The Role of Assessing the Risk in the Costing of Structural Reforms

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Outline

1. Structural reforms
2. The importance of risk when assessing structural reforms
3. Framework for identifying risk
   - Benefits
   - Costs
4. Risk arising from policy design, implementation and framework conditions
5. Quantifying the effect of structural reforms
6. Assessing certainty of estimated benefits
7. Conclusion on the role of risk in assessing structural reforms

Aim of structural reforms

1. *To raise income per capita in the medium term*

2. Structural reforms encompass **policy actions that increase the efficiency and competitiveness of the economy**, with beneficial effects for long-term fiscal sustainability. **Fiscal structural reforms enhance efficiency and effectiveness** without jeopardizing stability of public finances

3. Structural reforms have **positive long-term effects on output growth, employment and the sustainability of public finances**

4. Typical examples are labor and product market reforms, as well as systemic pension reforms that benefit long-term fiscal sustainability

Costing structural reforms

1. Structural reforms **generate benefits and might entail costs** that need to be identified, disclosed and quantified

2. The positive **effects of structural reforms take time to materialize** and are more visible over the medium-to-long term

3. **Potential cost of reforms are associated to their short-run impact on employment and output and can carry fiscal, distributional and political instability costs**

4. For structural reforms to be implemented successfully**, the positive net effect should be maximized which depends of various dimensions: design, timing, sequencing, underlying conditions and communication**

5. **Spelling out benefits and costs of structural reforms** in a comprehensive and transparent manner **allow assessing their net benefit and identifying the risks with the purpose of maximizing their positive net impact**

Why to assess risk when considering structural reforms?

1. Allows to focus on multidimension impact of structural reforms
2. Maximize impact of structural reform (reduces the short-term cost or improve the net benefit)
3. Can minimize undesirable consequences in terms of fiscal or distributional impacts or internalize their cost
4. Identify factors that can help successful implementation
5. Avoid reversals
6. Avoid postponement of reforms
7. Design complementary reforms to mitigate undesirable effects
8. Can help to their communication and implementation

Pre-conditions for risk assessment

1. Understand short and long-term economic gains
2. Define and determine costs including fiscal implications
3. Identify underlying conditions, sequencing and speed of implementation and how they interact with reforms

Benefits of structural reforms

1. **Rise productivity**— Product market reforms boost growth by:
   - lowering the prices that firms charge consumers
   - improving the use and allocation of labor and capital across firms
   - enhancing firms' incentives to invest
   - absorb cutting-edge technologies, and innovate

2. **Increase employment**—increasing the demand for labor, enhance unemployed workers' ability and incentives to find jobs, or both by:
   - easing barriers to entry into product markets
   - reducing the level or duration of unemployment benefits
   - strengthening active labor market policies, and
   - lowering labor tax wedges

3. **Raise the participation of underrepresented groups in the labor market**

4. **Improve sustainability of public finances**

Typical reforms of product and labor market

1. **Deregulating retail trade**, **professional services**, and certain segments of network industries primarily by reducing barriers to entry

2. **Increasing the ability of and incentives for the non-employed to find jobs**, active labor market policies and reducing the level or duration of unemployment benefits

3. **Lowering the costs of and simplifying the procedures for hiring and dismissing regular (permanent) workers** and harmonizing employment protection legislation for both regular and temporary workers

4. **Improving collective-bargaining frameworks** in instances in which they have struggled to deliver high and stable employment

5. **Cutting the labor tax wedge** to improve incentives

6. **Targeted policies to boost participation** of underrepresented groups in the labor market, including youth, women, and older workers

Fiscal structural reforms: key distinction

1. **Fiscal structural reforms need to be distinguished from the discretionary use of fiscal policy** as a countercyclical tool or to achieve other short-term government objectives

2. **Their aim is first and foremost to improve the way the government works and to limit the perimeter of government action** to those functions for which there is a clear economic rationale (e.g. privatization) and ensure sustainability

3. Tax cuts adopted without compensating measures, or spending measures that are not accompanied by broader efforts to public spending, do not qualify as structural reform measures

Cost of structural reforms

1. Risk of **costly transitory adjustment** or unintended long-lasting consequences (e.g. reforms can trigger quick downsizing of incumbent firms and dismissal of workers)

2. **Fiscal cost**

3. **Income distributional consequences**

4. **Political instability**

Cost of reforms change over the business cycle

1. **Economic position in business cycle might heighten risk of transition costs**

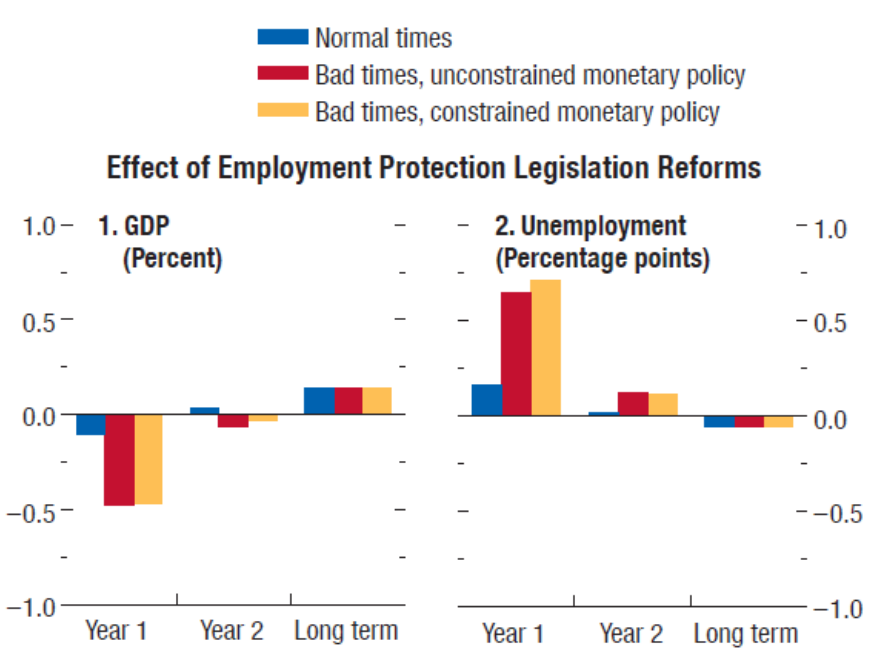
2. Policies that improve the supply side through **structural reforms will not lead to more demand** and output (Campos et al. 2018)

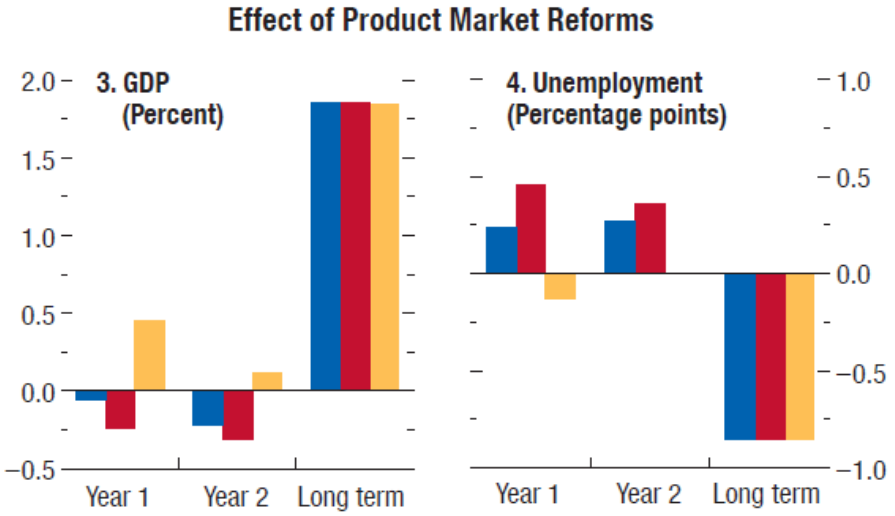
3. **Timing of implementing reforms is key** (Eggertsson et.al 2014)
   - Can exacerbate recession
   - Can rise hostility to free market
   - Weaken resolve to undertake reforms

