



Evidence on the Aggregate Employment Effects of Product Market Reforms: *Which Types of Regulations Matter Most?*

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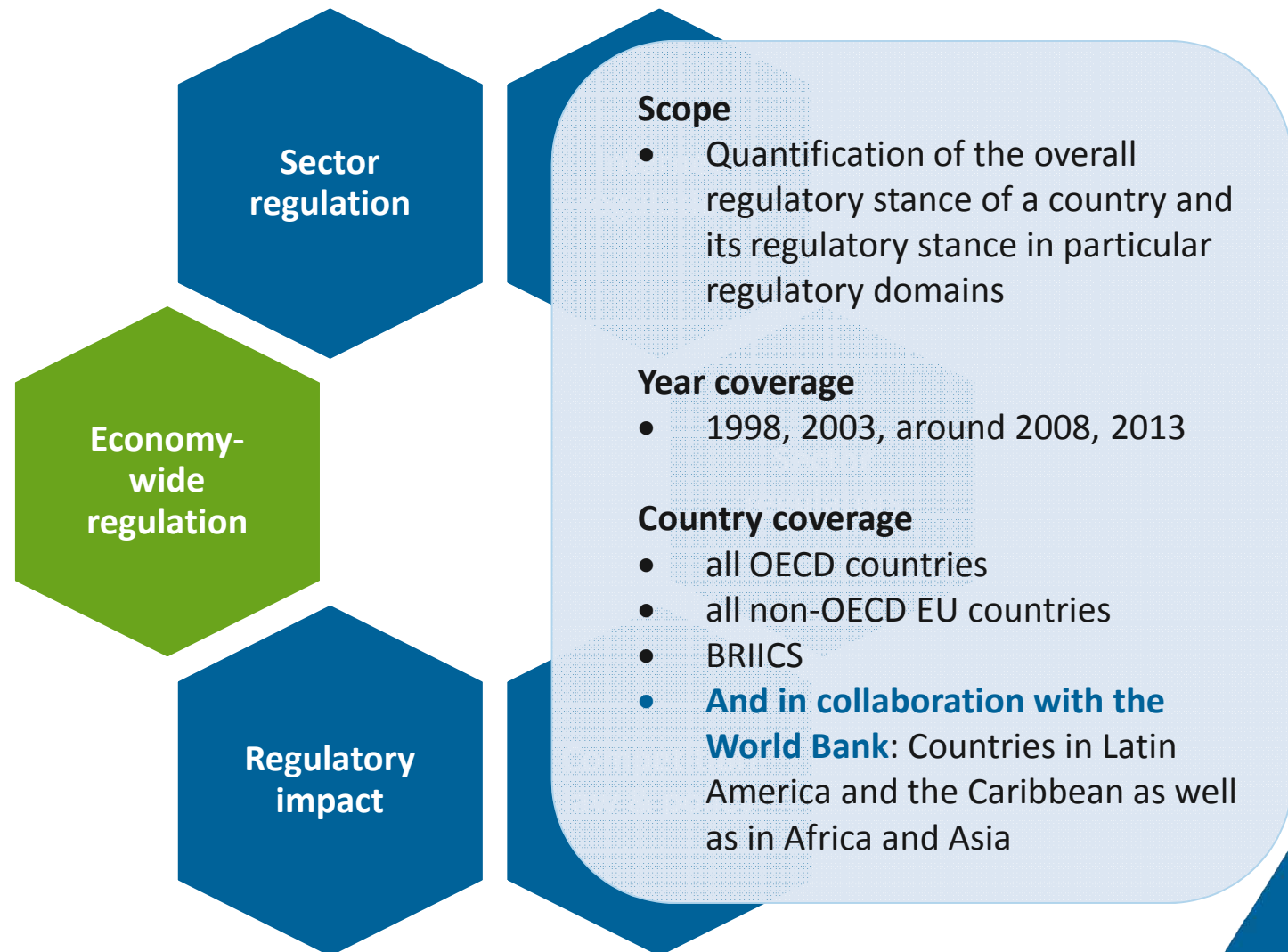
Roadmap

1. *Measuring regulatory barriers to competition: The OECD PMR indicator set.*
2. *The impact of barriers to competition on aggregate employment in advanced economies*
 - I. *Empirical strategy*
 - II. *Evidence from cross-country and within country variations*
 - III. *The types of regulations that matter most*
3. *Extending the sample to include EMEs*
 - I. *Adjustments to the empirical specification*
 - II. *Main differences between AMEs and EMEs*





