



The Quantification of Structural Reforms: The Role of PMR

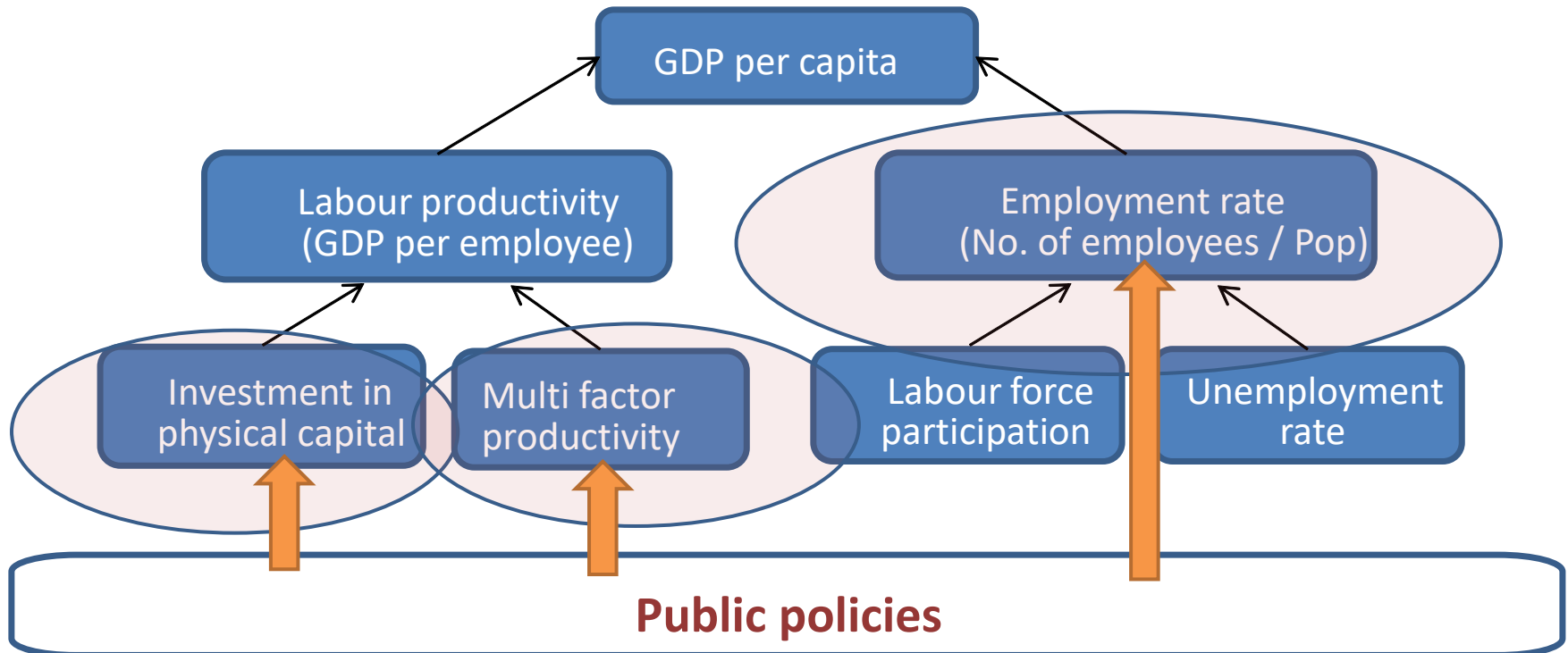
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Usual disclaimer applies



Reform quantification framework

Key drivers in a production function approach



- Regression analysis for OECD countries.
- **Using a large number of indicators** measuring product and labour market regulations and other policies.
- **Quantifying the effect of policy reforms on per capita income, through the three supply-side channels**, and for the short, medium and long run.



Approach is macroeconomic in nature

Micro vs. macro

- A large amount of micro- and industry-level work
- But there is still need for a framework with a targeted macro focus

Micro approaches:

- Better identification of policy effects

Macro approaches:

- Better at providing macroeconomic effects
- Better at incorporating more policy channels
- Better at covering a larger number of countries



PMR in quantification

- $MFP = f(\text{PMR}, \text{ALMP}, \text{openness}, \text{innovation}, \text{controls})$
- $K/Y = f(\text{PMR}, \text{EPL}, \text{UCC}, \text{controls})$
- Employment rate (demographic groups) = $f(\text{PMR}, \text{labour market policies}, \text{controls})$



Measuring PMR

- PMR available every 5 years; since 1998
- **Electricity, Transport and Communication Regulation (ETCR) indicator**
 - **Starts 1975**
 - **Yearly observations**
 - **Subset of the headline PMR indicator**
 - **Current coverage: 1975-2018 (last PMR vintage)**
 - **To be extended to 2023**