4. There is a **strong case for counter-cyclical reforms** (Boeri et.al (2015)
   - increasing generosity of unemployment benefits during downturns
   - reducing employment protection is costlier during downturns
   - reductions in labor taxes and increases in spending on active labor market policies have larger effects during periods of economic slack

Short-term costs and business cycle

Reforms improve output over the long term, but they pay off only gradually and can entail short-term costs, particularly in bad times





Source: IMF staff estimates.
Note: "Long term" refers to the steady state.

Source: IMF. WEO 2016:April

Effect of Product and Labor Market Reforms on Macroeconomic Outcomes

The effects of structural reforms depend on the type of reform, overall economic conditions, and the horizon considered.

Area of Reforms	Normal Economic Conditions		Weak Economic Conditions		Strong Economic Conditions	
	Short Term	Medium Term	Short Term	Medium Term	Short Term	Medium Term
Product Market	+	++		+	+	++
Employment Protection Legislation			–	– –	+	++
Unemployment Benefits	+	++	–		+	++
Labor Tax Wedge	++	++	++	++		
Active Labor Market Policies	++	++	++	++		

Source: IMF staff estimates.
Note: The macroeconomic outcomes are output and/or employment; + (–) indicates postive (negative) effect; the number of + (–) signs denotes the strength of the effect. The effect of labor tax wedge decreases and spending increases on active labor market policies is smaller but remains positive when these measures are implemented in a budget-neutral way.

Source: IMF. WEO 2016:April

Importance of sequencing, underlying policies and conditions to minimize costs and risks

1. The potential cost of reforms can be mitigated depending on **underlying conditions in product and labor markets**
   - Impact of easing dismissal are small when product market regulation is light
   - Cost of lowering entry barriers are high when employment legislation is light
   - Reforms with open ended contracts (EPL) can be less acute when labor market is significantly dual

2. Careful packaging and **sequencing of different structural policies can help to limit the possible negative short-term impact on demand**

3. **Product market reforms have some expansionary effect even in the short term**, and this effect does not depend markedly on overall economic conditions

4. **Conditions of bank and corporate balance sheets are important** and can strengthen the impact of product market deregulation on private investment. The opposite also holds

5. **Supportive macroeconomic policies**—including fiscal stimulus where space is available and a strong medium-term fiscal framework is in place—**can offset the short-term costs of some labor market reforms**

The importance of credibility of reforms to reduce risks

1. **The positive effects of structural reforms depends on the strength of confidence channels, which crucially depends on the credibility of the reforms**

2. The impact of reforms that lack credibility will be smaller compared to reforms in which economic agents have full confidence

3. If the credibility of the reform package is only gradually built up, its impact on growth will be smaller in the shorter term

4. The positive effect of reforms when credible can be more pronounced, manifest themselves more rapidly and last longer

High-quality institutions are essential to minimize risks

1. **Weak institutions can result in poor design** and implementation of reforms

2. **Can lead to reversals** creating environment that is hard to sustain growth and vulnerable to periods of crisis and stagnation

3. **May not ensure level playing field**, open-access for all economic actors and equal opportunities **resulting in privileges of specific groups and monopoly rents weakening strength of reforms**

4. Solid institutions support impact of reforms by **ensuring the efficient allocation of resources and provision of public goods**

5. **Key pillars of sound institutions** include:
   - **the rule of law** (and thus a high degree of legal certainty)
   - **freedom of speech** and freedom of the press
   - **efficient and impartial public administration and judicial system**
   - **high degree of transparency in public decisions and transactions**

Fiscal impact of reforms: **labor market**

1. **Short-term direct budgetary effects may vary and net effects are hard to pindown**
   - **Higher spending on active labor market policies or on reforms that temporarily lead to higher unemployment**, may cause a short-run deterioration in the budget balance
   - Active labor market policies can affect positively employment and labor productivity in the medium to longer term

2. **Reforms of the wage-setting mechanisms have unclear short-term effects on the budget balance**
   - **Decentralization of the wage bargaining system or decrease minimum wages** have wage moderating effects and ***reduce labor tax revenues***. But, lower minimum wages also on public sector employees reduce spending for the government
   - **Loosening employment protection** legislation increase temporarily unemployment affect adversely revenue and expenditure may support labor market adjustment

3. **Decrease in unemployment benefits has positive short-term direct effects on public finances, whereas indirect effects depend on the evolution of employment**

Fiscal impact of reforms: **Product market**

Product market reforms increase investment and, in some cases, have positive impacts on the budget balance

- **Reforms that increase access to finance** consistent with financial stability **do not necessarily have direct budgetary implications in the short term**, but should increase growth and budget revenues in the longer run

- **Reforms that enhance firms' efficiency and productivity** (e.g. improving the business environment) and reduce regulatory barriers to competition usually **have no direct budgetary effects**. Reducing barriers might lower employment in short run, but not in the medium to long run

- **Reforms that reduce red tape** a**re immediately beneficial to private sector** activity and may consequently have positive budgetary effects

Fiscal impact of reforms: **Labour and product market**

Center of Excellence in Finance

Short-term budgetary effects of labour and product market reforms

Main types of reform action	Direct effect on public finances	Indirect effect on public finances via impact on:		
		Employment	Investment	Consumption
LABOUR MARKET REFORM				
Decentralise the collective wage bargaining arrangement and decrease in minimum wages	?	?		?
Decrease employment protection legislation	?	?		?
Reform unemployment benefits (e.g. reduce generosity, reduce benefit coverage, stronger conditionality)	+	?		?
Increase spending on active labour market policies	-	+		+
PRODUCT MARKET REFORM				
Introduce reforms that enhance efficiency and productivity (including R&D)			+	
Reduce regulatory barriers to competition		?	+	?
Decrease the administrative burden (public sector)	+		+	
Increase access to finance			+	

Notes: Table shows the direct and/or indirect short-term effects of structural reforms on the budget balance drawing on the findings of the literature. Indirect budgetary effects work via the impact of reforms on the main macroeconomic aggregates. The "+" points to a positive short-term effect on the budget balance that is either direct (second column) or indirect (last three columns). The "-" sign points to negative effects. Whenever the sign or significance of such effects is uncertain, the symbol "?" is used. Blank cells indicate that the reform is not expected to produce any short-term impact on that variable.