Measuring regulatory barriers to competition: The OECD PMR indicator set





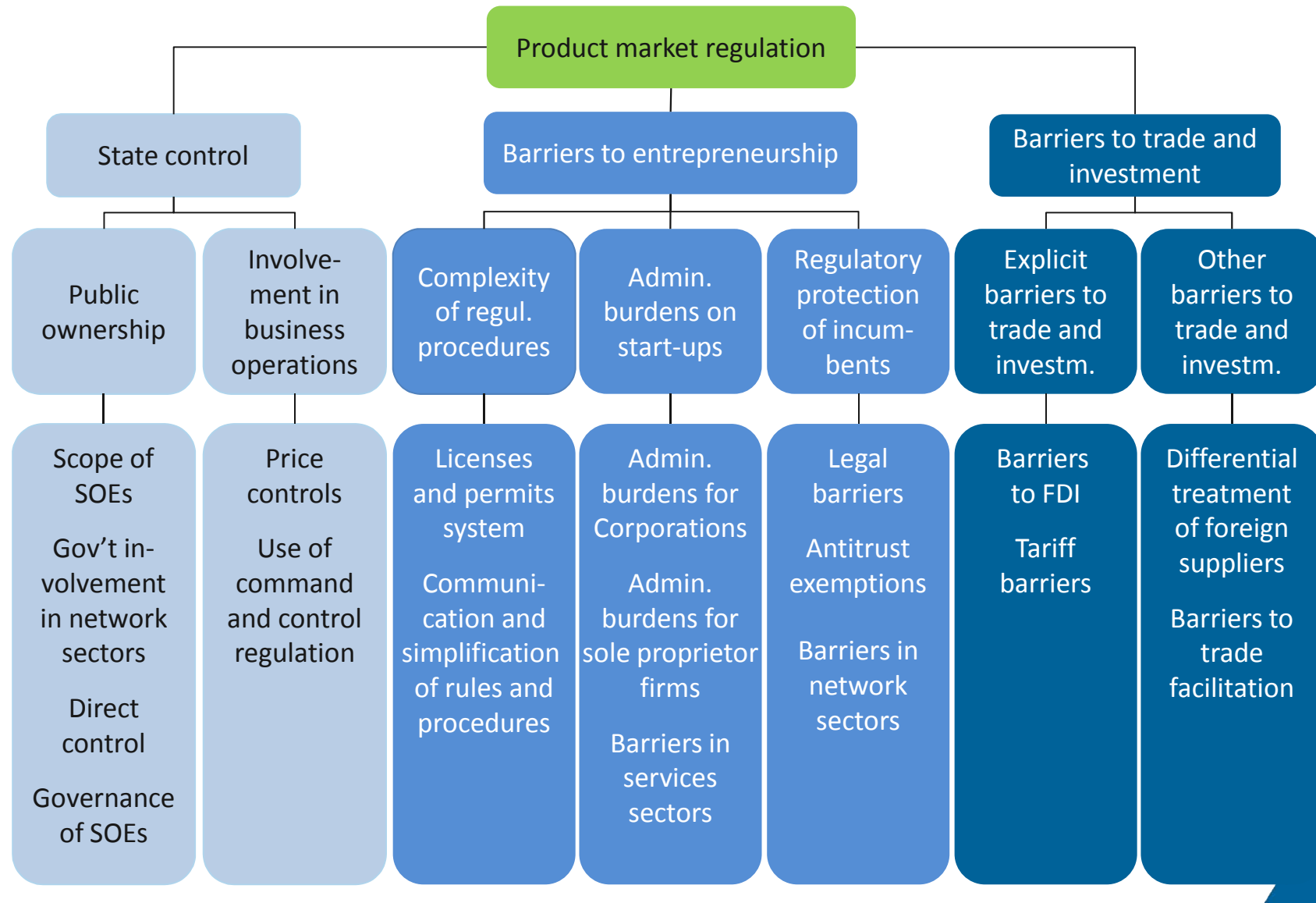
Principles behind the design of PMR indicators

- Product market regulation is essential for well-functioning of market-based economy.
 - Market integrity as well as health, safety and environmental goals
- Aspects of regulation create barriers to entry and competition while not necessarily being helpful to other objectives.
 - Limit the number of suppliers of a specific service or product
 - Limit the ability of suppliers to compete
 - Reduce the incentives of suppliers to compete
 - Limit the choices and information available to customers





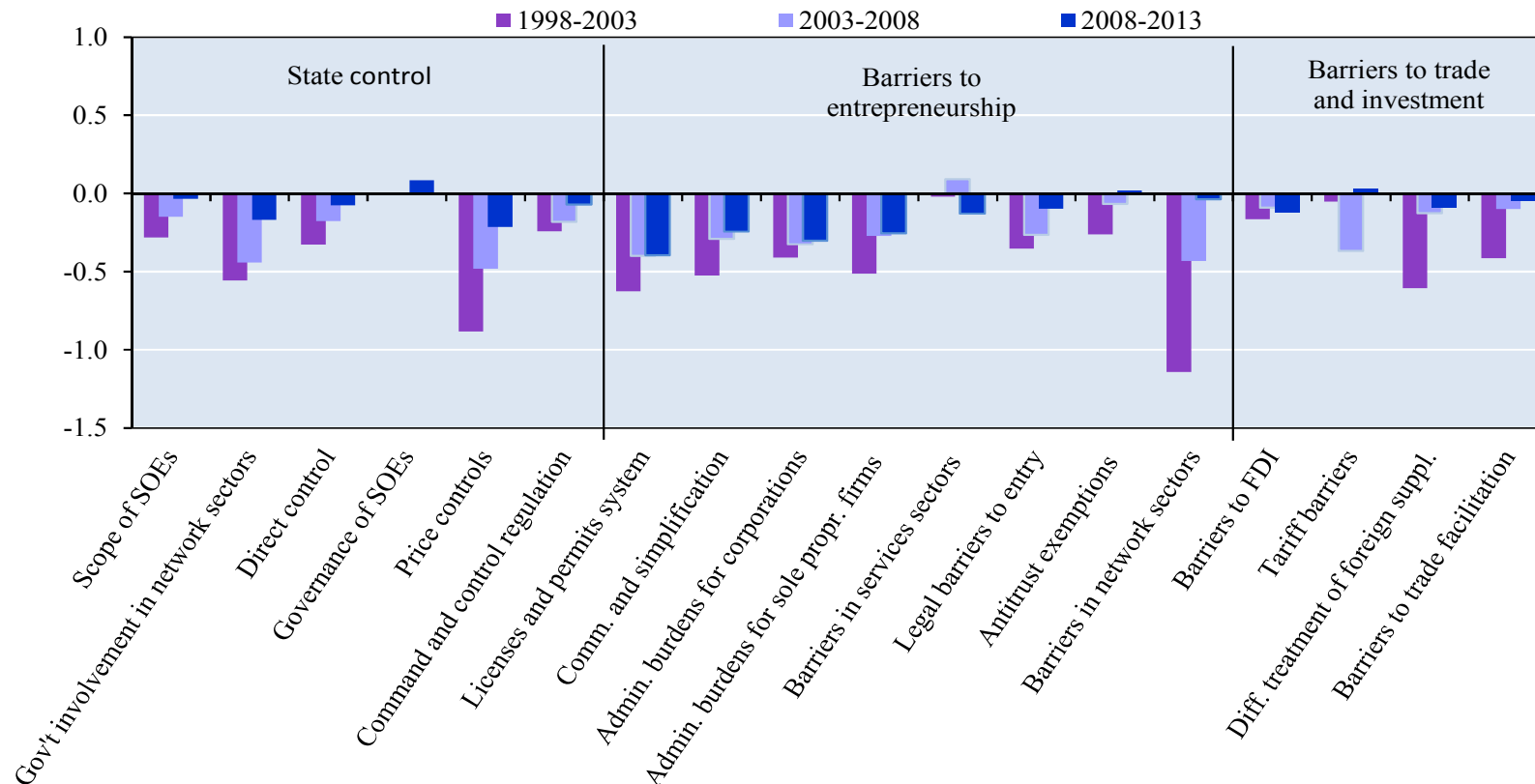
The economy-wide PMR indicator aggregates information by regulatory themes





