

# Charting the Diffusion of Power Sector Reform in the Developing World

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# Why this paper?

- **EEX GP Rethinking Power Sector Reform Initiative**
  - Knowledge program aiming to revisit, re-evaluate and refresh the Washington Consensus policy prescriptions for the power sector
  - Comprises background papers (like this one), 15 new in-depth country cases (in progress), and Flagship Report (planned by end 2018)
- **Need for some scene-setting**
  - Objective to comprehensively describe the uptake and diffusion of power sector reforms in the developing world
  - Draws from a new database documenting the main power sector reforms enacted by each country in each year since 1990 (still a work in progress)

# Data Sources

- **RISE 2015:** A customized global snapshot of the state of power sector reform in 110 developed AND developing countries
- **PPI Database 1990-2015:** Time series data detailing all private sector transactions in the power sector for developing countries only
- **Proprietary Industrial Database: 1990-2015:** Global time series data on percentage of generation capacity owned and operated by private & public sectors for all developed AND developing countries
- **Historic Studies:** Recovering comparable indicators from historic WB studies by Besant-Jones (2005 data) and Bacon (1999)
- **Desk Research:** Targeted web research to fill data gaps on time stamping of restructuring and liberalizing reforms

# Extent of reform measured by a Power Sector Reform Index

Regulation	No Regulator = 0		Regulator = 100		
Restructuring	Vertically integrated = 0	Partial vertical unbundling = 33	Full vertical unbundling = 67	Vertical & horizontal unbundling = 100	
Competition	Monopoly = 0	IPPs = 25	Single Buyer Model = 50	Bilateral Contracts = 75	Competitive market = 100
Private Sector Participation	$0.5 * (\text{Percentage of generation capacity with private sector participation}) +$ $0.5 * (\text{Percentage of distribution utilities with private sector participation})$				
Aggregate Index	$0.25 * (\text{Regulation score}) + 0.25 * (\text{Restructuring score}) +$ $0.25 * (\text{Competition score}) + 0.25 * (\text{PSP score})$				

*Taking the unweighted average for each of these four dimensions gives each country an overall reform score between 0 (no reform) and 100 (full adoption).*

# Power Sector Reform Index: Example of Uganda

Regulation	No Regulator = 0		Regulator = 100		0.25*100  +  0.25*67  +  0.25*50  +  0.25*69  =  71.5
Restructuring	Vertically integrated = 0	Partial vertical unbundling = 33	Full vertical unbundling = 67	Vertical & horizontal unbundling = 100	
Competition	Monopoly = 0	IPPs = 25	Single Buyer Model = 50	Bilateral Contracts = 75	
Private Sector Participation	0.5*(0.63) + 0.5*(0.75)				
Aggregate score	0.25*(100) + 0.25*(67) + 0.25*(50) + 0.25*(69)				

# Preview of key messages

Developing country power sector reform is...

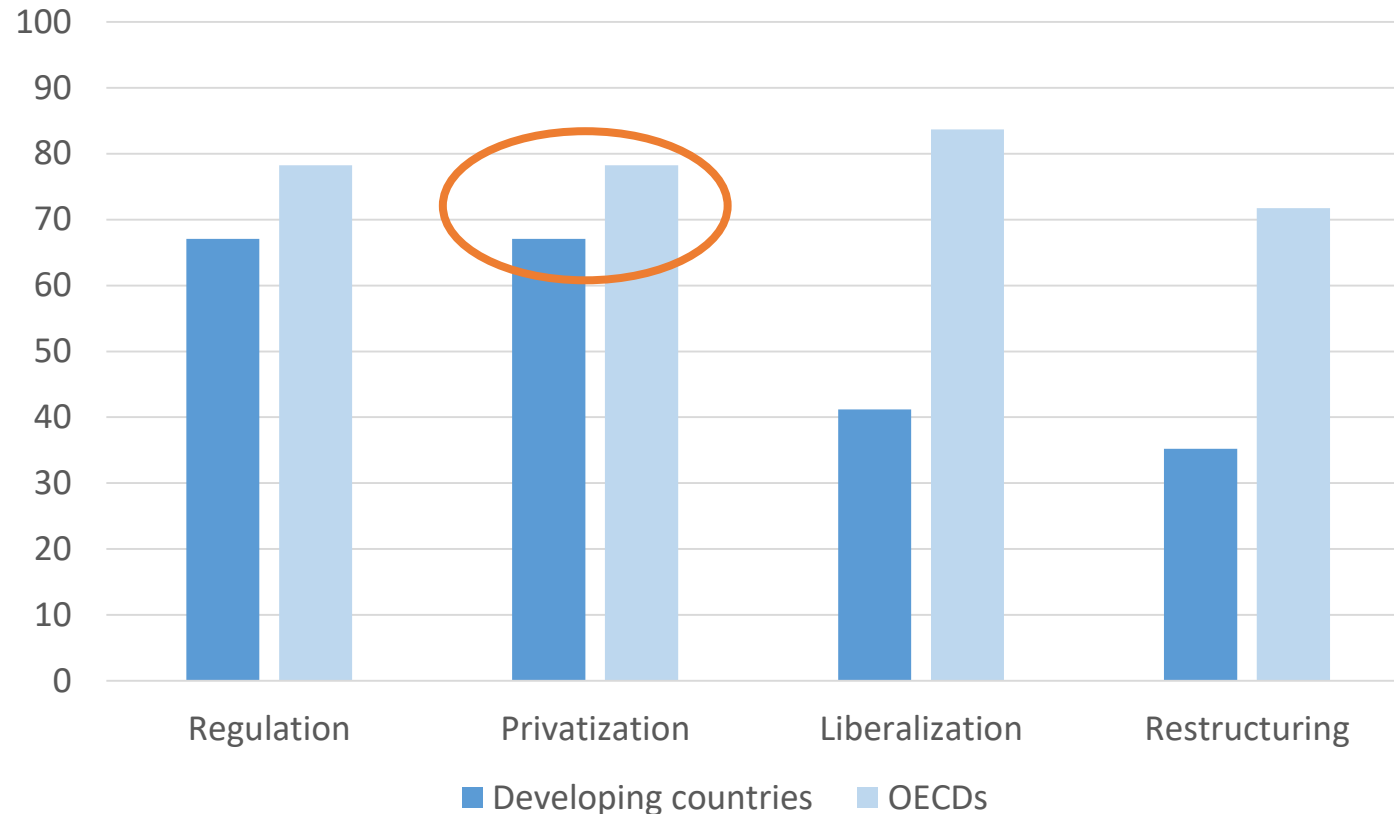
1. ...lagging substantially behind OECD, where full reform is far from being universal
2. ...running out of steam for the last decade
3. ...often characterized by cherry-picking relatively easy reforms
4. ...packaged and sequenced in ways unrelated to the original logic
5. ...often stuck somewhere in the intermediate stages
6. ....strongly affected by country characteristics
7. ...characterized by delays or gaps between reform announcement and implementation
8. ...sometimes reversible, particularly in the case of private sector participation

# **1. Developing country power sector reform lags substantially behind the developed world, where full reform is far from being universal**