Source: ECB. Economic Bulletin No. 7. 2015

Fiscal impact of reforms: **Pension and health care**

1. **Pension reforms, with the exception of introduction of a private pillar, may generate short-run budgetary savings** and may foster employment

2. **Healthcare reforms can contribute to reducing long-term age-related costs and generally have positive short-term budgetary effects**
   - (e.g. caps on current and investment spending, wage controls and agreements with pharmaceutical companies to contain spending) and governance reforms (more efficient decision-making processes and cost-effective contracting systems)

Short-term fiscal impact of pension systems and healthcare reforms

Main types of reform action	Direct effect on public finances	Indirect effect on public finances via impact on:		
		Employment	Investment	Consumption
Increase work incentives				
Increase retirement age and/or discourage early retirement	+	+		
Equalise retirement age for men and women	+	+		
Increase financial sustainability				
Index contributions or retirement age to life expectancy	+			-
Increase private contributions to funded pension schemes	+			-
Lower pension benefits (e.g. limits to pension indexation, lower the pension replacement ratio)	+			-
Increase diversification of income sources				
Introduce second pillar pension system (systemic pension reform)	-			
Shift from defined benefits to defined contribution financing	+			
Improve the quality and efficiency of healthcare services				
Cap healthcare-related spending (e.g. pharmaceuticals, salaries)	+			
Implement governance reforms (decision-making, management, contracting systems)	+			
More effective service provision (cost-effective use of medicines, enhance hospitals' efficiency, cost-sharing mechanism)	+			

Notes: Table 1 shows the direct and/or indirect short-term effects of structural reforms on the budget balance drawing on the findings of the literature. Indirect budgetary effects work via the impact of reforms on the main macroeconomic aggregates. The "+" points to a positive short-term effect on the budget balance that is either direct (second column) or indirect (last three columns). The "-" sign points to negative effects. Whenever the sign or significance of such effects is uncertain, the symbol "?" is used. Blank cells indicate that the reform is not expected to produce any short-term impact on that variable.

Source: ECB. Economic Bulletin No. 7. 2015

Distributional cost

1. Structural reforms are assessed based on their ability to improve long-term GDP per capita, under **the assumption that higher GDP per capita is systematically associated with rising living standards for all**. This assumption is increasingly being challenged

2. **Structural reforms** tend to have a positive impact on the vast majority of citizens, but they **can affect different groups in different ways**

3. **There are set of reforms that might raise trade-offs and synergies between growth equity objectives** (i.e. social protection reforms)

4. The impact impact on income inequality is little when assessed through measures that emphasize the middle class but not when assessed through measures that emphasize incomes among the poor

Impact on distribution

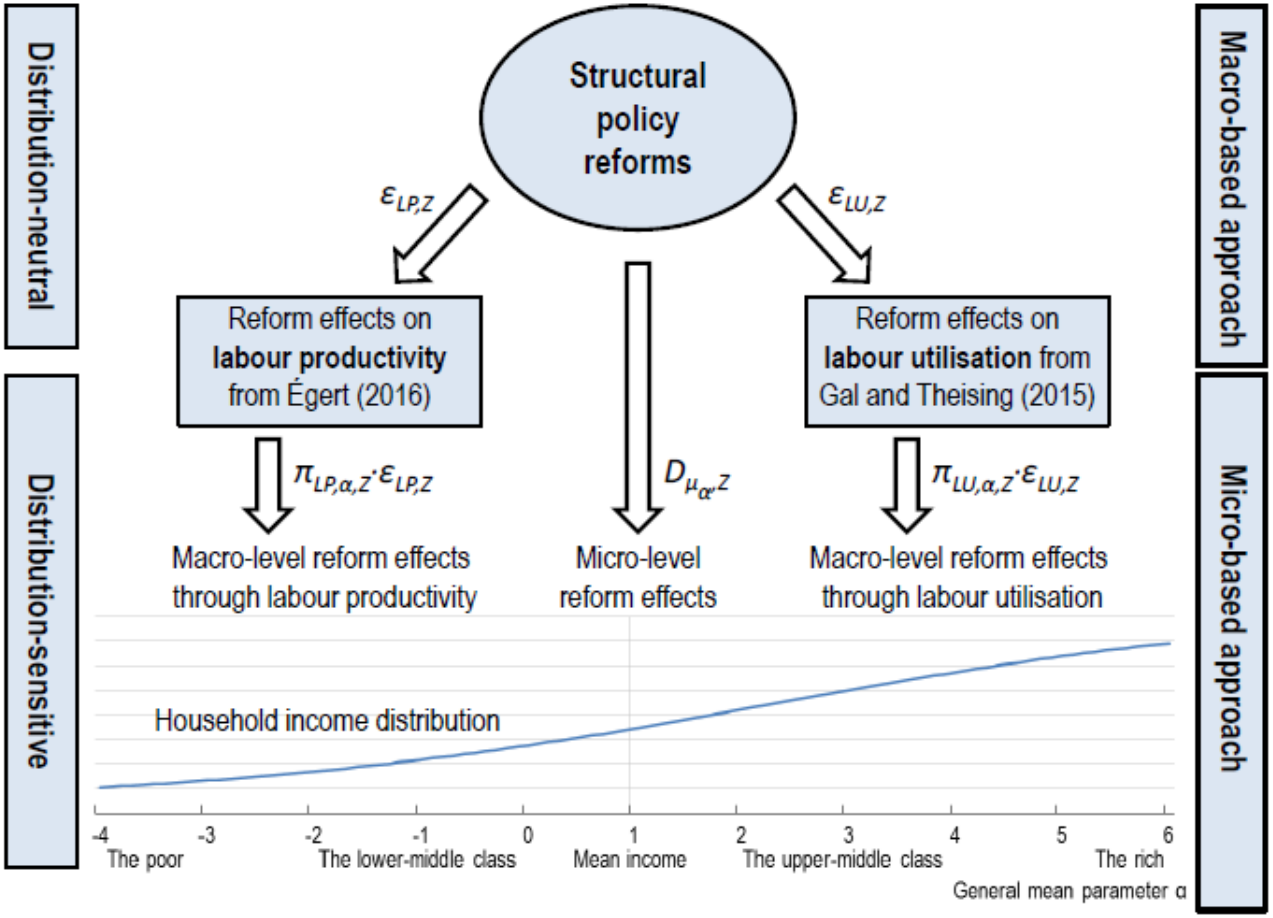
1. **Most of the trade-offs between growth and equity objectives relate to social protection and labor market reforms**

2. Reductions in the generosity of unemployment benefits and social assistance are found to leave poor households behind

3. **There is need of complementary policies**: raising employment while making it more inclusive
   - well-targeted active labor market policies (ALMPs) to enhancing employability among the low-skilled, the long-term unemployed and discouraged jobseekers

4. **Mitigating possible distributional effects may may have budgetary implications**

The distributional effects of structural reforms: a combined macro-micro approach