Barriers have come down over time in almost all low-level components

Average change in the PMR index in each sub-period



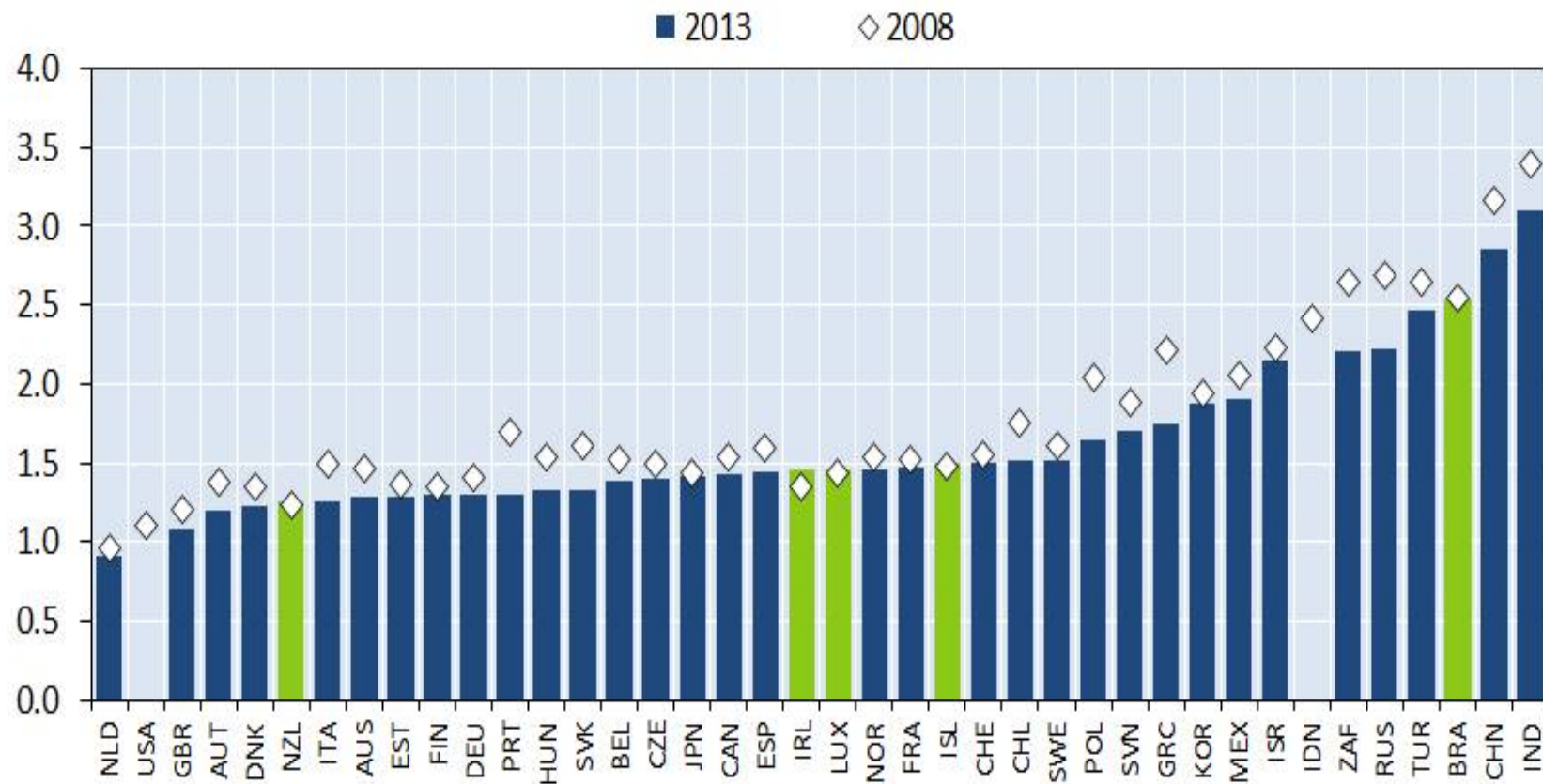
But the pace of decline among OECD countries has steadily diminished





Variations across advanced countries have become more limited for the overall indicator

Index score from 0 to 6 from least to most restrictive



But regulatory barriers substantially higher in EMEs and large variations still prevail across sub-components



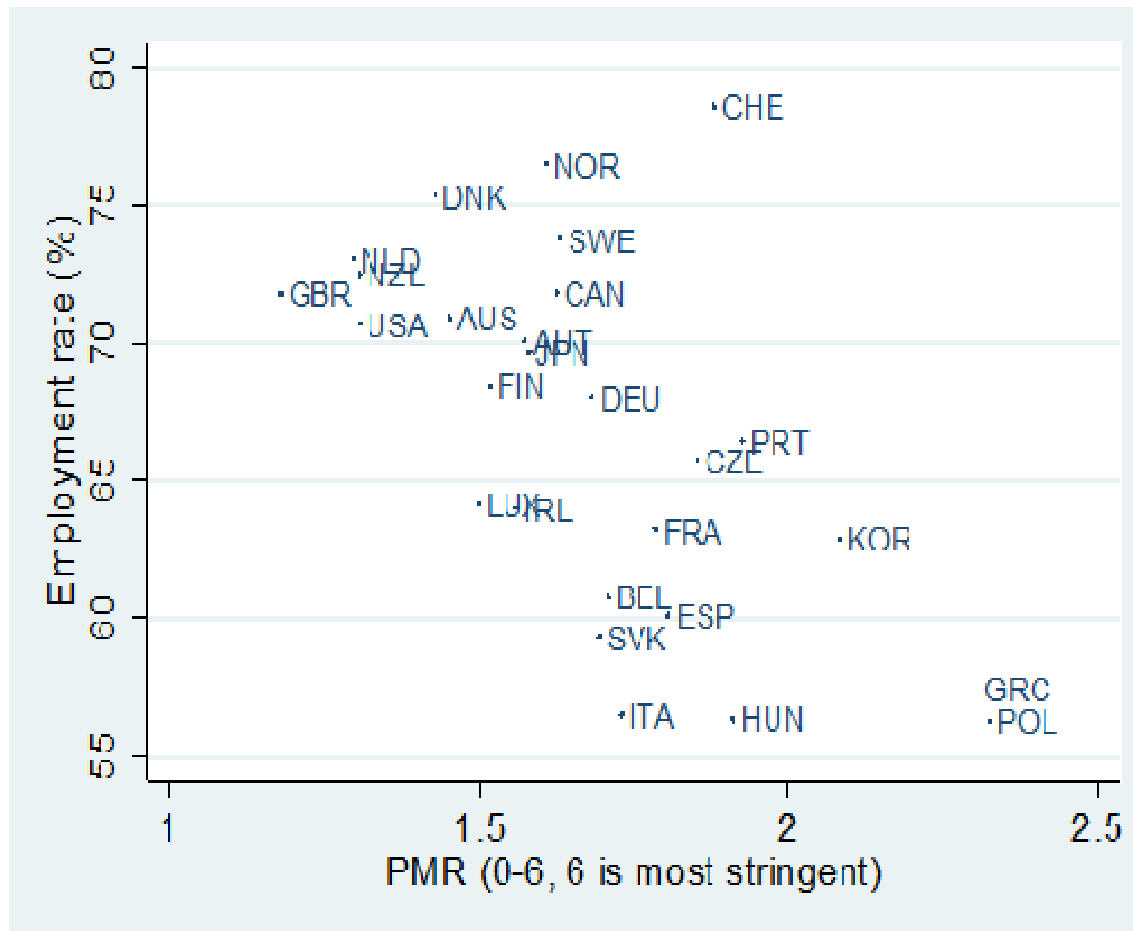
Lowering barriers to competition likely to raise medium-term employment