# Differences between developed and developing countries in Power Sector Reform Index, by sub-index, 2015

*Vertically integrated utilities in Japan and South Korea*

*Over 90% of generation, transmission and distribution state-owned in France*



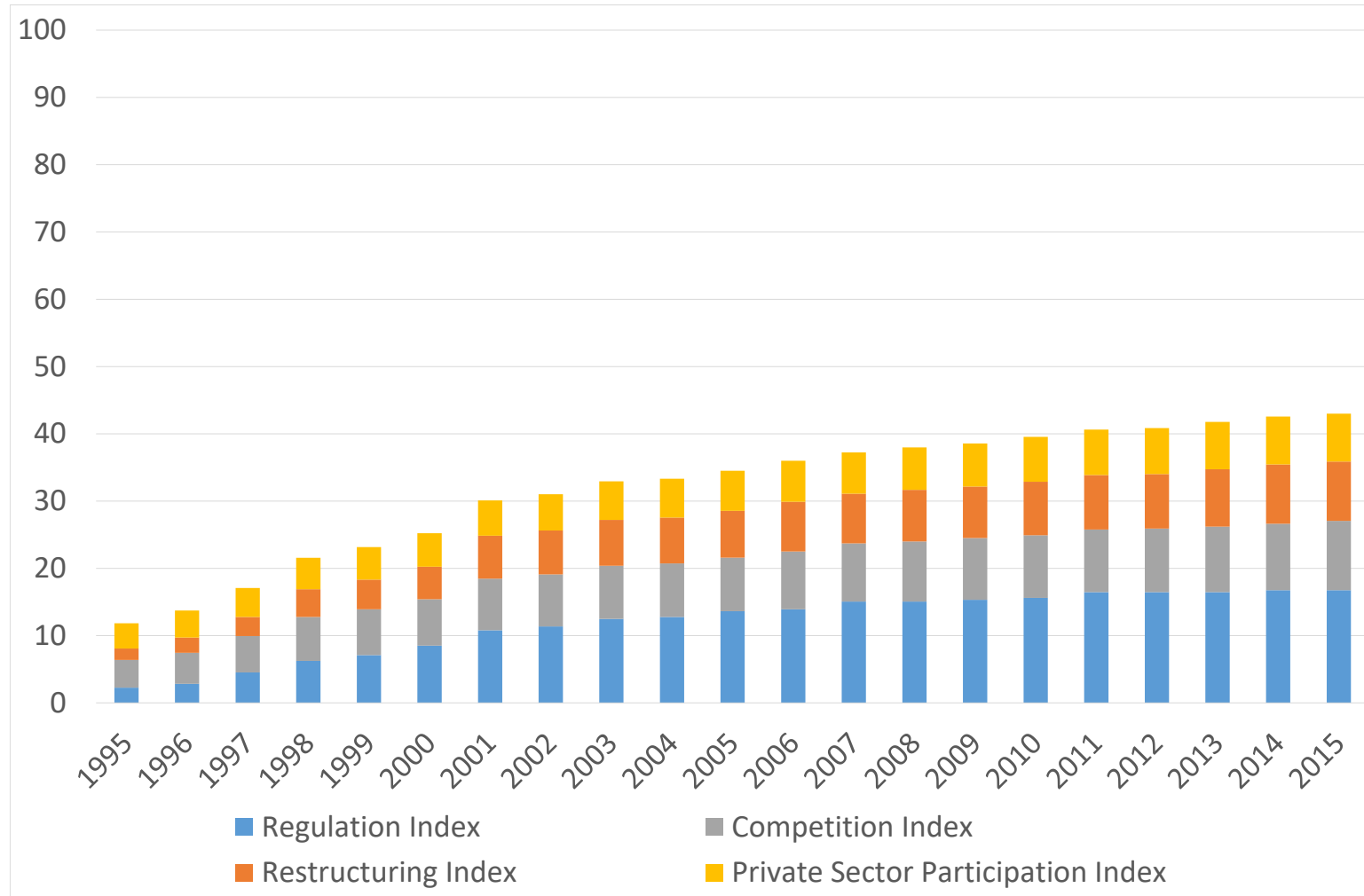
*Similar scores in private sector participation reflect breadth of reform, not depth of reform*



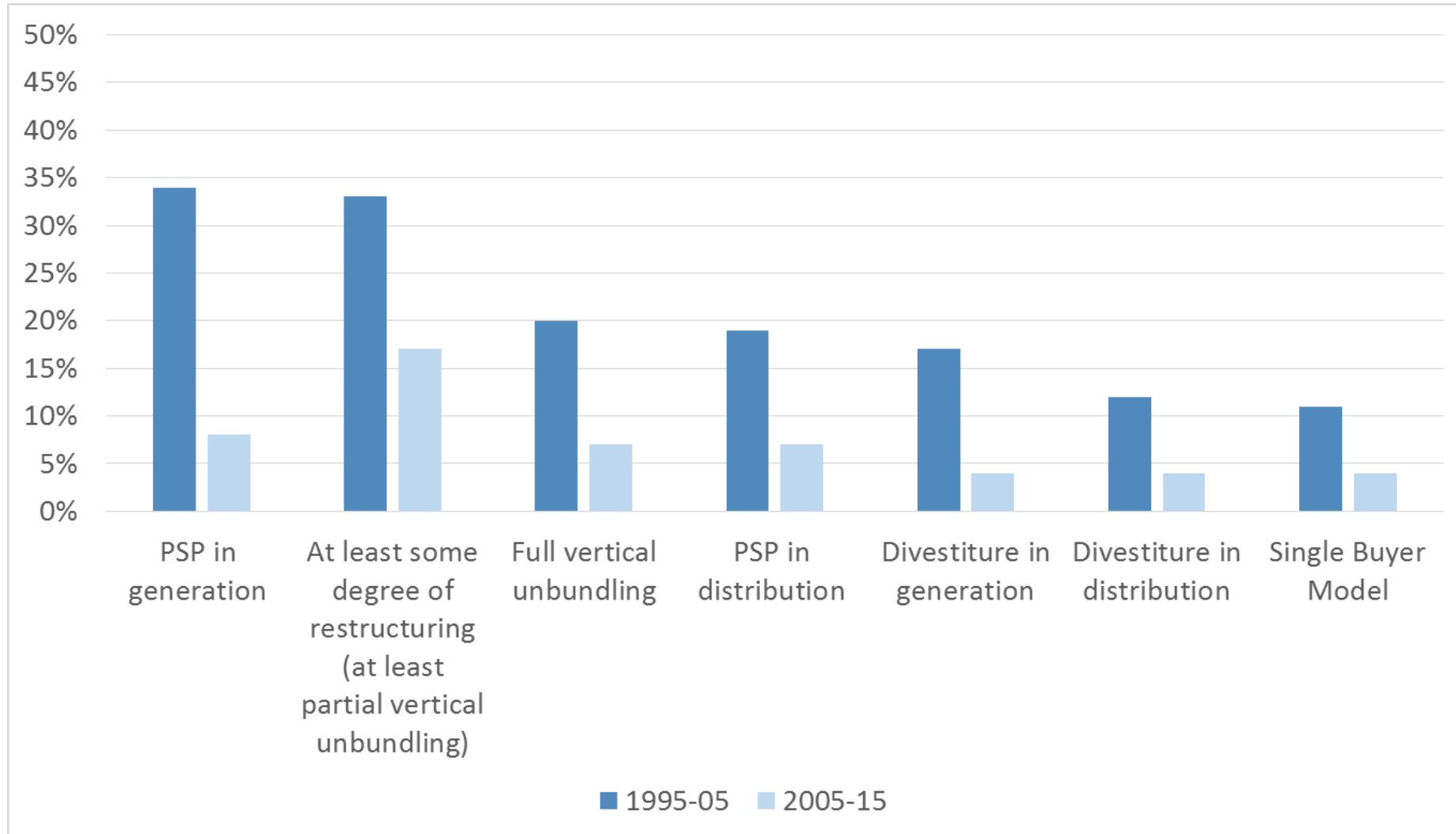
## **2. Developing country power sector reform has been running out of steam in the last decade**