Causa et al OECD ECO/WKP(2016)66

Policy synergies and trade-offs between growth and equity

Policy reform			Growth effects (%)		Mean income effect (%)	Income inequality effect. Atkinson index[1]		Tail income inequality effect
Policy reform area	Policy reform target	Policy reform magnitude	Labour productivity (LP)	Labour utilisation (LU)	No inequality aversion	Weak inequality aversion (α = 0.5)	Strong inequality aversion (α = -4)	Income gap between the rich and the poor[2]
Labour market and welfare policies								
UB average gross replacement rate	LU, 1%	-3.94 pp	-	1.00	2.34	0.39	1.13	>
ALMP spending (% of GDP)	LU, 1%	12.23 pp	-	1.00	0.00	-2.59	0.00	=
Legal retirement age	LU, 1%	4.57 years	-	1.00	1.44	-0.02	-0.28	<
Family benefits in kind (% of GDP)	LU, 1%	0.48 pp	-	1.00	0.00	0.00	-5.09	<
Excess coverage of collective agreements	LU, 1%	-6.52 pp	-	1.00	2.37	0.19	-0.14	<
Wage bargaining coordination (index 1-5)	LU, 1%	34.17 %	-	1.00	0.00	0.00	-3.52	<
Minimum relative to median wage	LU, 1%	-2.54 pp	-	1.00	0.00	0.00	0.00	=
Tax policy								
Labour tax wedge (unfinanced)	LU, 1%	-3.59 pp	-	1.00	0.00	0.00	0.00	>
Labour tax wedge (revenue-neutral)	LU, 1%	-3.59	-	1.00	1.44	-0.17	-0.53	<
Education								
Public spending on education (% of GDP)	LP, 1%	0.26 pp	1.00	-	0.74	-0.11	-0.65	<
Innovation and technology								
General spending on R&D (% of GDP)	LP, 1%	12.05 %	1.00	-	0.78	0.09	-0.06	=
Number of patent applications (per capita)	LP, 1%	29.41 %	1.00	-	0.92	0.14	0.44	>
Product market regulation								
Regulation in transport and network	LP, 1%	-6.71 %	1.00	0.23	1.17	0.00	-0.07	=
industries (index 0-6)	LU, 1%	-29.04 %	4.33	1.00	5.08	0.01	-0.31	

1. The Atkinson index is measured on scale 0-100. Income inequality effects are simulated around the average Atkinson index across OECD countries for latest available year, A(0.5)=7.96 and A(-4)=51.6.
2. Difference between estimated reform-effect on the rich (α = 6) and the poor (α = -4). ">" ("<") indicates a larger (smaller) effect for the rich relative to the poor, while "=" indicates no significant difference.

Causa et al OECD ECO/WKP(2016)66

Trade-offs and sinergies: Employment-income inequality

1. **Reforms of wage-setting institutions may be good or bad for equity**, depending on the reform design

2. **Limiting the automatic extension of collective agreements** and increasing wage bargaining coordination **boost labor market performance and inclusiveness**

3. **Moderate minimum wage reductions do not trigger a rise in income inequality if allow for encouraging employment creation** among the low-skilled

4. The **trend decline in the rate of unionisation** over the last three decades is found to have contributed to the **rise in income inequality**

5. **Reforms in tax wedge can achieve both employment and equity objectives** (e.g. targeting tax reductions at low-wage earners or by increasing earned-income tax credits)

6. **Easing barriers to firm entry and competition in product markets do not raise trade-offs** between efficiency and equity objectives

7. **Increasing public spending on education** (i.e., childcare and early childhood

Quantifying impact of structural reforms: Micro and macro approaches

1. **Micro approaches:**
   - Better identification of policy effects
2. **Macro approaches:**
   - Better at providing macroeconomic effects
   - Better at incorporating more policy channels
   - Better at covering a larger number of countries

Microsimulation: EUROMOD

1. **Comprehensive approach for analyzing the impact of tax system and social policies** is valuable to understand the impact of the change in the broader scope. Extremely important for policy decision.

2. **Identifies fiscal cost and distributional effects with detailed and insightful information of subgroups**, and other details

3. Standardized output
   - Fiscal overview: Market incomes and Government revenue / expenditure (in million EUR)
   - Basic poverty indices
   - Basic inequality indices
   - Other summary statistics on redistribution and poverty effect (also by population groups)

4. But **does not capture the behavioral response** of individuals to a given policy change (i.e. second-round effects) (feature of macro models)

5. **Possible to detect through which "channel"** effects of a change came from to infer behavioral responses

Quantifying impact of structural reforms

1. **Quantifying the impact of implemented structural reforms is subject to a high level of uncertainty (ECB 2015)**

2. The effectiveness of the implementation of a reform or reform package depends not only on the adoption of the relevant measure, but also implementing rules and underlying conditions

3. **Quantification of cost and benefits of parametric and non parametric reforms**
   - The direct impact of parametric reforms is possible to identify and measure (e.g. pension reforms or specific labor market reforms (changes to unemployment benefits or active labor market policies)
   - For non-parametric reforms quantification often relies on judgement:
     - There is **risk of a biased assessment of changes in laws and regulations**
     - Translating individual measures into effects on observable variables **requires a significant amount of judgement**

Aproaches to quantification of impact of structural reforms

1. **Empirical econometric studies**. Isolate the impact of reforms on quantitative indicators. Issues with estimation:
   - indicators can change for factors other than discretionary government action
   - reforms materialize over time or interact with other policies

2. **Country specific general equilibrium models** (DSGE). Estimate the effect of reforms on different macroeconomic variables under different scenarios. Account for simultaneous influence of reorms via several channels with complementary or offsetting effects, including second-round effects. Issues with estimation:
   - results rely on a significant degree of judgement (e.g. the speed and status of reform implementation and the credibility of the announcement).
   - simulation is complex:
     - requires knowledge about the degree of implementation of reforms
     - quantification of their effects when possible
     - difficulty of translating actual reform measures into model parameters
     - existing policies are subsumed under model parameters that do not fully capture the variety and complexity of such policies

Aproaches to quantification of impact of structural reforms

1. **Hypothetical structural reforms.** Their impact is estimated **based on DSGE models and policy parameters of a benchmark group of countries**

2. Results suggest:
   - Reforms show positive impact of over long-run. GDP and consumption increase and unemployment falls
   - Effects materialize after two years, and some reforms initially entail an increase in unemployment

3. Key issues:
   - Whether benefits of reforms in one country would also materialize in other countries
   - Similar reforms can have very different effects depending on their interaction with other institutional features of the economy and the national context

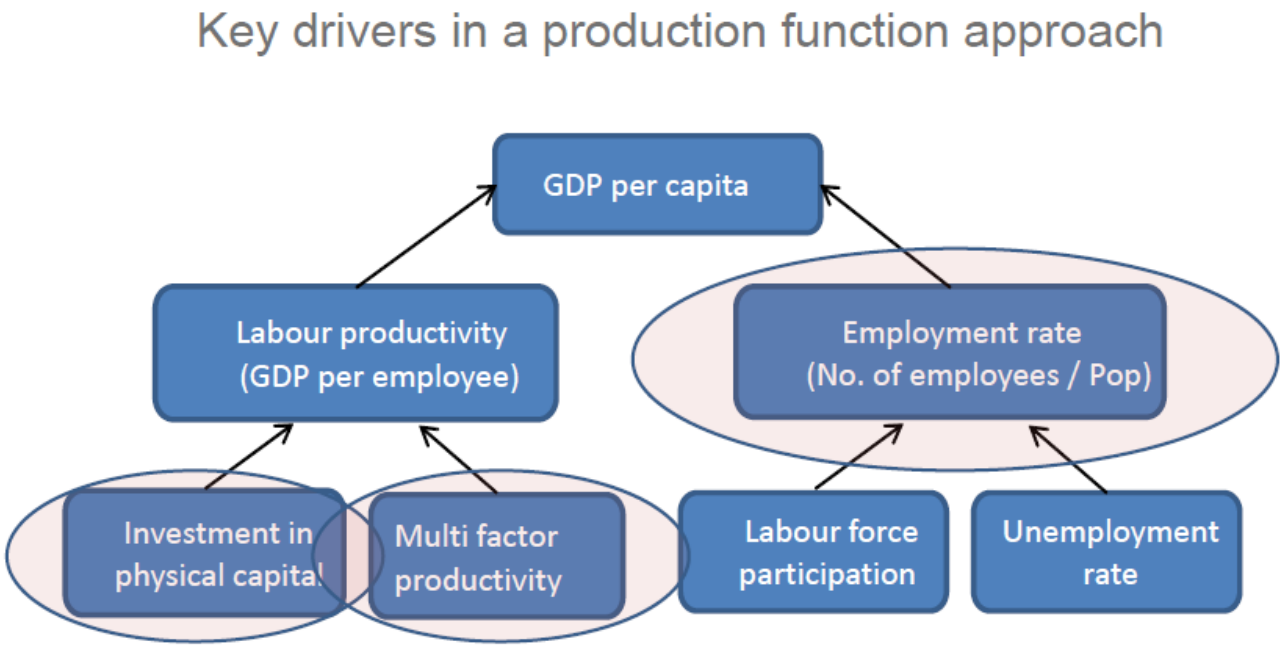
Production function approach (OECD)