1. *Concerns about potential jobs losses from stronger competition*
 - *Encourages innovation and adoption of technology that may economize on labour*
2. *Lower entry costs allows for new firms to enter the market*
 - *Dissipates rents, expands production and employment => direct effect*
 - *Employment gains may be particularly rapid and large in sectors characterized by low (non-regulatory) barriers to entry => services*
 - *Recent empirical evidence has shown that young (start-ups) as opposed to small firms drive job creation in the economy (Criscuolo, Gal and Menon, 2014)*
3. *Stronger competition among incumbents*
 - *Lower costs and prices in deregulated industries benefit firms downstream industries => indirect effect*
 - *Increases elasticity of demand, raising output and labour demand at the firm level.*



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

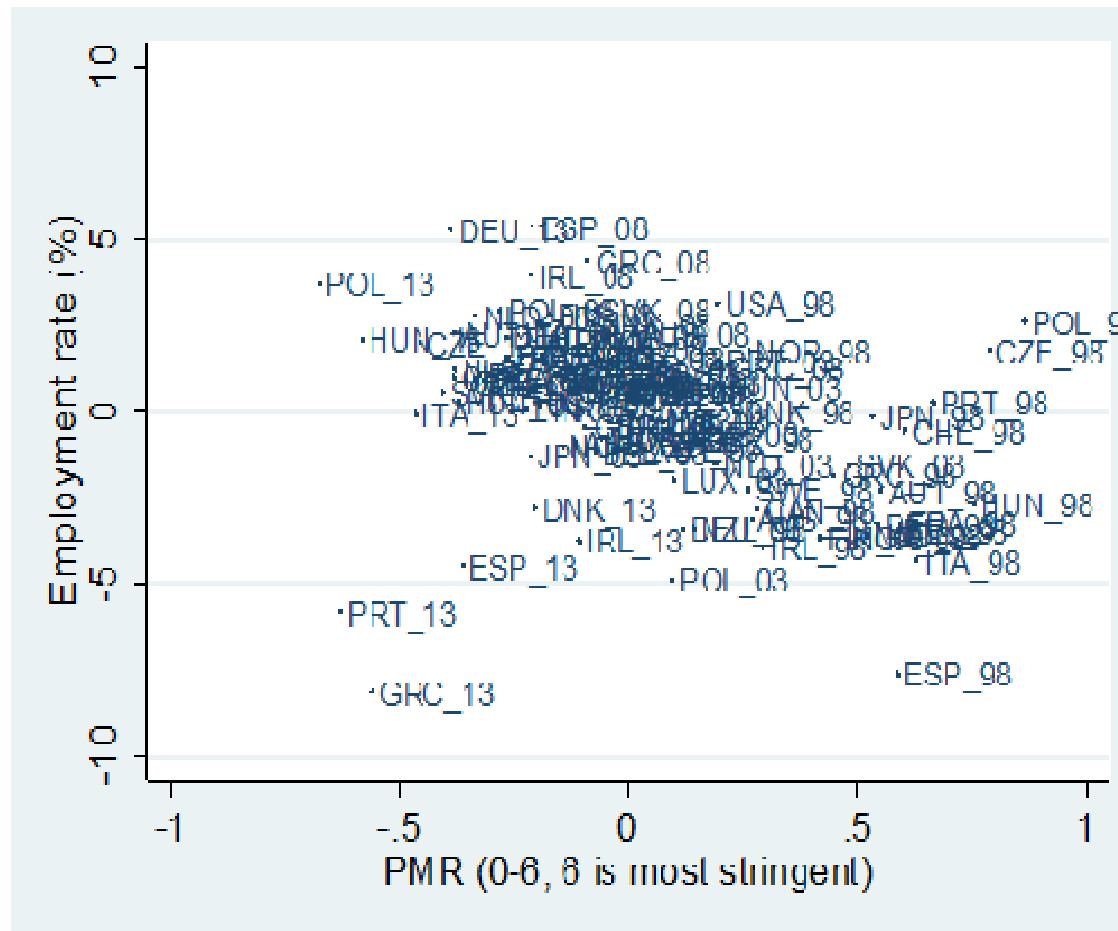
*Employment rates defined as total employed over population aged 15-64.
Annual Labour Force Statistics*





Relationship somewhat less visible with years included separately

Values entered in deviations from the mean over 1998-2013



Suggests that controls are needed to identify relationship

Values are purged from country-fixed effects.