# Slowing pace of reform does not reflect saturation

Global Average Power Sector Reform Index, 1995-2015

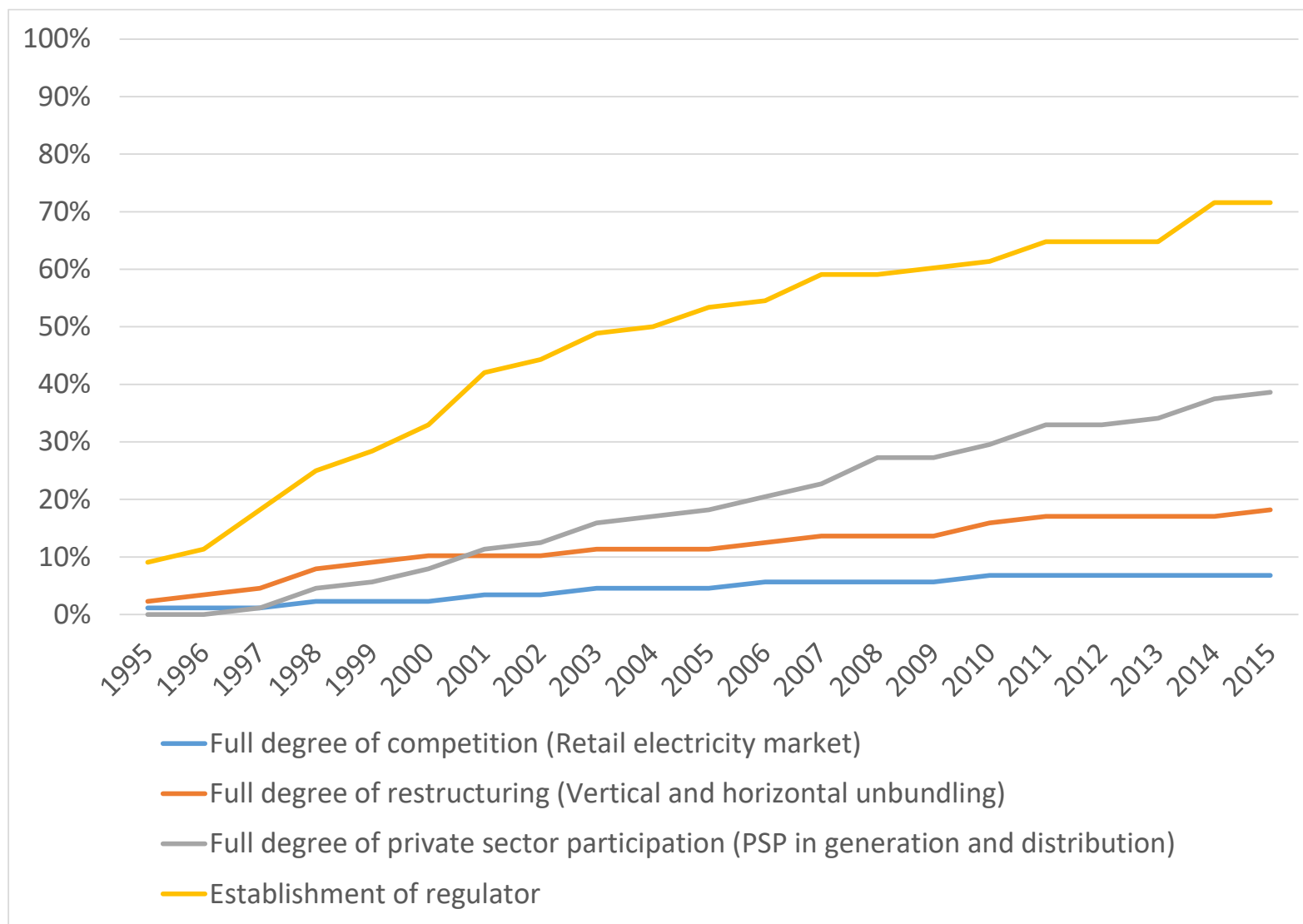


# Dramatic slow downs in certain types of reforms

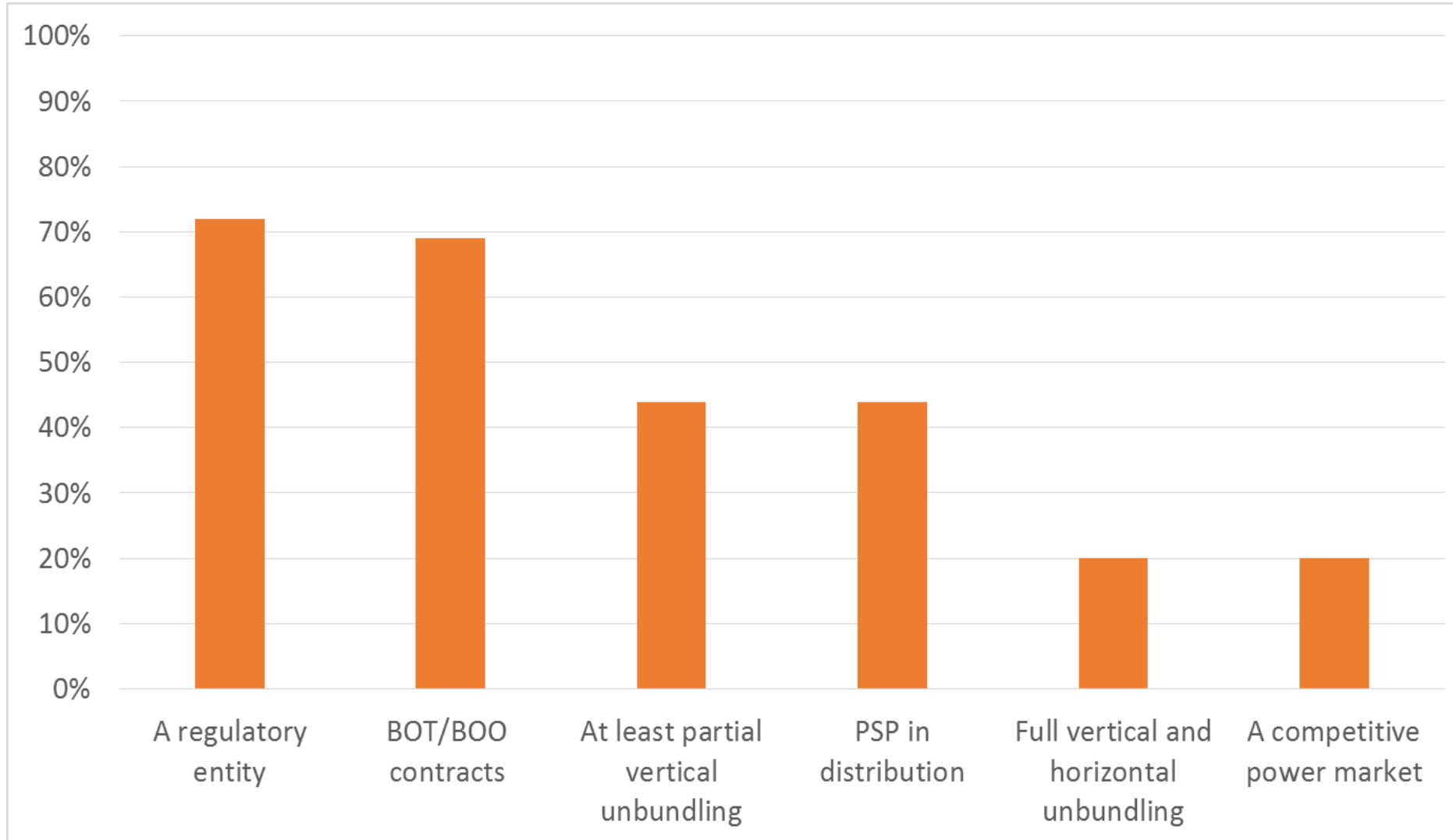


### **3. Countries have tended to cherry-pick reforms that were relatively easy to implement**

# Easier reforms started earlier