1. The influence of policies on GDP is assessed through their impact on supply-side components: labor productivity and employment. Each in turn can be further decomposed, into capital intensity and multi-factor productivity, and labor force participation and unemployment

2. The impact of structural reforms is based on a linear modelling framework developed for OECD countries and quantified from a range of cross-country reduced-form panel regressions on three channels:
   - i) multi-factor productivity, ii) capital deepening, and iii) employment.
   - The overall impact on GDP per capita is obtained by aggregating the policy effects of the various channels through a production function

3. OECD has also non-linear model where impac depend on the level of the same policies or whether policy impacts depend on the level of other policies (Égert and Gal, 2018)

Channels of transmission to per capita GDP



Production function approach applied to OECD and non-OECD countries

1. Assesses the effects of change in policy variables on per capita income levels

2. Policy changes are determined as follows:
   - For OECD countries as the average changes of the indicators to a more favorable direction, observed over two consecutive years
   - For non-OECD countries as one cross-country standard deviation in the large sample

3. Country-specific quantification of overall macroeconomic effect results from determining the precise change in the policy variable and applying proportionally to the ratio of such policy change to the change estimated on the panel regression (linear effect)

Effects on per capita income, through MFP, capital deepening and the employment rate

Linear policy effects for OECD and non-OECD countries

		OECD sample		large sample			
		OECD sample	OECD countries	large sample	OECD & non-OECD together	non-OECD countries	OECD countries
		policy change	long-run effect	policy change	long-run effect	long-run effect	long-run effect
MFP							
ETCR	average time effect	-0.31	1.20%	-0.58			
ETCR public ownership	average time effect	-0.35	0.90%	-0.58			
PMR - overall	cross-country dimension	-0.35		-0.58		40.41%	17.35%
PMR - barriers to entry	cross-country dimension	-0.37		-0.62		24.47%	1.48%
PMR barriers to trade & investment	cross-country dimension	-0.41	8.27%	-0.81	22.71%	53.13%	15.82%
PMR - scope of state control	cross-country dimension	-0.54		-0.61		27.13%	5.28%
trade openness	average time effect	4.01	2.80%				
R&D (business exp)	average time effect	0.10	0.40%				
ALMP spending (log)	average time effect	0.16	0.52%				
ALMP spending	average time effect	3.18	1.27%				
EPL - permanent contracts	cross-country dimension	-0.83	15.44%				
rule of law	cross-country dimension	0.60	21.19%	1.01	43.39%		
corruption	cross-country dimension	0.84	17.39%	1.06	43.13%		
government effectiveness	average time effect			0.13	1.32%		
	cross-country dimension			0.91	47.00%		
political stability	cross-country dimension			0.86	24.04%		
cost of starting a business	cross-country dimension			-15.21	0.76%		
cost of contract enforcement	cross-country dimension			-15.91	7.96%		
time of insolvency procedures	cross-country dimension			-1.23	10.67%		
bank branches	average time effect			8.14	2.44%		
	cross-country dimension			20.60	10.30%		

Note: The policy change for the OECD sample is taken from Égert and Gal (2016). It is defined as the average pro-reform change over a window of two consecutive years. The policy change for the large sample is calculated as one standard deviation of the cross-section data.

Source: OECD calculations. Égert and Gal, 2018)

Effects on per capita income, through capital deepening and the employment rate

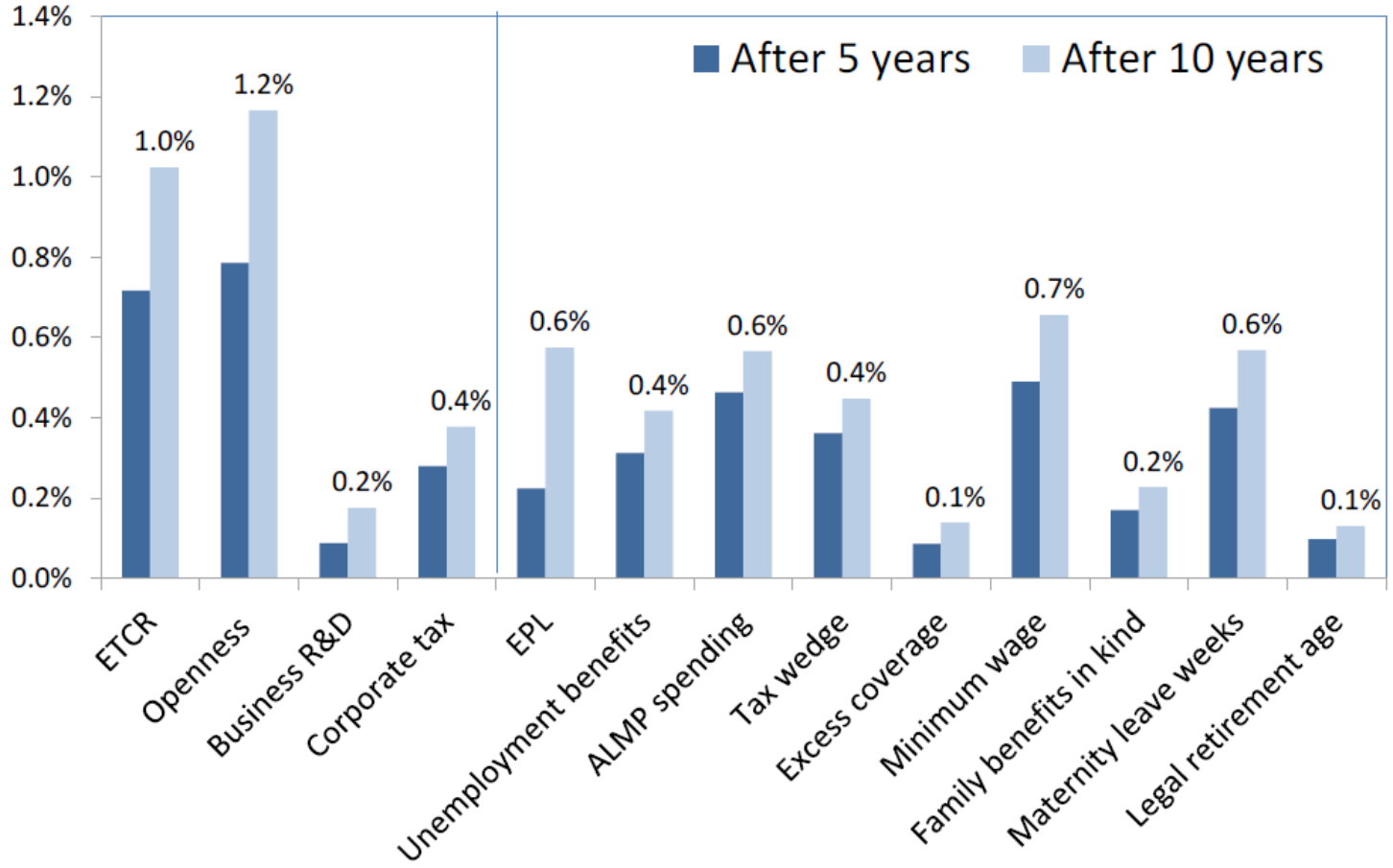
Linear policy effects for OECD and non-OECD countries