General empirical approach

- Cross-country regression:
 - $E_c = \beta PMR_c^j + \sum_i \alpha^i X_c^i + \varepsilon_c$,
 - Where “j” stands for PMR components, “c” for country and X is a set of control variables
 - 27 OECD countries: Sample 1998-2013 (averages over period)
- Panel regression (within-country variations):
 - $E_{c,t} = \beta PMR_{c,t}^j + \sum_i \alpha^i X_{c,t}^i + D_c + D_t + \varepsilon_{c,t}$,
 - Which also includes country- and year-fixed effects
 - Estimated using DOLS or standard OLS
 - 27 OECD countries: Sample 1998-2013 (data on PMR interpolated)
- Control variables:
 - Unemployment benefit replacement rate, tax wedge and public spending on active labour market policies.
 - Gal and Theising (2015), Bassanini and Duval (2009)





PMR and employment: high-level components

Barriers to entrepreneurship and state control are associated with lower employment rates

Cross-section / panel	Cross-section only					Panel				
PMR component	Overall		High-level components			Overall		High-level components		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Overall	-14.168*** (2.202)	-8.718** (3.323)				-2.367 (1.464)	-4.591*** (1.469)			
Barriers to entrepreneurship			-6.431* (3.678)					-2.064* (1.202)		
Barriers to trade and investment				2.826 (5.560)					1.565 (1.078)	
State control					-6.324*** (2.049)					-2.797*** (0.809)
Unemployment benefits		0.021 (0.108)	0.026 (0.106)	0.094 (0.134)	0.116 (0.098)	-0.225*** (0.047)	-0.211*** (0.053)	-0.215*** (0.049)	-0.230*** (0.049)	
Tax wedge		-0.179 (0.135)	-0.180 (0.137)	-0.261** (0.108)	-0.164 (0.131)	-0.153*** (0.055)	-0.105 (0.064)	-0.058 (0.054)	-0.190*** (0.052)	
ALMPs		0.152* (0.078)	0.183** (0.084)	0.198*** (0.069)	0.114 (0.071)	0.128*** (0.037)	0.136*** (0.041)	0.117*** (0.041)	0.141*** (0.037)	
Country and year fixed effects	n.a.	n.a.	n.a.	n.a.	n.a.	yes	yes	yes	yes	yes
Observations	27	27	27	27	27	341	268	268	268	268
Adjusted R ²	.346	.453	.421	.343	.539	.919	.952	.949	.947	.952



PMR and employment: Mid-level components

Administrative burden on start-ups and direct state intervention in business operations have most tractions

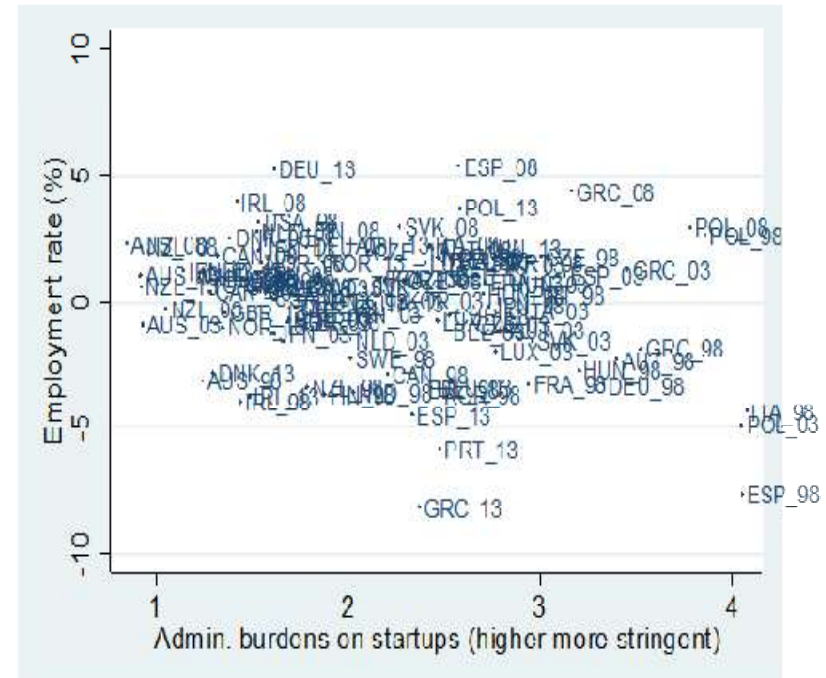
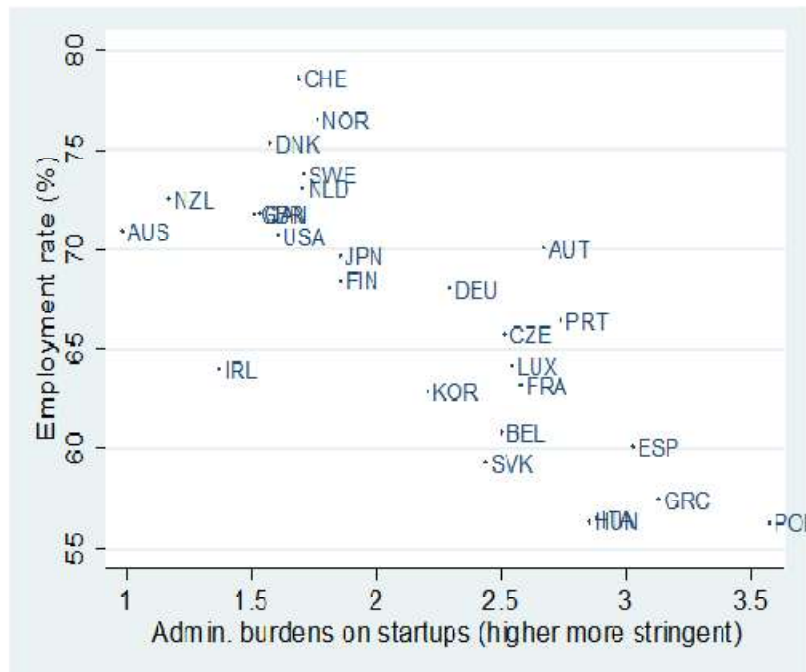
Cross-section / panel	Cross-section only					Panel				
PMR component	Barriers to entrepreneurship			State control		Barriers to entrepreneurship			State control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Complexity of regulatory procedures	0.412 (1.914)					0.775 (0.588)				
Administrative burdens on start-ups		-6.773*** (0.984)					-4.581*** (0.968)			
Regulatory protection of incumbents			-0.941 (3.527)					-4.125*** (1.102)		
Public ownership				-1.963 (1.246)					-1.380*** (0.466)	
Involvement in business operations					-4.425*** (1.461)					-2.548*** (0.938)
Labour market controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Country and year fixed effects	n.a.	n.a.	n.a.	n.a.	n.a.	yes	yes	yes	yes	yes
Observations	27	27	27	27	27	268	268	268	268	268
Adjusted R ²	.331	.641	.331	.381	.505	.947	.954	.948	.951	.951



The negative relationship is clearest for the administrative barriers to start-ups

Average values between 1998 and 2013

Deviations from mean over 1998-2013



Administrative barriers to start-up reflects the number of procedures, bodies to contact as well as the cost to register a corporation or sole proprietor firm.