and spread more widely



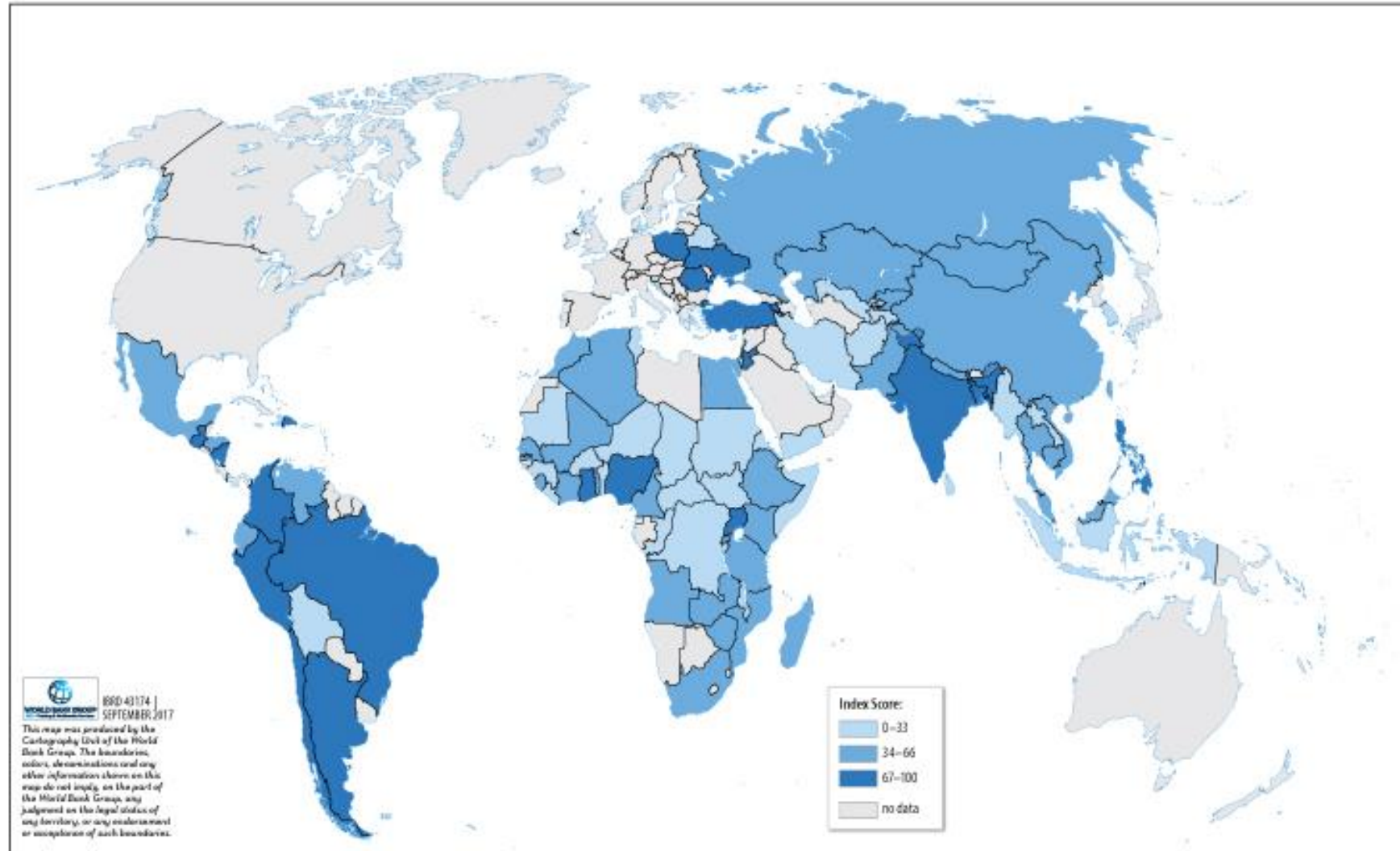
# Wide variation in prevalence of different reform measures



## **4. Developing country power sector reform is stuck at an intermediate stage in many cases**

# Wide geographic variation in uptake of reform

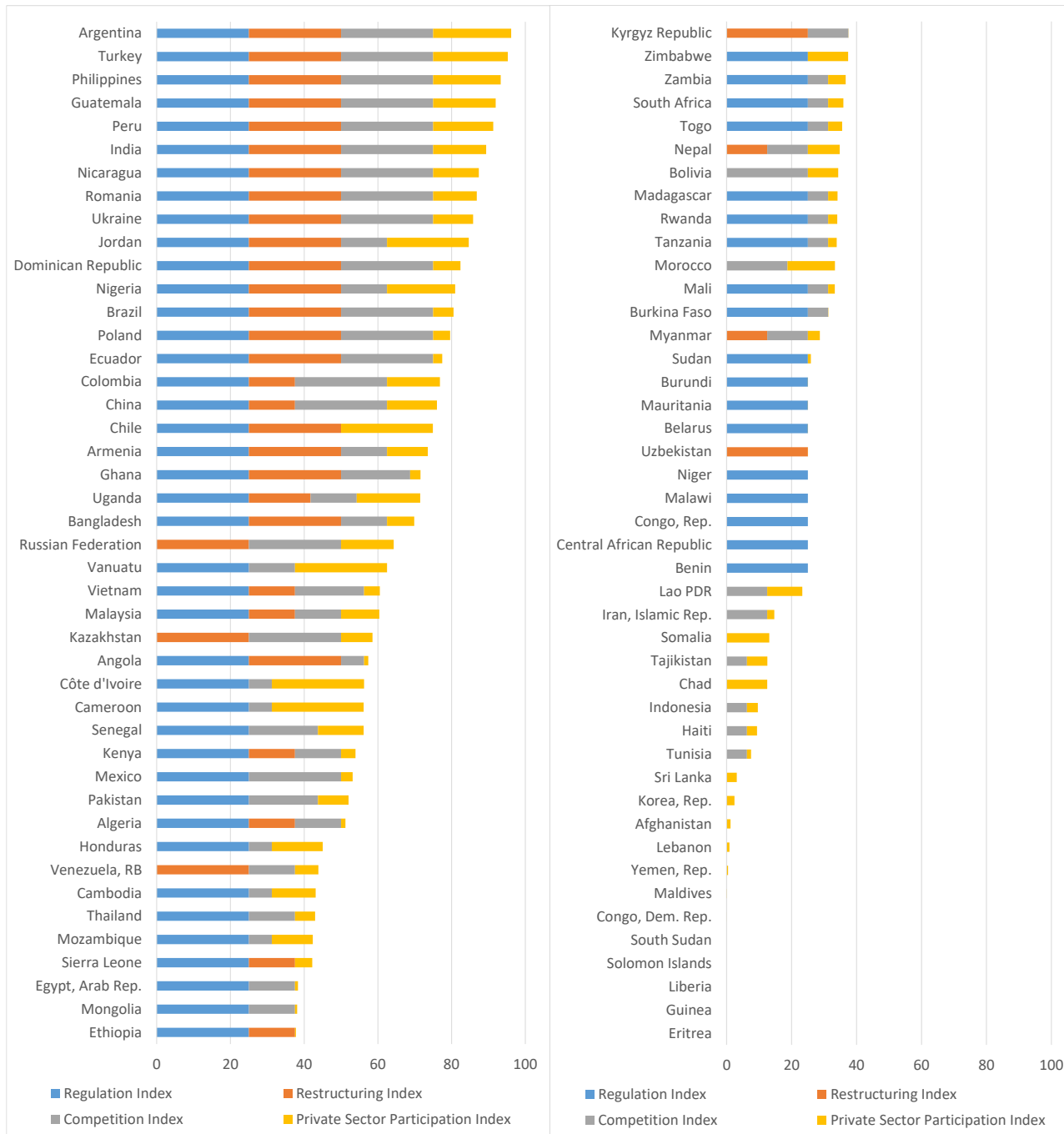
World Map of Power Sector Reform Index, 2015