Preliminary 2018 update

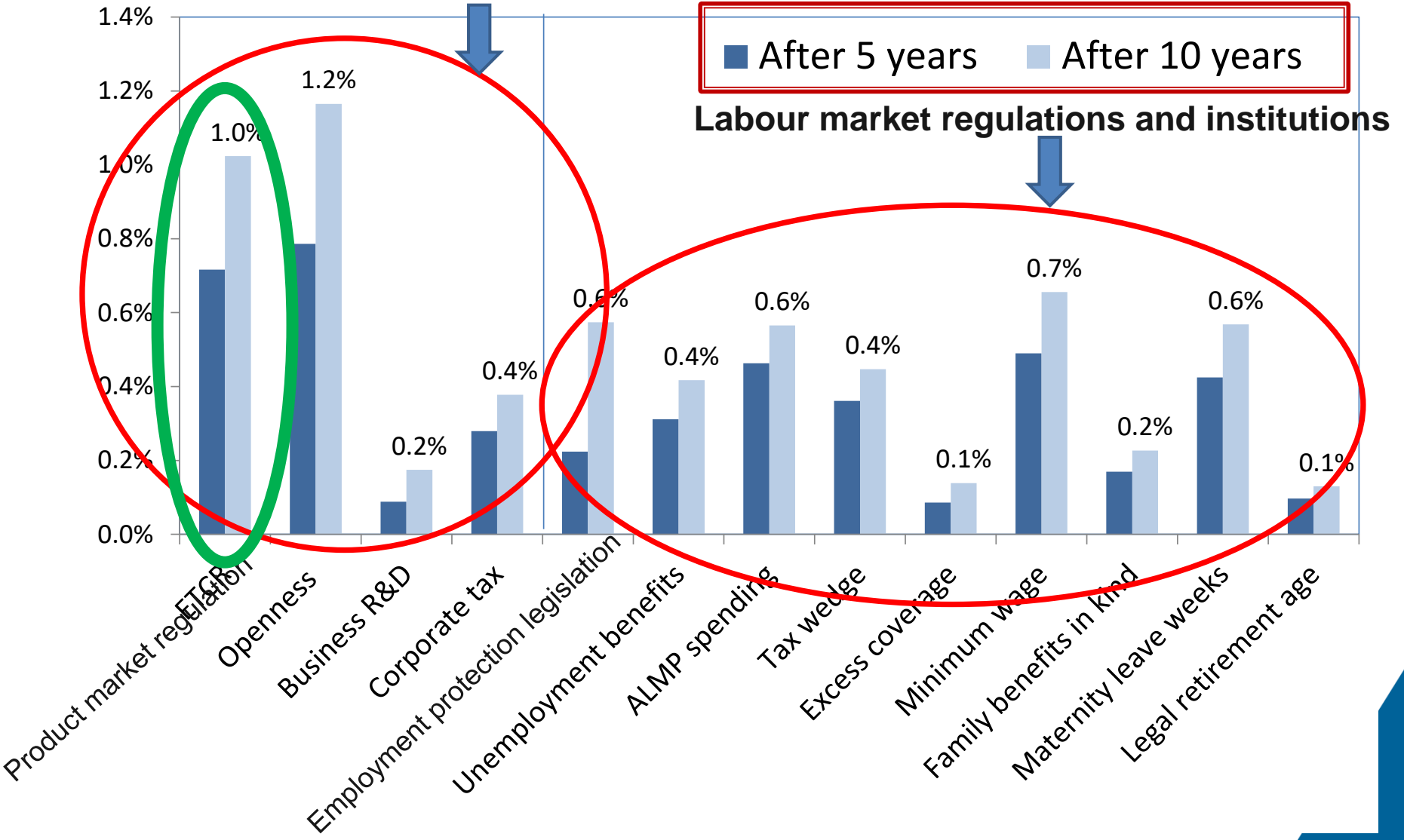
- The sign, significance and magnitude of ETCR coefficient estimate have remained largely unchanged
- ETCR series used in
 - Multi-factor productivity regressions
 - Investment regressions
 - Employment regression
- Cross-country time series panel for OECD countries, 1985 to 2018



Relative reform effects

2013 PMR vintage

Policies affecting mostly MFP and the capital stock





Alternative uses of PMR in OECD Economics Department work

- **2013 PMR included in cross-country regressions**
 - Effects larger as cross-country variation is greater than variation over time
- **PMR indicator combined with World Bank data to extend time/country coverage**
 - OECD Long-term scenario model
- **ETCR indicator(s) used at sectoral level**
 - Effects differ for different sectors (e.g. telecom, energy, transport)



Coming soon

- **Updating** the dataset and econometric estimates
- **Integrating additional indicators** such as managerial quality, skill mismatches, gender gaps/quotas in management boards, insolvency regimes, environmental policy stringency and many more.



