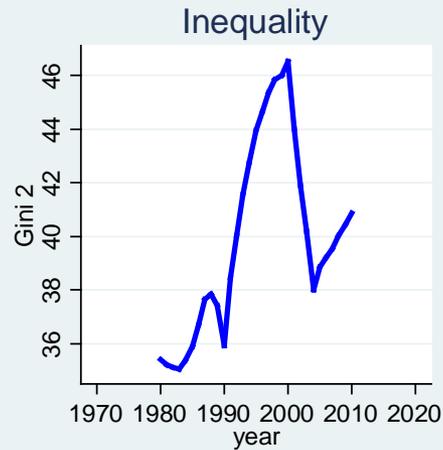
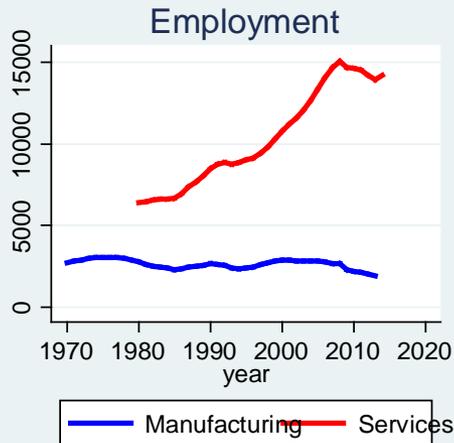
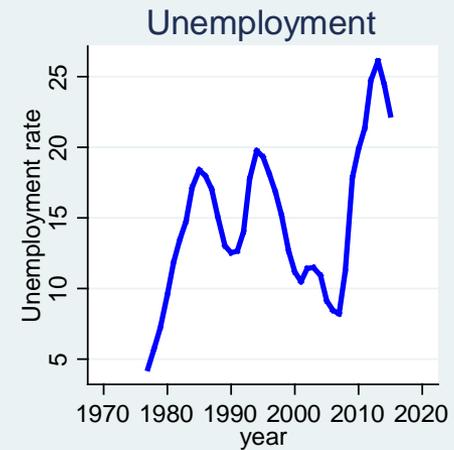
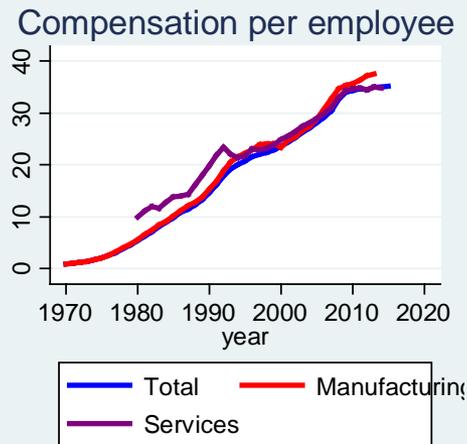
Example: Germany