# Barely a dozen developing countries score above 80

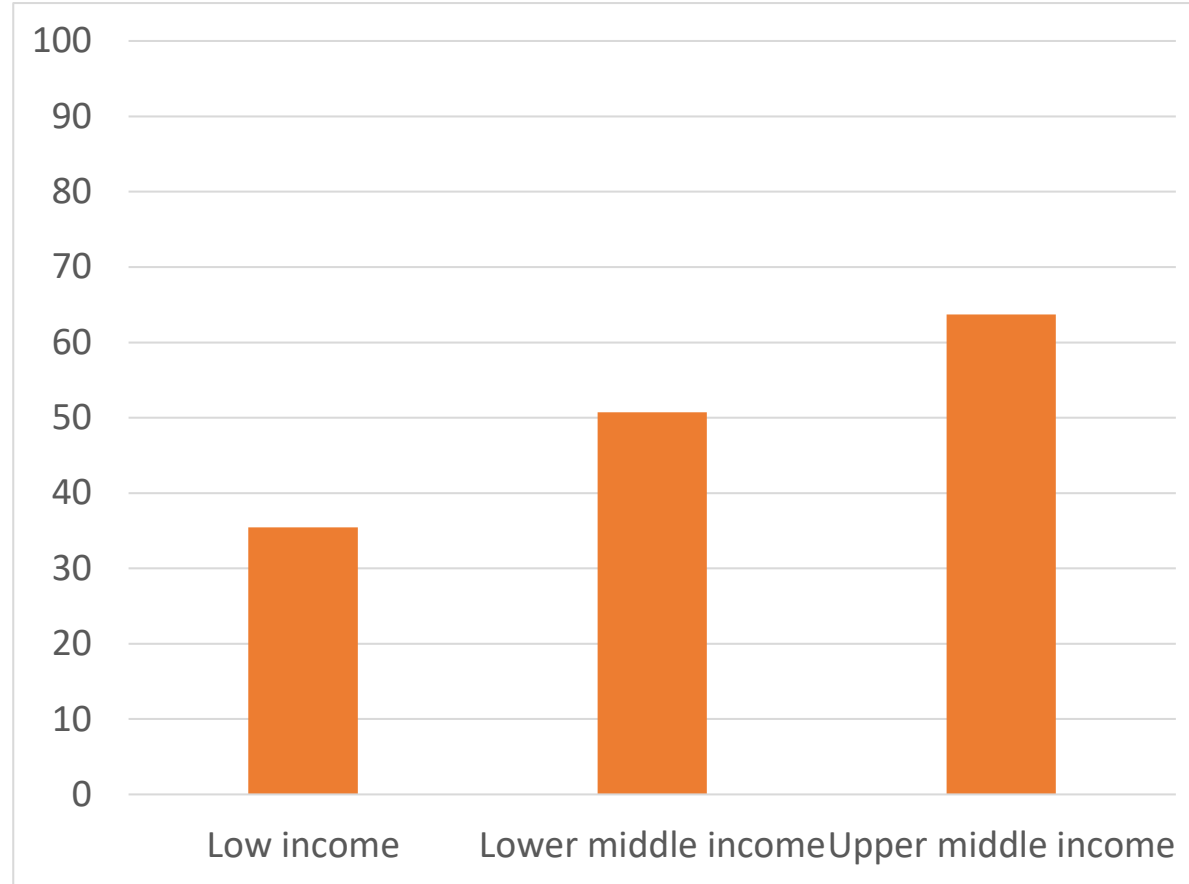
Country Scores for Power Sector Reform Index, 2015



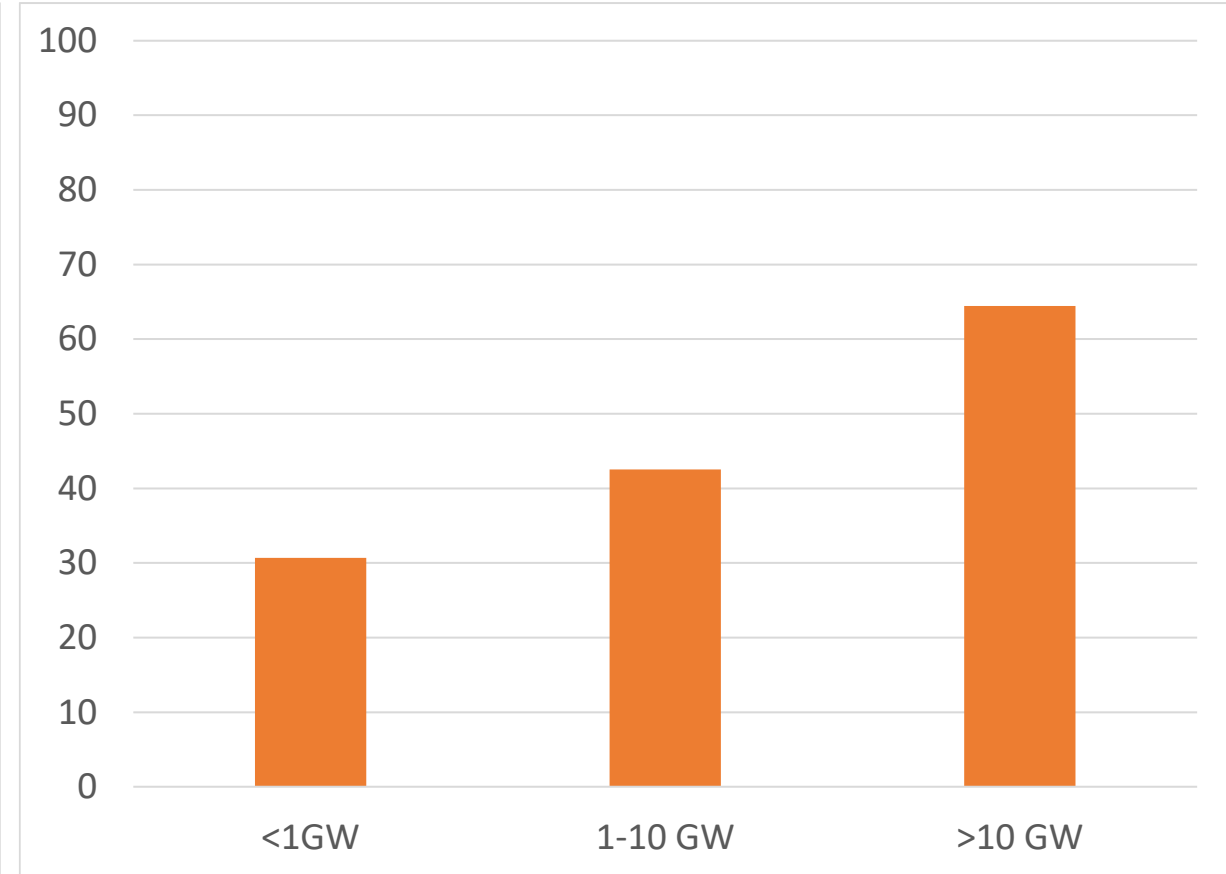
## **5. The uptake of reforms is substantially affected by country characteristics and geography**