		OECD sample	OECD countries	large sample	OECD & non-OECD together
		policy change	long-run effect	policy change	long-run effect
Capital deepening					
ETCR	average time effect	-0.31	0.82%		
corporate taxes	average time effect	-0.98	1.25%		
EPL - permanent contracts	average time effect	-0.09	0.40%		
PMR barriers to entrepreneurship	cross-country dimension			-0.62	4.37%
PMR scope of state control	cross-country dimension			-0.61	6.34%
cost of contract enforcement	cross-country dimension			-15.91	11.76%
finance - bank branches	cross-country dimension			20.60	10.15%
Employment rate					
ETCR overall	average time effect	-0.31	0.52%		
ETCR demographic groups	average time effect	-0.31	0.22%		
ETCR skill levels	average time effect	-0.31	0.46%		
PMR overall	cross-country dimension			-0.58	1.20%
PMR barriers to entrepreneurship	cross-country dimension			-0.62	1.60%
PMR scope of state control	cross-country dimension			-0.61	3.50%
EPL demographic groups	average time effect	-0.30	0.38%		
EPL skill levels	average time effect	-0.30	1.30%		
EPL Cambridge	cross-country dimension			0.16	2.65%
LMR EFW	average time effect			1.24	1.15%
minimum wage demographic groups	average time effect	-2.48	0.71%		
maternity leave demographic groups	average time effect	4.83	0.61%		
ALMP overall	average time effect	3.18	0.27%		
ALMP demographic groups	average time effect	3.18	0.36%		
legal retirement age demographic groups	average time effect	0.57	0.73%		
family benefits in kind demographic groups	average time effect	0.11	0.77%		
unemployment benefits overall	average time effect	-1.42	0.38%		
unemployment benefits demographic groups	average time effect	-1.42	0.45%		
excess coverage overall	average time effect	-1.89	0.31%		
excess coverage demographic groups	average time effect	-1.89	0.16%		
excess coverage skill groups	average time effect	-1.89	0.58%		
tax wedge overall	average time effect	-2.28	0.67%		
tax wedge demographic groups	average time effect	-2.28	0.51%		
tax wedge skill groups	average time effect	-2.28	0.42%		
tax wedge single earnier	average time effect	-1.39	0.32%		
legal system enforcement	cross-country dimension			0.31	0.54%
rule of law	cross-country dimension			1.01	1.72%
political stability	cross-country dimension			0.86	2.68%
corruption	cross-country dimension			1.06	4.16%
government effectiveness	cross-country dimension			0.91	2.64%
time of insolvency procedures	cross-country dimension			-1.23	2.26%

Note: The policy change for the OECD sample is taken from Égert and Gal (2016). It is defined as the average pro-reform change over a window of two consecutive years. The policy change for the large sample is calculated as one standard deviation of the cross-section data.

Source: OECD calculations. Égert and Gal, 2018)

The impact of reforms on GDP per capita 5 and 10 years after the reforms



Source: Égert and Gal, 2018) OECD

Limitations

1. **Estimates based on supply side model of the economy do not capture interaction with demand and transition cost are not evaluated**

2. **Short-term effects conditional on the business cycle** and other factors are not quantified

3. **Effect of highly correlated variables** (such as institutions including the rule of law, political stability and corruption) **need to be disentangled**

Measurement of uncertainty in OECD estimates

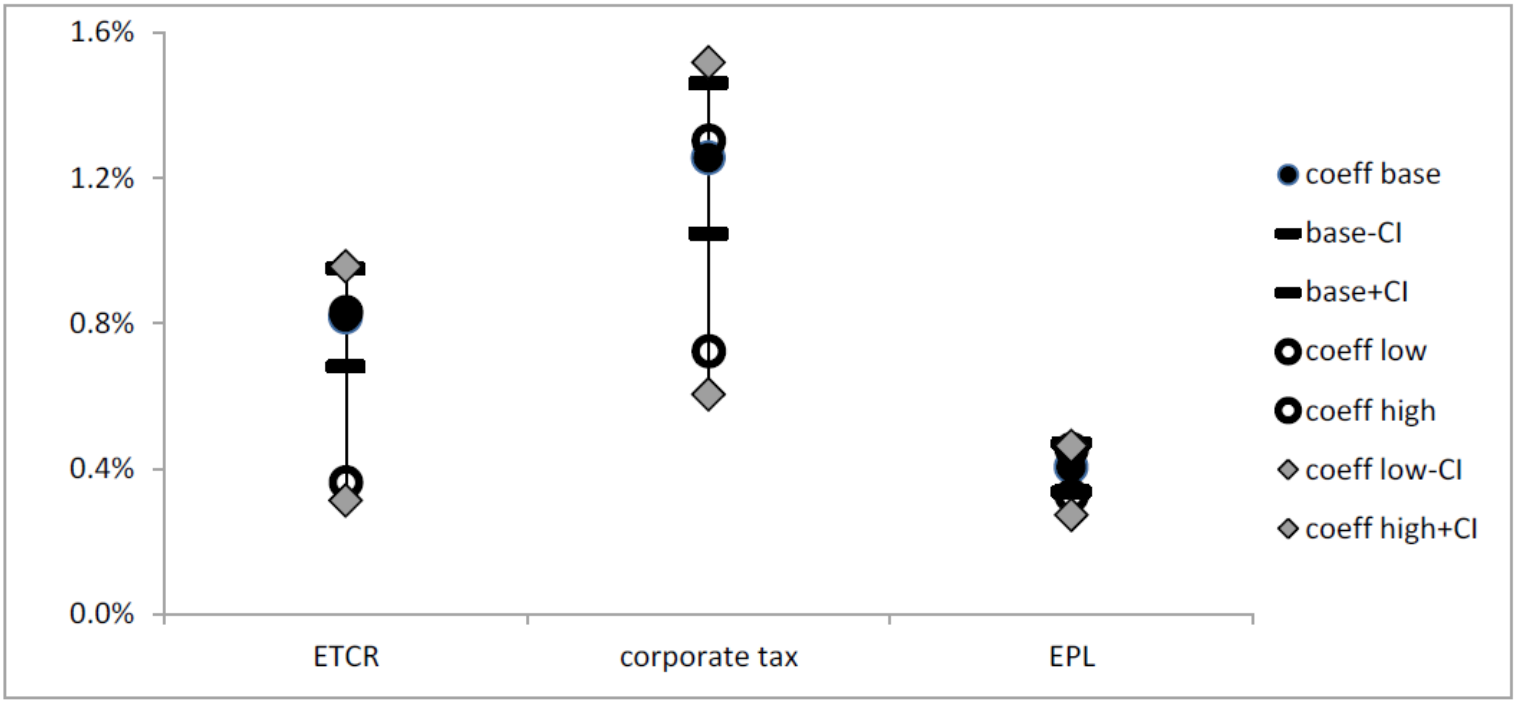
1. **Point estimates are subject to a degree of uncertainty** which vary across variables