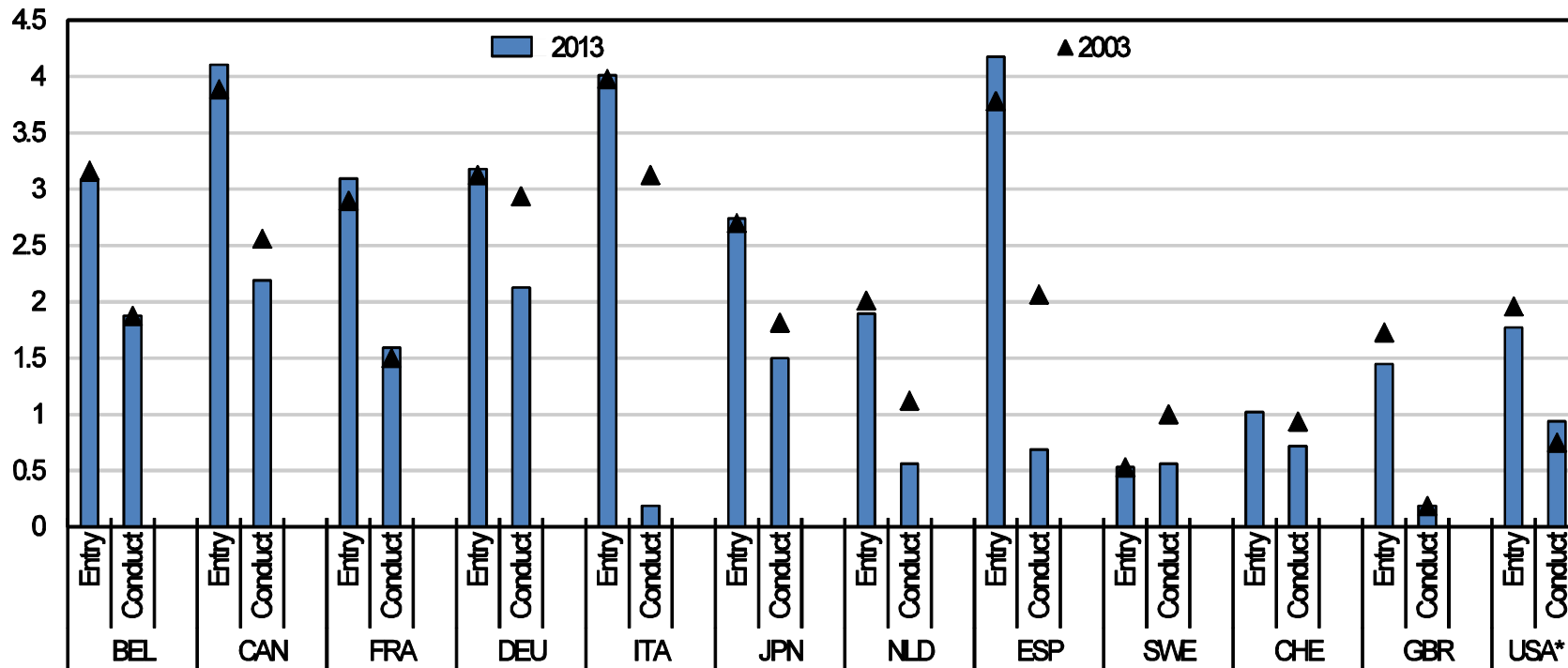
PMR and employment: Low-level components
All sub-components measuring barriers to entry are found to be significant; Price controls also matter

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In the case of barriers to entry in professional services, the cross-section is all we have

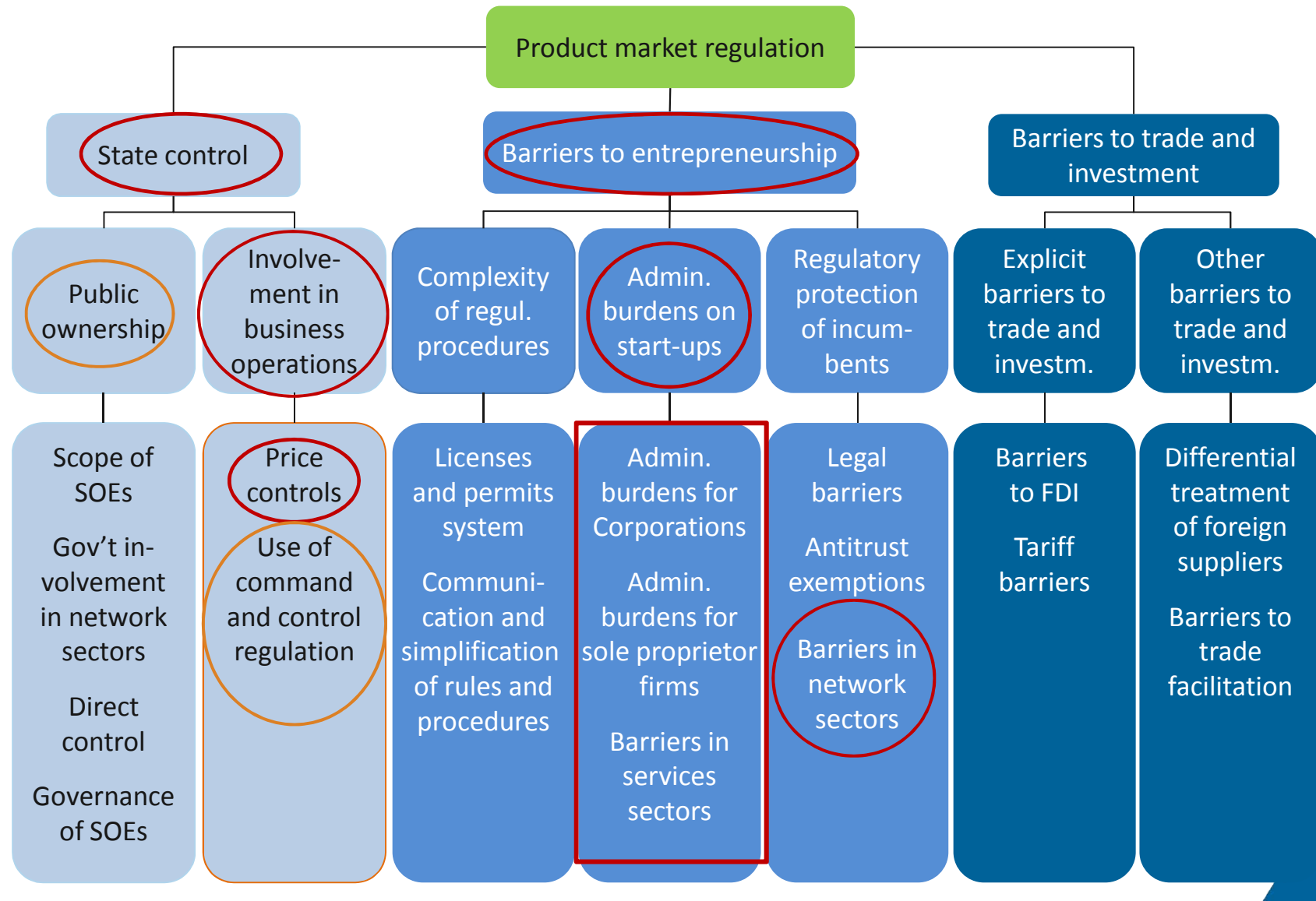
Regulatory barriers to competition in regulated professions (legal services, engineering, architecture and accounting)