# Country characteristics affect reform scores two to one

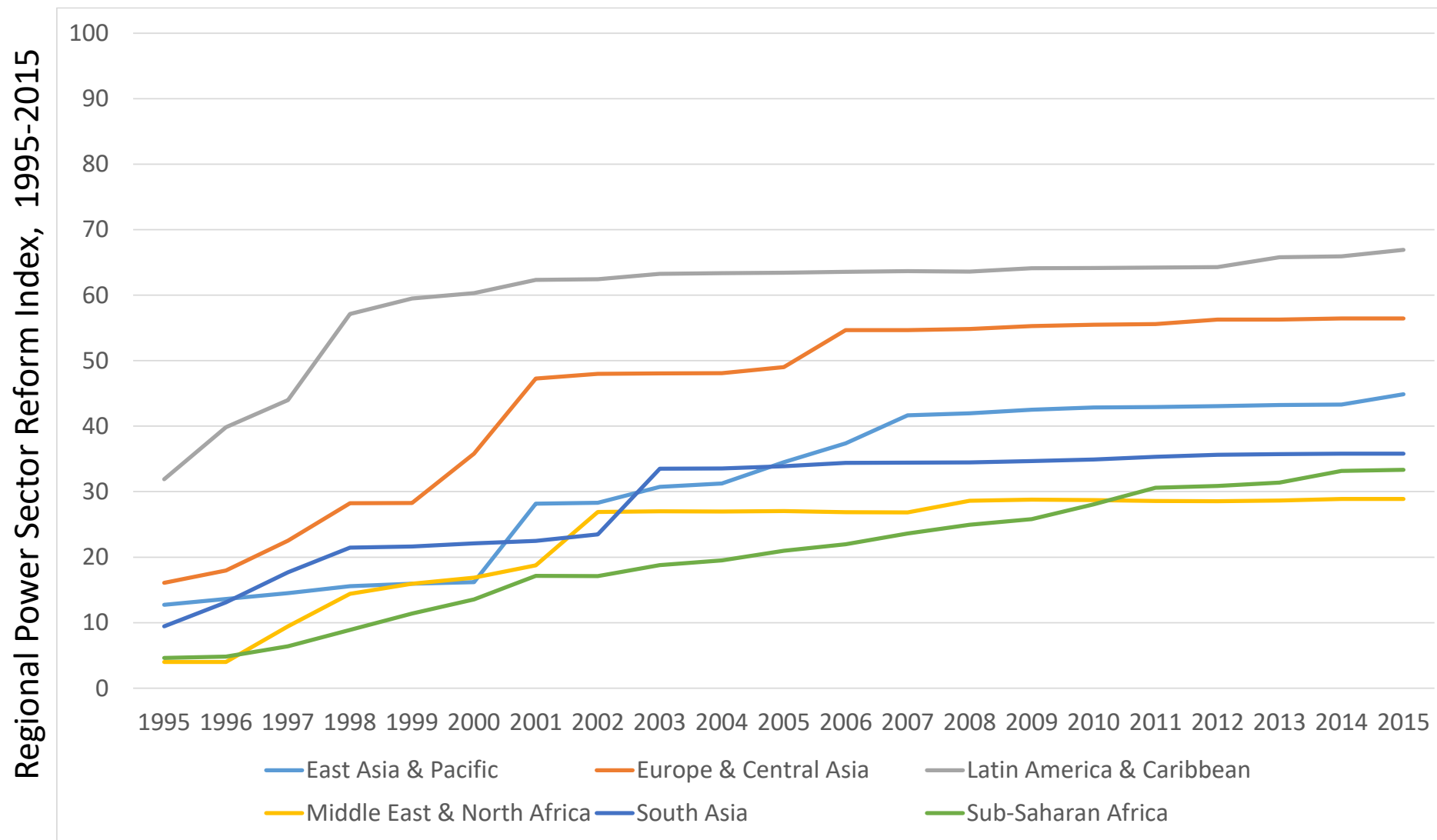
## By income group



## By system size

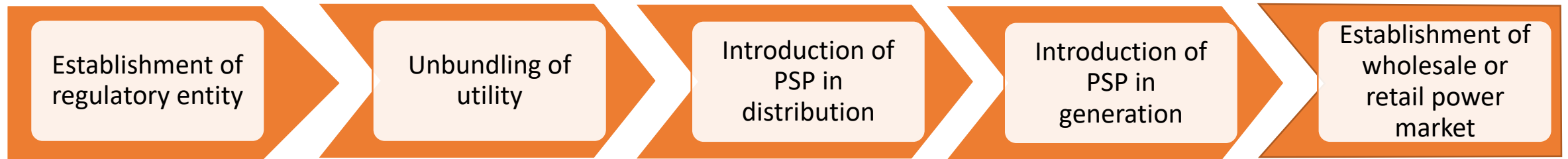


# Each region tells a very different reform story



## **6. Developing countries packaged and sequenced power sector reforms in ways unrelated to the original logic**

# The original logic of power sector reform



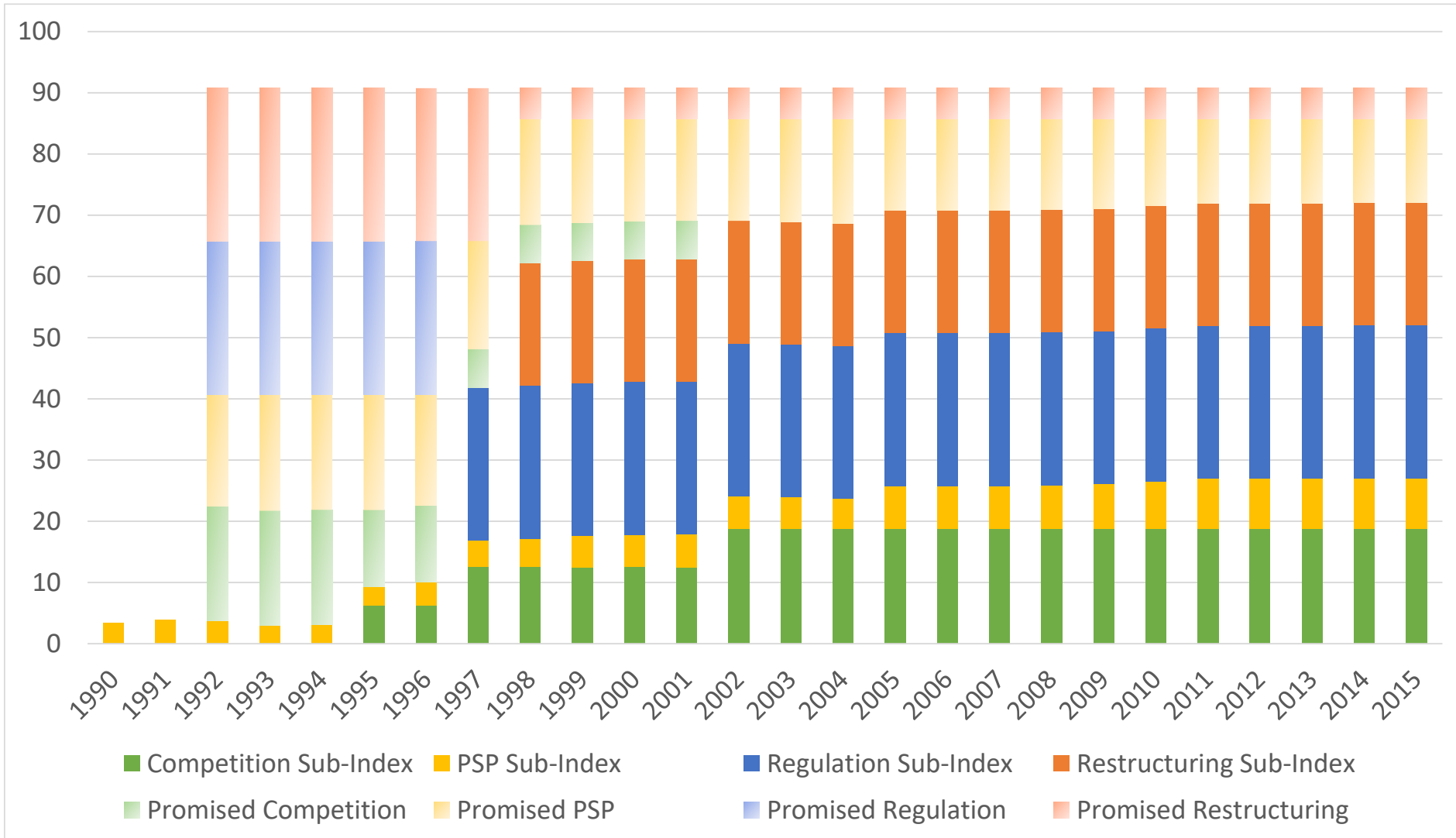
# Prominent cases of divergence from original logic