2. **Uncertainty is associated to: the coefficient estimated in the regression; model specification** (i.e. number and type of variables included in the regressions); **and measurement of the policy variables themselves**

3. The uncertainty related to the degree of precision is captured by the standard errors and measured by confidence intervals. The model uncertainty is captured by the size and statistical significance of coefficient estimates of alternative models

4. The magnitude of uncertainties is estimated by:
   - 90% confidence intervals of the baseline coefficient estimates
   - maximum and minimum values of the coefficient estimates for different models and set of countries
   - confidence intervals, equally at the 10% level, are calculated for the minimum and maximum values of the coefficient estimates

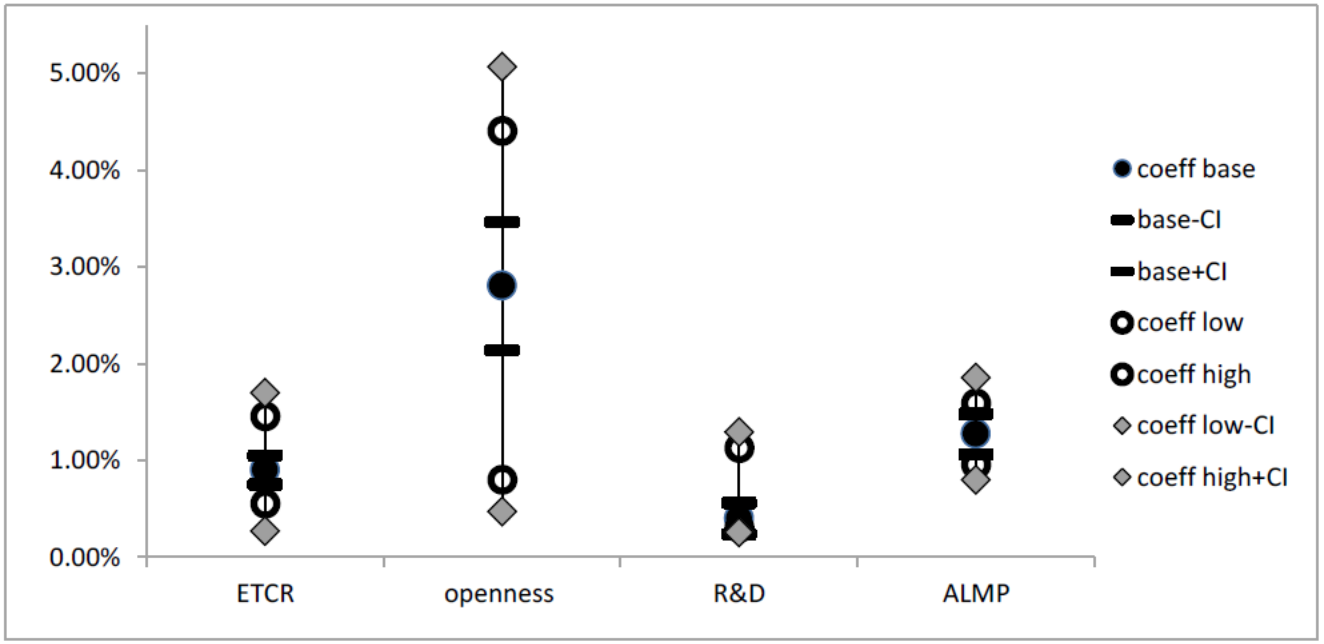
The range of uncertainty of long-term policy effects on capital deepening; OECD sample



Note: CI=90% confidence interval. Policy changes are defined as the average pro-reform change over a window of two consecutive years (see Égert and Gal, 2016a). The policy effects are calculated using the following coefficient estimates: coeff base = preferred (mid) coefficient estimate, base-/+CI give the 90% confidence intervals; coeff low and high are the lowest and highest coefficient estimates picked from alternative model specifications. Coeff low-CI and coeff high+CI are the respective 90% confidence intervals.

Source: Égert and Gal, 2018) OECD

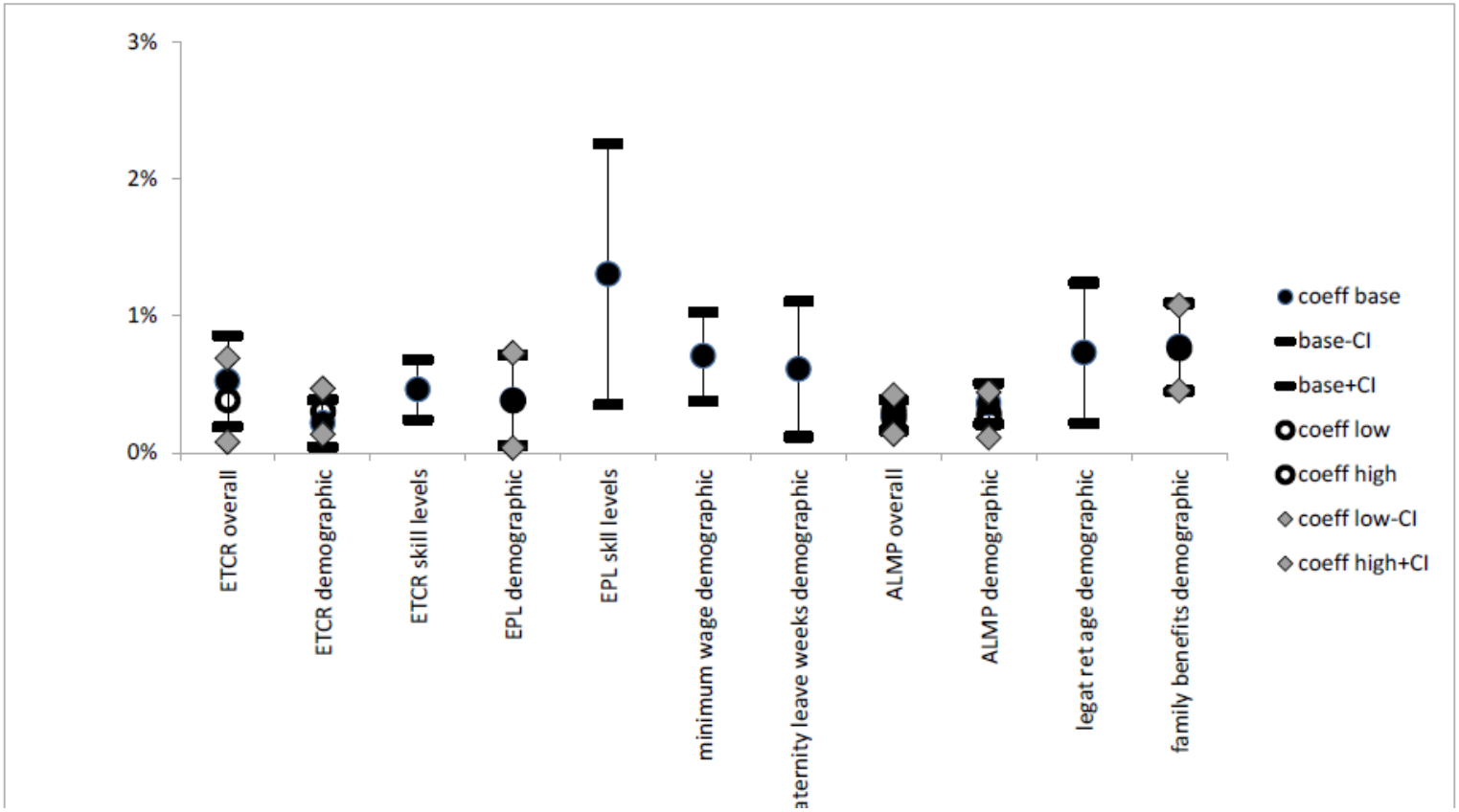
The range of uncertainty of the long-term policy effect on MFP; OECD sample