Ireland

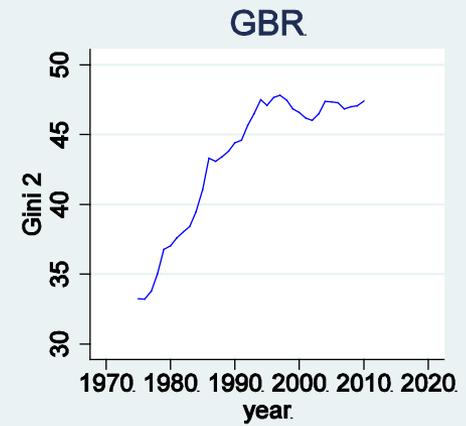
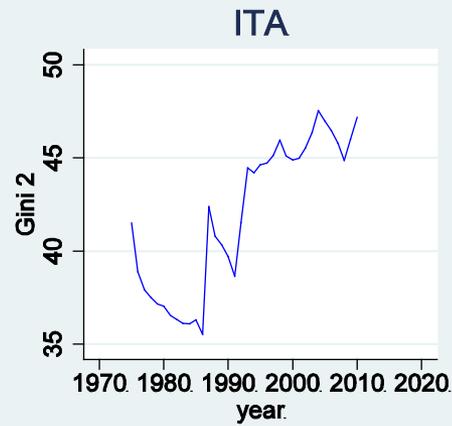
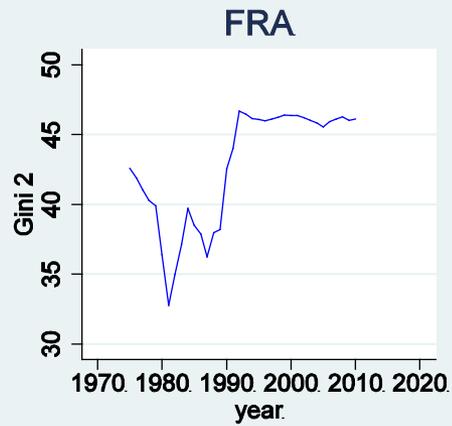
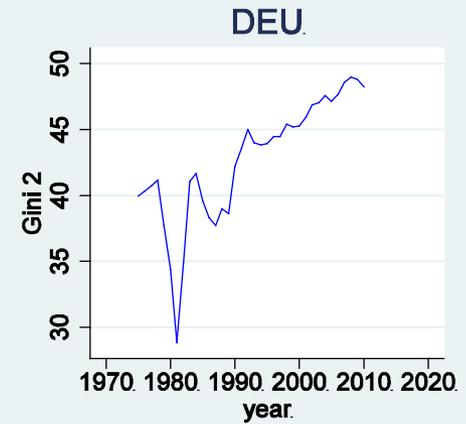
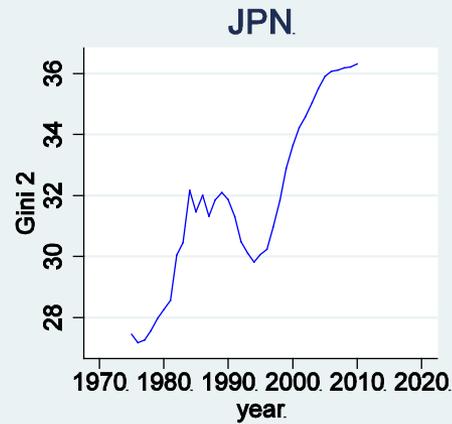
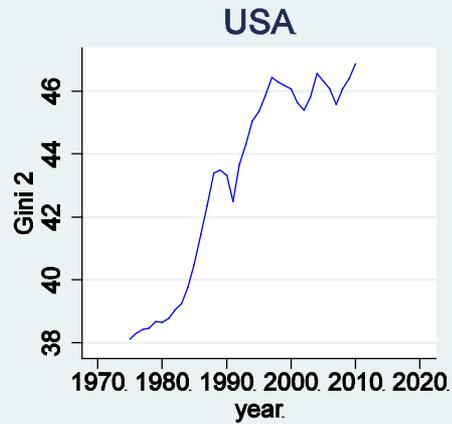