PMR in the policy reform simulator





Take your seat and perform country-specific simulations

- Select a reform measure
- Identify it in the PMR/ETCR indicator
- Figure out the change in the policy indicator arising from the reform
- Apply the estimated elasticities to this change
- Results for 2,5, 10 years and long-term
- Results for per capita income levels, and the underlying supply-side channels (multi-factor productivity, capital deepening and the employment rate)



Thank you



Preliminary 2018 update

Multi-factor productivity

Explanatory variables	Dependent variable: multi-factor productivity			
	Old QASR estimates		New QASR estimates	
	Long run	Short run	Long run	Short run
Constant			-2.746	
ETCR	-0.037**	-0.010**	-0.041**	-0.014**
Openness (adjusted for country size) divided by 100	0.700**	0.100**	0.114**	0.044**
Private R&D by industry (% of GDP)	0.071**	0.023**	0.080**	n.s.
Human capital, based on PIAAC and PISA scores	not included	not included	2.359**	1.426**
ECT	-0.033**		-0.049**	
Adjusted R-squared	0.952		0.721	
Obs.	755		523	
Countries	34		32	
Country and year fixed effects	YES/NO		YES/NO	
Time coverage	1985/2011		1985/2018	



Preliminary 2018 update

Capital-to-GDP ratio

Dependent variable: logged Capital stock / GDP

Explanatory variables	Old QASR estimates		New QASR estimates	
	Long run	Short run	Long run	Short run
			1.044**	
ETCR	-0.025**	0.010**	-0.024**	-0.001
EPL	-0.152**	0.001	-0.059**	-0.024
Corporate income tax %GDP	-0.026**	-0.006**	-0.021**	-0.013**
ECT	-0.022**		-0.046**	
Adjusted R-squared	0.947		0.903	
Obs.	600		739	
Countries	31		31	
Country and year fixed effects	YES/YES		YES/YES	
Time coverage	1985/2011		1985/2018	



Preliminary 2018 update

Employment rate

Explanatory variables	Dependent variables: employment rate										SD (within & between)
	Youth		Prime age women			Prime age men		Elderly			
	Old	New	Old	Prime age women New	Prime age men Old	New	Old	New			
Tax-benefit and activation policies											
Unemployment benefit replacement rate (gross)	-0.183**	-0.096	-0.204**	-0.26**	-0.269**	-0.147**	-0.153**	-0.343**	-0.192**	13.39	
ALMP spending per unemployed (detrended), % of GDP per capita	0.147**	0.136**	0.092**	0.156**	0.136**	0.047**	0.11**	0.063**	0.125**	23.79	
Tax wedge	-0.866**	-0.04	0.204	-0.075	-0.084*	-0.274**	-0.231**	-0.260**	0.013	10.16	
Wage setting institutions											
Excess coverage	0.072	-0.067	-0.171**	-0.289**	-0.282**	0.025	0.067**	0.105	-0.057**	26.08	
Excess coverage x tax wedge	-3.627**	0.005**	-0.938**	0.002	0.002	0.079	0.004**	0.623*	0.018**	253.35	
Minimum wage (% median)	-0.311**	-0.448**	-0.421**	-0.404**	-0.422**	-0.421**	0.028	-0.003	-0.416**	23.05	
Labour and product market regulations											
EPL regular contracts	1.599	-1.441	-2.746*	-1.74	-0.734	-0.569	0.065	1.710	2.043*	0.96	
ETCR	1.032	0.389	-1.533*	-1.755**	-1.902**	0.232	0.016	0.630	0.016	1.23	
Policies primarily affecting women											
Cash benefits in kind (% of GDP)			-0.957	-1.112						0.56	
Family benefits in kind (% of GDP)			4.698**	0.955						0.58	
Number of maternity leave weeks			0.265**	0.084						9.03	
Error correction term	-0.303**	-0.218**	-0.145**	-0.134**	-0.136**	-0.294**	-0.246**	-0.160**	-0.097**		
Adjusted R-squared	0.978	0.958	0.960	0.947	0.946	0.907	0.88	0.977	0.971		
Obs.	422	512	420	526	545	420	545	420	547		
Countries	25	28	25	26	29	25	29	25	29		
Country and year fixed effects	YES/YES	YES/YES	YES/YES	YES/YES	YES/YES	YES/YES	YES/YES	YES/YES	YES/YES		
Time coverage	1987-2010	1985/2018	1987-2010	1985/2018	1985/2018	1987-2010	1985/2018	1987-2010	1985/2018		