Note: CI=90% confidence interval. Policy changes are defined as the average pro-reform change over a window of two consecutive years (see Égert and Gal, 2016a). The policy effects are calculated using the following coefficient estimates: coeff base = preferred (mid) coefficient estimate, base-/+CI give the 90% confidence intervals; coeff low and high are the lowest and highest coefficient estimates picked from alternative model specifications. Coeff low-CI and coeff high+CI are the respective 90% confidence intervals.

Source: Égert and Gal, 2018) OECD

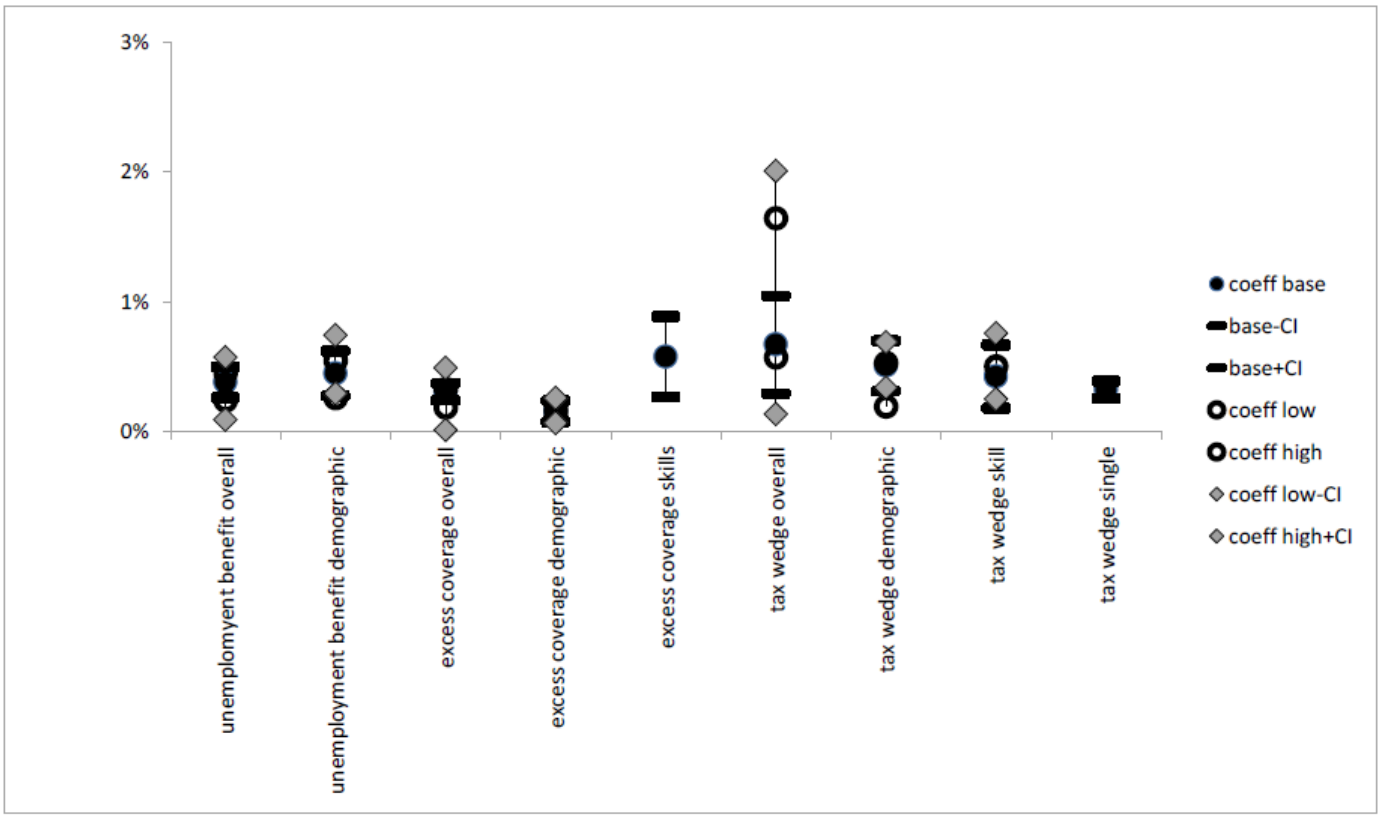
The range of uncertainty of long-term policy effects on employment: OECD sample



Note: CI=90% confidence interval. Policy changes are defined as the average pro-reform change over a window of two consecutive years (see Égert and Gal, 2016a). ETCR overall indicate that the effect is obtained using the coefficient estimate with the overall employment rate as the dependent variable. For ETCR demographic and ETCR skill levels, the effects are derived using coefficient estimates from regressions where employments were split by demographic and skill groups, respectively. The same applies to other variables ending with overall, demographic and skill levels. The policy effects are calculated using the following coefficient estimates: coeff base = preferred (mid) coefficient estimate, base-/+CI give the 90% confidence intervals; coeff low and high are the lowest and highest coefficient estimates picked from alternative model specifications. Coeff low-CI and coeff high+CI are the respective 90% confidence intervals.

Source: Égert and Gal, 2018) OECD

The range of uncertainty of long-term policy effects on employment; OECD sample



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Source: Égert and Gal, 2018) OECD

Conclusions

1. Assessing the risk in structural reforms can contribute to maximize its benefits

2. A precondition for assessing the risk of structural reforms is the identification / evaluation of benefits and cost (full disclosure)

3. The full disclosure of cost and benefits is the best mechanism to mitigate risk

4. While having medium-to long term effect there are reforms with positive short-term effects

5. Reforms can have cost in terms of short-term impact on output and employment, fiscal balance, income distribution and political instability

6. Important to differentiate between fiscal structural reforms and fiscal policy discretion (e.g. non revenue neutral tax reform)

7. Cost and risk arise from underestimating underlying economic and market conditions, interaction of reforms with other policies and insitutions, sequencing, speed of implantation and credibility

8. Quantifying the impact structural reforms is subject to a high level of uncertainty

Reform impact using Quest (DSGE) for EU countries

1. Reforms yield results in the medium to long term

2. The largest output effects come from increase in labor force participation, followed by tax and raising competition in product markets

3. Impact depends crucially on: quantification and position of policy variable, size of shock and assumed implementation speed. The speed of implementation is crucial

4. Product market reform stimulating competition can lead to large but gradual output gains

5. R&D subsidies may crowd out final goods production and have a negative impact in the short term, but can have significant positive long-term effects.

6. Labor market reforms yield results in the medium to long term (i.e. incentives to raise and improve the skills structure), while involve frontloading of budgetary costs (training)

7. Increase the participation rate of older workers can yield significant budgetary savings