Spain



Income inequality on the rise

Gini



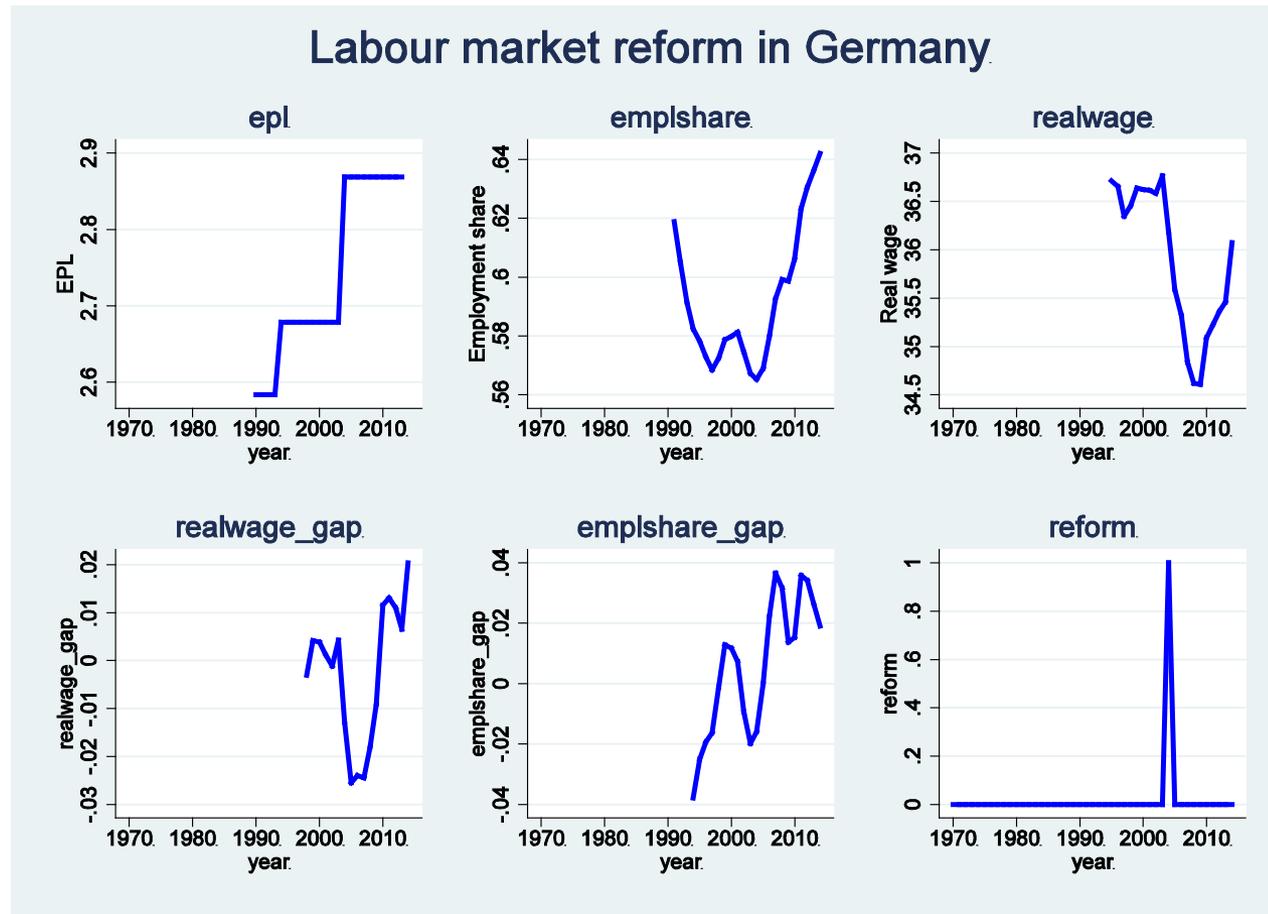
Effects on the variables of interest

- We regress six variables z (real GDP growth, unemployment, employment share, labour share of income, real wage, and Gini) on the reform dummy in year t (*short term effect*) and in t to $t-3$ (*long term effect*)
- Similar to diff in diff
- We then consider reforms under different conditions
 - Reforms decided under fiscal expansion/contraction, with rising/falling interest rates
 - Reforms in large vs. small countries, open vs. closed economies

$$z_{it} = \alpha_i + \lambda_t + \rho z_{i,t-1} + \gamma D_{it}^{reform} + v_{it}$$

Identified labour market reforms

- We identify 64 reform episodes
- Example: Germany 2003



Some interesting correlations

	Gini 2	Employment share	Unemployment rate	Real GDP growth	Labour share of income	EPL
Gini 2	1					
Employment share	0.0042 (0.941)	1				
Unemployment rate	-0.019 (0.739)	-0.66*** (0.000)	1			
Real GDP growth	-0.040 (0.480)	-0.063 (0.267)	-0.034 (0.548)	1		
Labour share of income	0.21*** (0.000)	0.082 (0.147)	-0.22*** (0.000)	-0.26*** (0.000)	1	
<i>EPL</i>	<i>0.24***</i> (0.000)	<i>-0.23***</i> (0.000)	<i>0.16**</i> (0.004)	<i>-0.081</i> (0.154)	<i>-0.13*</i> (0.021)	<i>1</i>

Short term effects (same year t)

	(1) Real GDP growth	(2) Unemployment	(3) Employment share	(4) Labour share of income	(5) Real wage	(6) Gini
Lagged dependent	0.319*** (0.046)	0.923*** (0.017)	0.939*** (0.009)	0.872*** (0.017)	0.913*** (0.022)	0.897*** (0.014)
Labour market reform	-0.001 (0.003)	-0.118 (0.083)	0.007*** (0.001)	-0.002 (0.004)	-0.016*** (0.006)	0.002 (0.004)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.467	0.877	0.921	0.888	0.947	0.915
Number of country	32	32	31	31	31	31

Long term effects (t to t+3)

	(1)	(2)	(3)	(4)	(5)	(6)
	Real GDP growth	Unempl	Employment share	Labour share of income	Real wage	Gini
Lagged dependent	0.319*** (0.046)	0.924*** (0.017)	0.939*** (0.009)	0.872*** (0.017)	0.910*** (0.021)	0.898*** (0.014)
Labour market reform (t to t-3)	0.000 (0.002)	-0.111 (0.103)	0.005** (0.002)	-0.005* (0.003)	-0.012* (0.006)	-0.002 (0.005)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.467	0.877	0.921	0.888	0.947	0.915
Number of countries	32	32	31	31	31	31