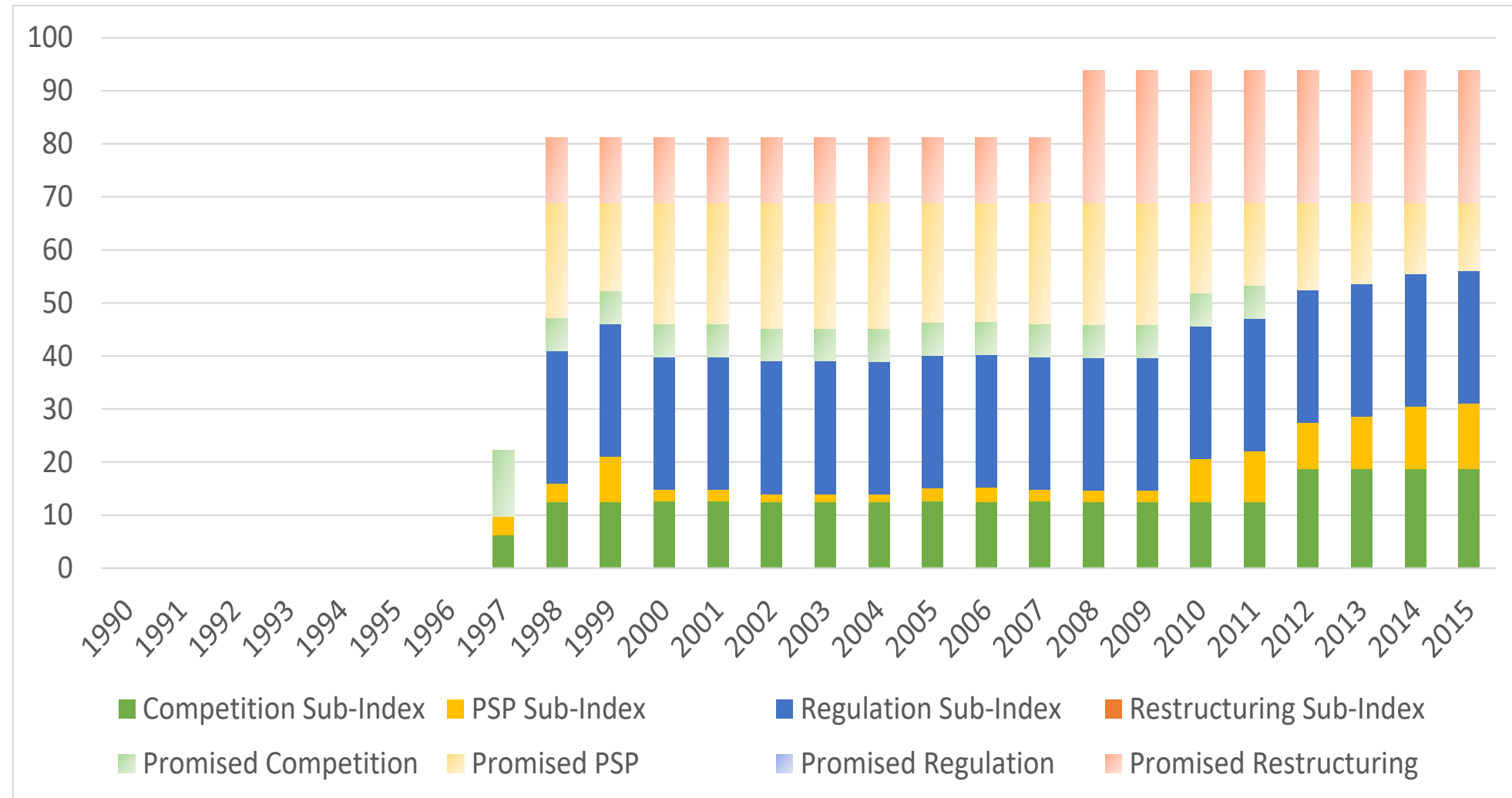
## **7. Announced reforms are not always implemented, and adoption can be significantly delayed**



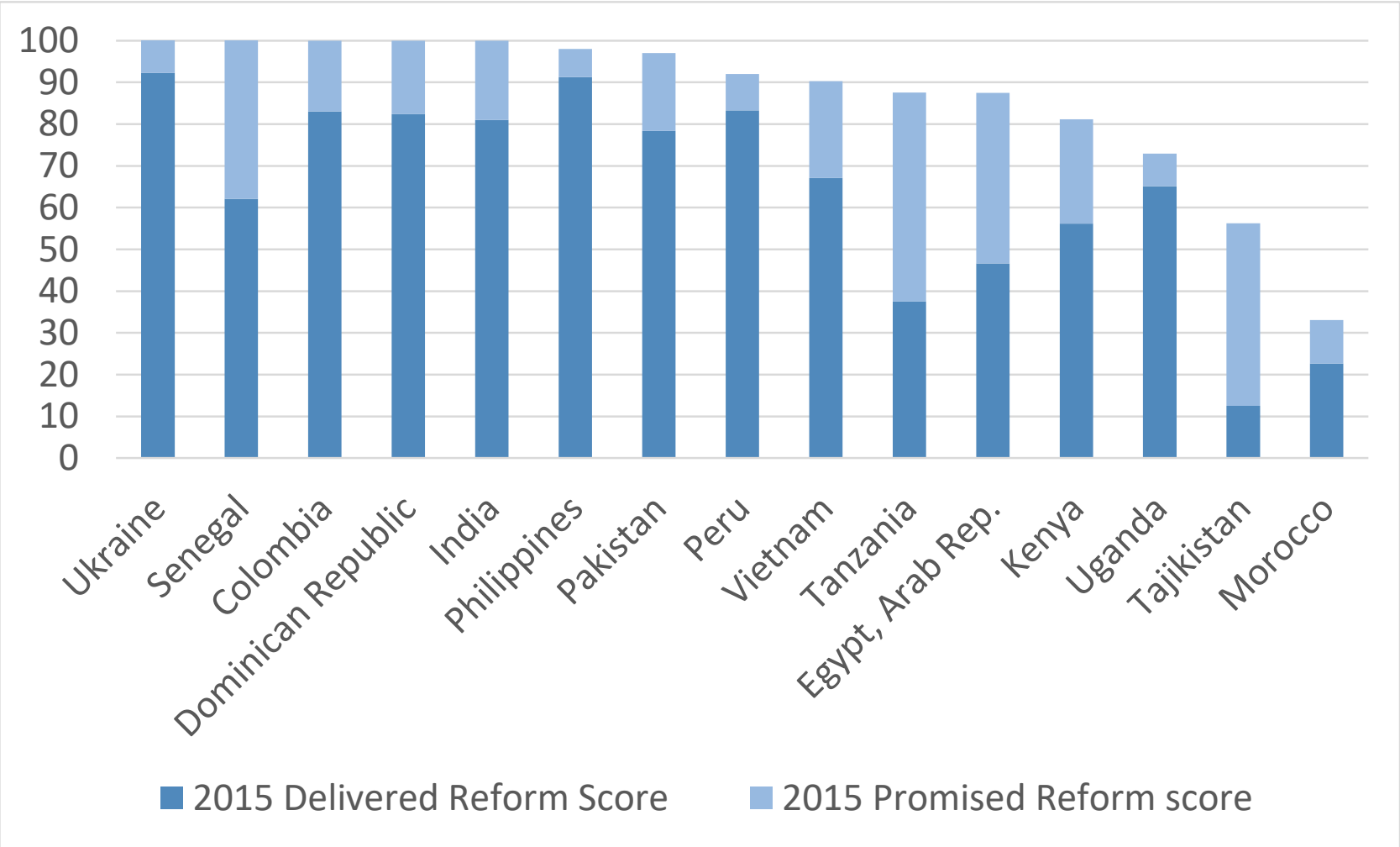
# Comprehensive but delayed reforms in Pakistan