* 2008 data.

Governments have focused on reducing barriers in the form of conduct regulation (fees control, freedom to advertise and legal form of business) but have left entry barriers intact.

Summing-up: the types of regulatory barriers most damaging to employment among AMEs





General empirical approach: Adjustment to extend to EMEs

- Cross-country regression (two variants):
 - $E_c = \beta PMR_c^j + \sum_i \alpha^i X_c^i + \varepsilon_c$
 - Simply add EMEs to the sample and see effect on coefficients of interest
 - $E_c = \alpha + \beta PMR_c^j + \beta' D_c^{EME} PMR_c^j + D_c^{EME} + \sum_i \alpha^i X_{c,t}^i + \varepsilon_c$
 - Test for a differential impact for EME countries (allows for distinct constant term)
- Panel regression (same two variants):
 - $E_{c,t} = \beta PMR_{c,t}^j + \sum_i \alpha^i X_{c,t}^i + D_c + D_t + \varepsilon_{c,t}$
 - $E_{c,t} = \beta PMR_{c,t}^j + \beta' D_c^{EME} PMR_{c,t}^j + \sum_i \alpha^i X_{c,t}^i + D_c + D_t + \varepsilon_{c,t}$
- Control variables:
 - World Bank indicator of Rule of Law (“..extent to which agents have confidence in and abide by rules of society...”).
 - EMEs: BRIICS plus Chile, Mexico and Turkey



PMR and employment: Extending to EMEs

High-level components

	Cross-Section (N=36)			Time-Series (N=381)		
	AME & EME together (1)	Base effect for AMEs (2)	Differential effect for EMEs (3)	AME & EME together (4)	Base effect for AMEs (5)	Differential effect for EMEs (6)
Overall	NS	*	+*	*	*	NS
<i>High-level components</i>						
State control	NS	**	NS	NS	NS	NS
Barriers to entrepreneurship	NS	**	NS	*	*	NS
Barriers to trade and investment	NS	NS	+++	NS	NS	NS

- i) *Negative relationship between overall PMR index and employment holds for EMEs but only in the within-country variations.*
- ii) *The impact of state control no longer significant in the within-country variations.*



PMR and employment: Extending to EMEs

Mid-level components

	Cross-Section (N=36)			Time-Series (N=381)		
	AME & EME together (1)	Base effect for AMEs (2)	Differential effect for EMEs (3)	AME & EME together (4)	Base effect for AMEs (5)	Differential effect for EMEs (6)
<i>STATE CONTROL</i>						
Public ownership	NS	NS	NS	NS	NS	NS
Business operations	**	***	NS	NS	NS	***
<i>BARRIERS TO ENTREPRENEURSHIP</i>						
Complexity of regulatory procedures	NS	NS	**	NS	NS	NS
Admin. barriers to start-ups	NS	***	+**	***	***	*
Protection of incumbents	NS	NS	NS	NS	NS	NS
<i>BARRIERS TO TRADE AND FDI</i> s						
Explicit barriers	NS	NS	+**	NS	NS	NS
Other barriers	NS	NS	NS	NS	NS	***

- i) Conflicting message for administrative barriers to start-ups between cross-country and within-country results.*
- ii) Within state control, evidence from both cross-section and time-series that gov involvement in business operations matters for EMEs.*





PMR and employment: Extending to EMEs

Low-level components measuring barriers to entry

	Cross-Section			Time-Series		
	AME & EME together	Base effect for AMEs	Differential effect for EMEs	AME & EME together	Base effect for AMEs	Differential effect for EMEs
<i>Two subcomponents of ADMINISTRATIVE BURDENS ON START-UPS</i>						
Admin. burdens for corporations	NS	**	+++	***	***	NS
Admin. burdens for sole proprietor firms	NS	***	+++	***	***	NS
<i>BARRIERS TO ENTRY by sectors</i>						
Barriers in services sectors	**	***	NS	NS	NS	***
Barriers in network sectors	NS	NS	NS	NS	NS	NS

- i) *Conflicting results between cross-section and panel regressions visible in the two sub-components of administrative burdens on start-ups.*
- ii) *Barriers to entry in service sectors found to have a negative impact in EMEs*
- iii) *But barriers in network industries no longer significant*