Controlling for demand policies

- We divide the set of reforms into reforms where the average CAB is *below* zero on average between $t-1$ and $t+1$ (“*reforms under fiscal expansion*”) and *above* zero (“*reforms under fiscal consolidation*”)
- We also consider reforms where the short term interest rate at time $t+1$ is below the level at $t-1$ (“*reforms under monetary expansion*”) or otherwise (“*reforms under monetary contraction*”)
- From now on, we only look at the long term effect

Controlling for structural characteristics

- We divide the set of reforms into reforms where the country is above or below the median of our country sample in terms of *(i)* trade openness and *(ii)* size (PPP share of world GDP)
- Four reform dummies
 - Reform – large country
 - Reform – small country
 - Reform – more open country
 - Reform – more closed country

The role of fiscal policy

	(1) Real GDP growth	(2) Unempl	(3) Empl share	(4) Labour share of income	(5) Real wage	(6) Gini
Lagged dependent	0.319*** (0.046)	0.923*** (0.017)	0.939*** (0.009)	0.871*** (0.017)	0.910*** (0.021)	0.899*** (0.014)
Labour market reform (t to t-3) under fiscal expansion	0.001 (0.001)	-0.047 (0.129)	0.003 (0.003)	-0.009** (0.004)	-0.012* (0.006)	-0.004 (0.007)
Labour market reform (t to t-3) under fiscal consolidation	-0.001 (0.002)	-0.103 (0.142)	0.005* (0.002)	0.001 (0.003)	-0.008 (0.006)	0.001 (0.006)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.467	0.877	0.921	0.889	0.947	0.915
Number of countries	32	32	31	31	31	31

The role of monetary policy

	(1)	(2)	(3)	(4)	(5)	(6)
	Real GDP growth	Unempl	Empl Share	Labour share of income	Real wage	Gini
Lagged dependent	0.319*** (0.046)	0.925*** (0.017)	0.940*** (0.009)	0.872*** (0.017)	0.910*** (0.020)	0.898*** (0.014)
Labour market reform (t to t-3) under monetary expansion	0.003* (0.002)	-0.222* (0.122)	0.006*** (0.002)	-0.003 (0.003)	-0.002 (0.007)	-0.001 (0.005)
Labour market reform (t to t-3) under monetary contraction	-0.003 (0.002)	0.186 (0.126)	-0.003 (0.002)	-0.004 (0.006)	-0.014* (0.007)	-0.004 (0.010)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.468	0.877	0.921	0.888	0.947	0.915
Number of countries	32	32	31	31	31	31

The role of trade openness

	(1) Real GDP growth	(2) Unempl	(3) Empl. share	(4) Labour share of income	(5) Real wage	(6) Gini
Lagged dependent	0.319*** (0.046)	0.922*** (0.017)	0.937*** (0.009)	0.869*** (0.018)	0.909*** (0.021)	0.899*** (0.014)
Labour market reform (t to t-3) - More open country	-0.001 (0.002)	0.162 (0.192)	0.000 (0.004)	-0.018** (0.007)	-0.026** (0.010)	-0.006 (0.012)
Labour market reform (t to t-3) - More closed country	-0.000 (0.002)	-0.131 (0.124)	0.005** (0.002)	-0.000 (0.003)	-0.006 (0.006)	-0.000 (0.005)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.467	0.877	0.921	0.889	0.947	0.915
Number of countries	32	32	31	31	31	31

The role of country size

	(1)	(2)	(3)	(4)	(5)	(6)
	Real GDP growth	Unempl	Empl share	Labour share of income	Real wage	Gini
Lagged dependent	0.319*** (0.046)	0.923*** (0.017)	0.939*** (0.009)	0.870*** (0.017)	0.910*** (0.021)	0.898*** (0.014)
Labour market reform (t to t-3) - Large country	-0.000 (0.003)	-0.073 (0.131)	0.006** (0.003)	-0.009*** (0.003)	-0.009 (0.007)	0.005 (0.003)
Labour market reform (t to t-3) - Small country	0.000 (0.002)	-0.093 (0.138)	0.003 (0.002)	-0.004 (0.004)	-0.012* (0.006)	-0.007 (0.007)
Observations	1,155	1,131	1,109	1,090	803	982
R-squared	0.467	0.877	0.921	0.888	0.947	0.916
Number of countries	32	32	31	31	31	31

Planned follow up

- Better illustration of the possible theoretical channels (e.g. what should we expect from market liberalisation for, say, inequality?)
- Product market reforms in addition to labour market reforms
- Robustness of the identification assumptions, e.g. on the time horizon of the effects
- Narrative support to the identification (looking more carefully at identified reforms in each country)