# Gradual reforms fall short of announcements in Senegal

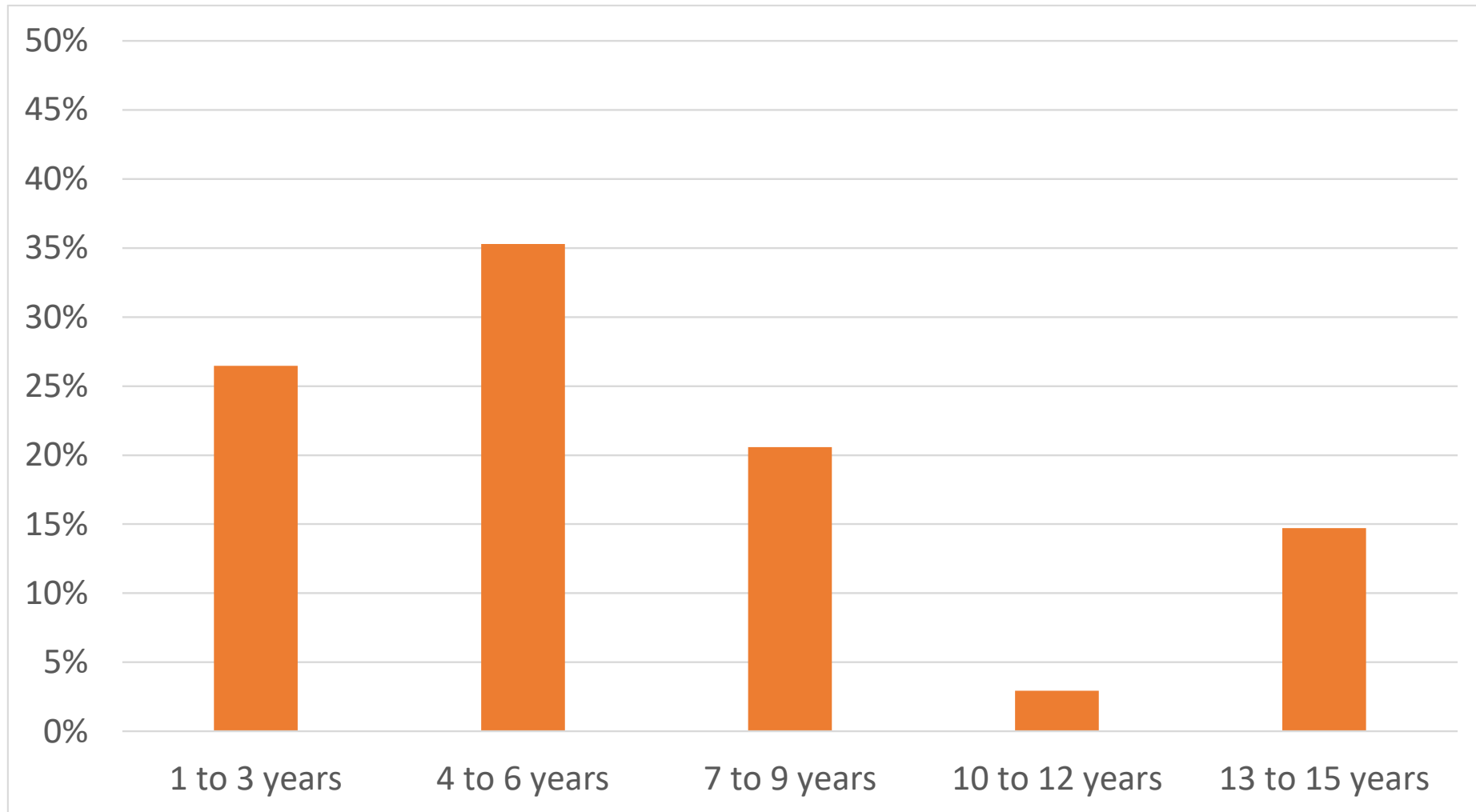


# Announced and implemented reforms for 15 countries, 2015



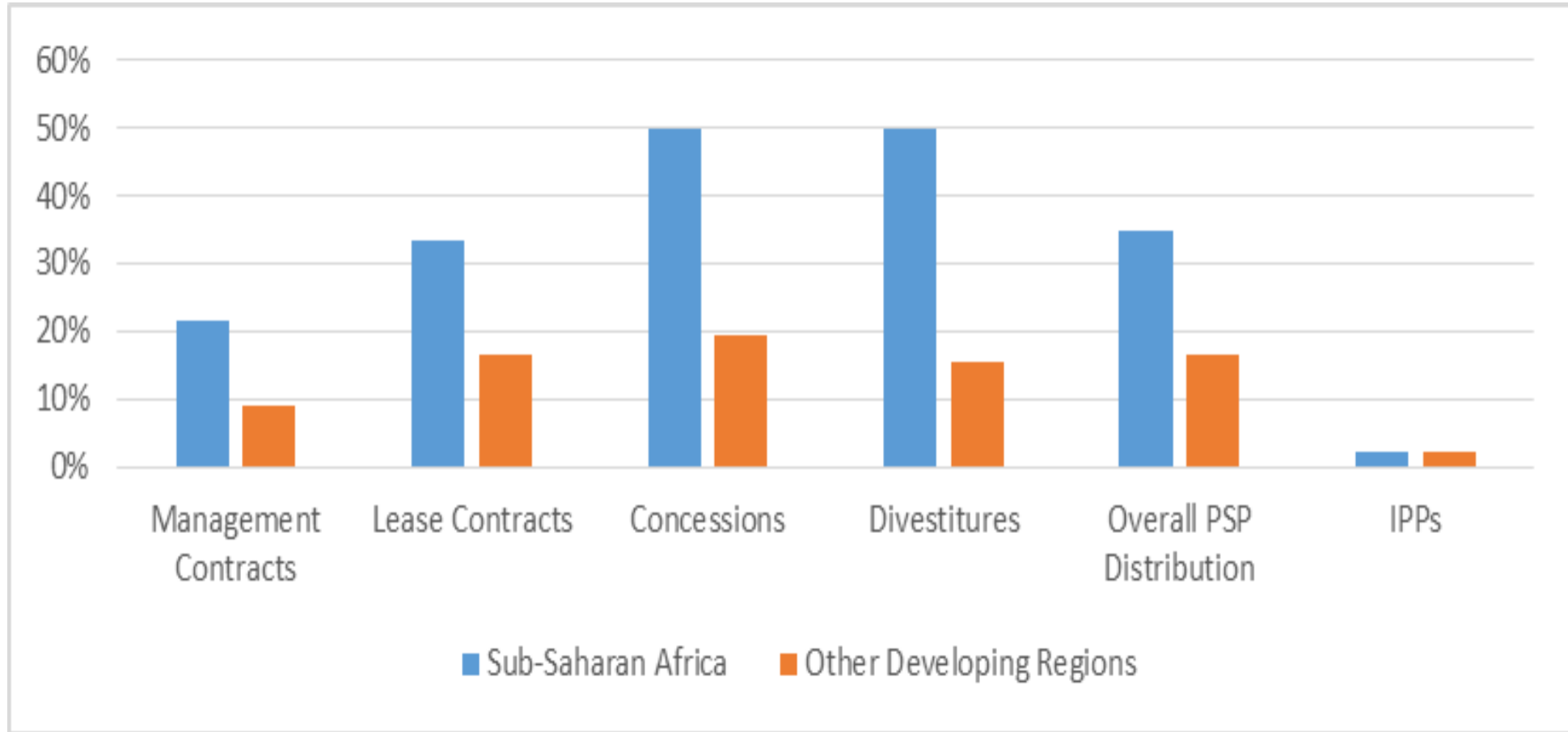
## **8. Power sector reform is reversible, particularly in the case of private sector participation**

# 40 private sector transactions in 20 developing countries have been reversed over the past 25 years



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Cancellation Rate for Private Sector Participation in the Power Sector 1990-2015



# Conclusions and implications

Developing country power sector reform is...

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2. ...running out of steam for the last decade
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4. ...packaged and sequenced in ways unrelated to the original logic
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## Further analytics and data

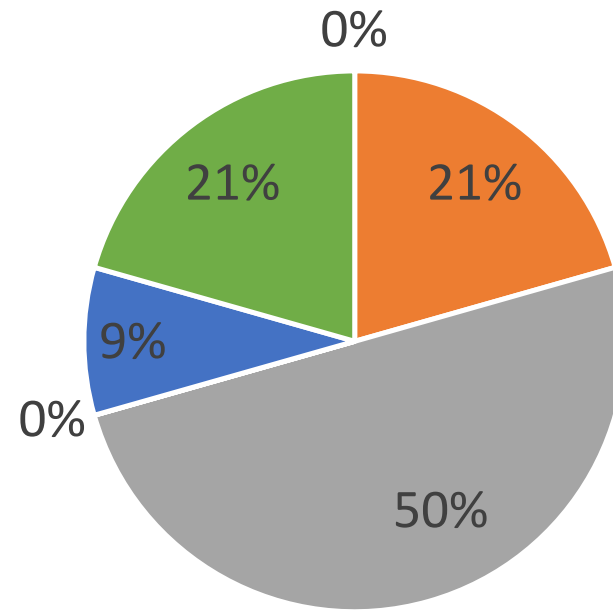
- **Policy Research Working Paper: Charting the diffusion of power sector reforms across the developing world**
  - Available at <http://documents.worldbank.org/curated/en/576801510076208252/Charting-the-diffusion-of-power-sector-reforms-across-the-developing-world>
- **Power Sector Reform Database**
  - Will be made available at <https://datacatalog.worldbank.org/>



**Q&A**



# Regional share in failures, 1990 - 2015



■ East Asia & Pacific

■ Europe & Central Asia

■ Latin America & Caribbean

■ Middle East & North Africa

■ South Asia

■ Sub-Saharan Africa

# Reversal rates by region, 1990 - 2015