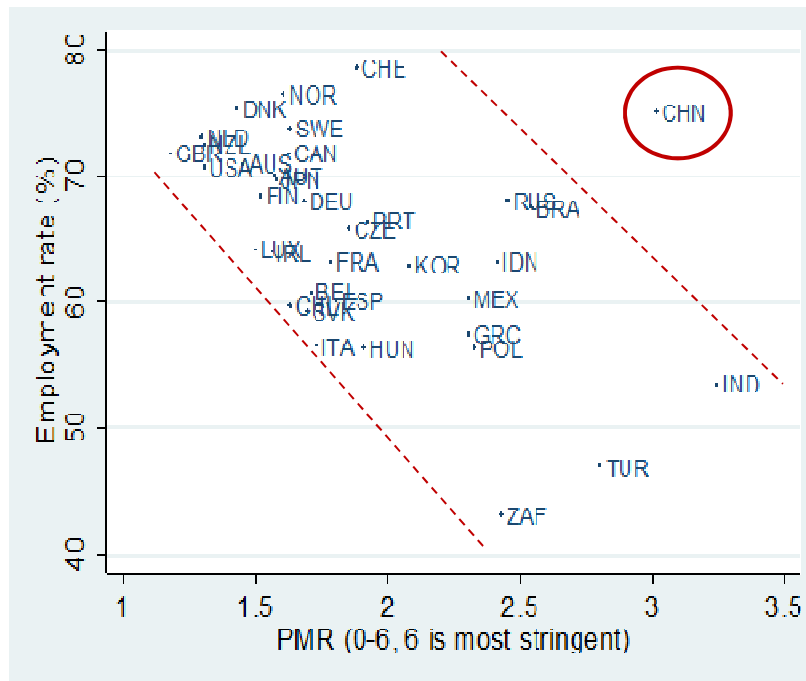




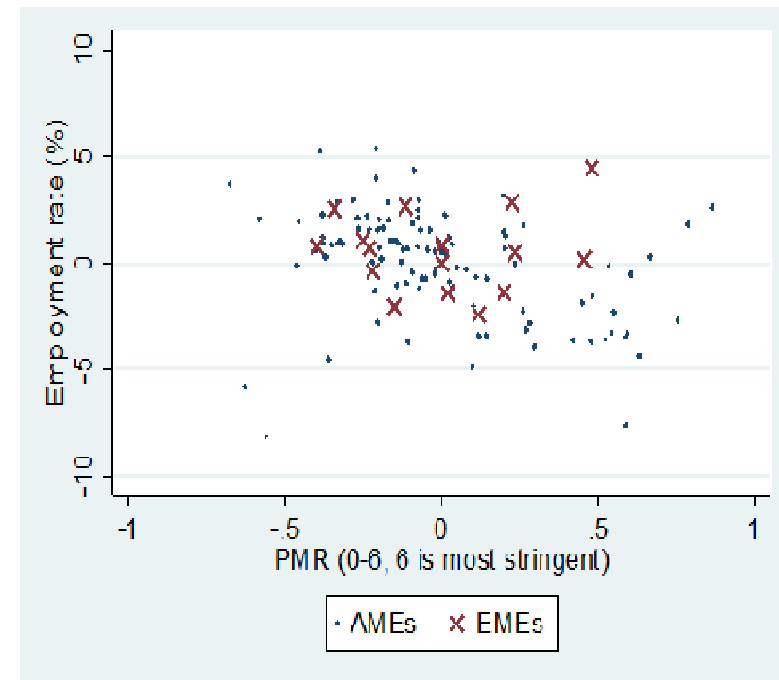
Negative relationship less clear in simple bivariate framework with EMEs added

Overall PMR index and employment rates – AMEs and EMEs

Average values between 1998 and 2013



Deviations from mean over 1998-2013



But China comes out as an outlier.



PMR and employment: EMEs without China

Changes the cross-section results

	Cross-Section			Time-Series		
	AME & EME together	Base effect for AMEs	Differential effect for EMEs	AME & EME together	Base effect for AMEs	Differential effect for EMEs
Overall	*	**	NS	*	*	NS
<i>High-level components</i>						
State control	**	**	NS	NS	NS	NS
Barriers to entrepreneurship	*	**	NS	*	*	NS
Barriers to trade and investment	NS	NS	+**	NS	NS	NS
<i>BARRIERS TO ENTREPRENEURSHIP</i>						
Complexity of regulatory procedures	*	NS	**	NS	NS	NS
Admin. barriers to start-ups	**	*** (-7)	* (+5.8)	***	***	*
Protection of incumbents	NS	NS	NS	NS	NS	NS

- i) *More homogeneity between AMEs and EMEs even though size of impact smaller in the combined set relative to AMEs.*
- ii) *Net negative effect of administrative barriers to start-ups found in both cross-section and panel dimensions.*





Comparison of results as sample is extended from AMEs to EMEs

1. Overall PMR

- *Cross-section with controls:*
 - $AMEs (-8.7^{**}) > AMEs + EMEs \text{ w/o China } (-6.9^*) > AMEs + EMEs (-3.2)$
- *Time-series with controls:*
 - $AMEs (-4.5^{***}) > AMEs + EMEs (-2.7^*)$

2. Administrative barriers to start-ups

- *Cross-section with controls:*
 - $AMEs (-6.8^{***}) > AMEs + EMEs \text{ w/o China } (-4.1^{**}) > AMEs + EMEs (-2.1)$
- *Time-series with controls:*
 - $AMEs (-4.6^{***}) > AMEs + EMEs (-4.6^{***})$





Summary of results

1. *Compelling evidence that more competition is associated with higher employment. Evidence from AMEs shows that:*
 - I. *Aspect of regulation most damaging to employment is maintaining high barriers to firm entry.*
 - II. *Direct state intervention in business operations through price controls and coercive regulations can also lead to lower employment, but not so much public ownership per se.*
 - III. *The results on state control regulations are generally more sensitive to the choice of control variables, but so is the component entry barriers in network industries.*
 - IV. *Difficult to find evidence among AMEs of a negative effect of regulatory barriers to foreign trade and investment on employment.*

2. *Extending the sample to include EMEs shows that:*
 - I. *The impact of regulatory barriers to entry largely hold for AMEs as well as EMEs with some differences in the magnitude in the cross-section. China is different.*
 - II. *Government intervention in business operations and indirect barriers to trade (barriers to trade facilitation, differential treatment of foreign suppliers) are found to have a stronger negative effect on employment in EMEs.*

