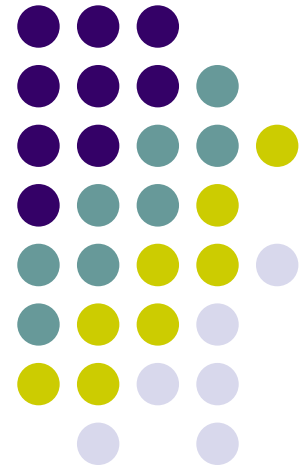


Reforming Infrastructure

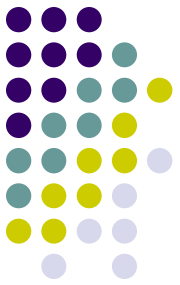
Promises, Outcomes, and Future Challenges

Ioannis N. Kessides
The World Bank

USAID Infrastructure Workshop 2008

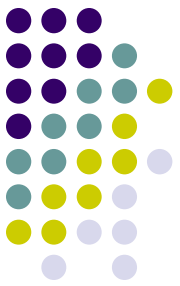


THE CHILLING EFFECTS OF THE GLOBAL FINANCIAL CRISIS



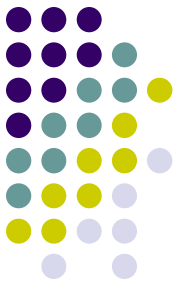
- **Our faith in the utility of free markets is shaken**
- **Deregulation and market liberalization will come under increased scrutiny**
- **Tightening credit conditions and a narrowing fiscal space could severely limit infrastructure investment**

THE EXTERNAL ENVIRONMENT FOR INFRASTRUCTURE INVESTMENT



Developments in the financial markets, such as a sharp drop in equity valuations, widening credit spreads and a withdrawal from banks in response to increasing loss provisions, provide a hostile external environment for infrastructure financing.

THE DISAPPEARANCE OF “DEEP POCKET” SPONSORS



Many of the sponsors that had picked up investment opportunities throughout the developing and transition economies (DTEs) will need to improve cash flows and earnings and to reign in leverage by reducing capital expenditure or by divesting subsidiaries and assets. This raises concerns about a broader withdrawal of sponsors from infrastructure projects in the DTEs in general, and in particular about the possible need for governments to step-in and salvage insolvent infrastructure companies or take back abandoned assets.

Public investments in infrastructure: cuts were large fraction of fiscal adjustment (late 1990s vs. early 1980s)



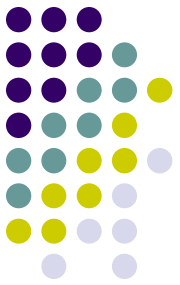
Contribution of Public Infrastructure Investment Cuts to Fiscal Adjustment

(average 1980-84 vs. average 1995-98)

Country	Change in Public Infrastructure Investment (% GDP) [1]	Change in Primary Deficit (% GDP) ^a [2]	[1]/[2] (percent)
Argentina	-2.85	-5.31	53.8
Bolivia	-3.10	-6.15	50.3
Brazil	-3.08	-1.77	174.3
Chile	-1.41	-2.39	58.8
Colombia	0.04	-4.69	--
Ecuador	0.68	-1.81	--
Mexico	-1.98	-6.28	31.5
Peru	-1.51	-3.11	48.6
Venezuela	-0.41	1.88	--

Notes: ^a A negative sign denotes a reduction in the primary deficit – i.e., an improvement in the non-interest fiscal balance.

ESKOM CANCELS R120bn NUCLEAR PLANT



Eskom conceded that the crisis in international financial markets had made it much harder to raise capital and **created a different dynamic**. “Because there is not the depth in the market you can only raise so much capital”.

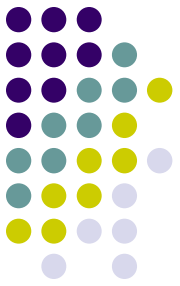
FT -- December 6, 2008

FORCES THAT PROPELLED DEREGULATION

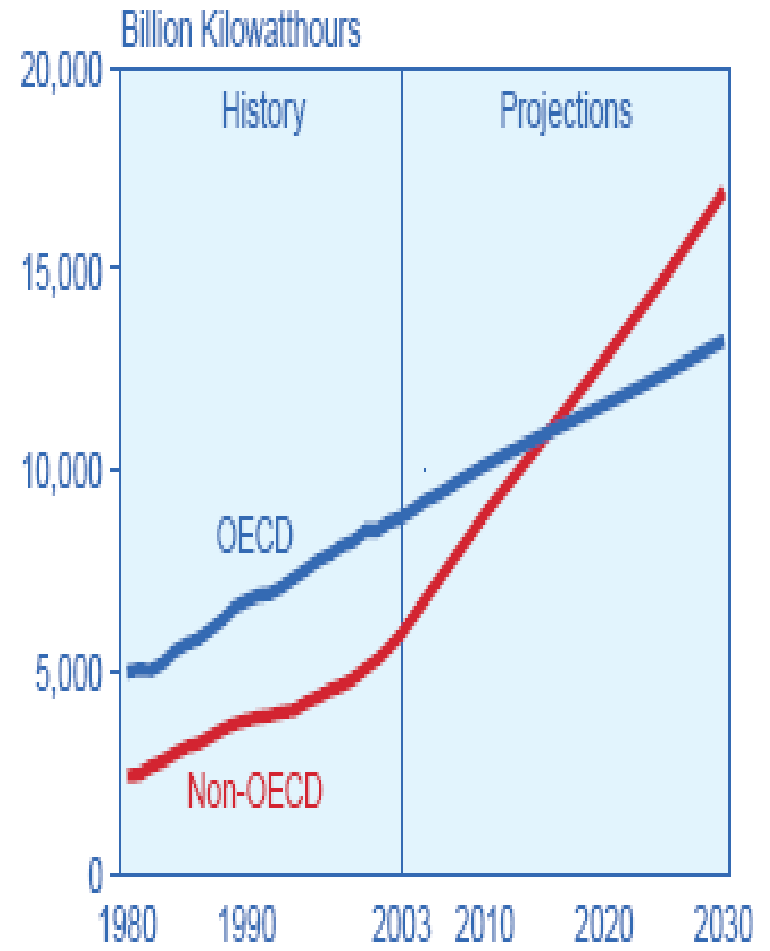
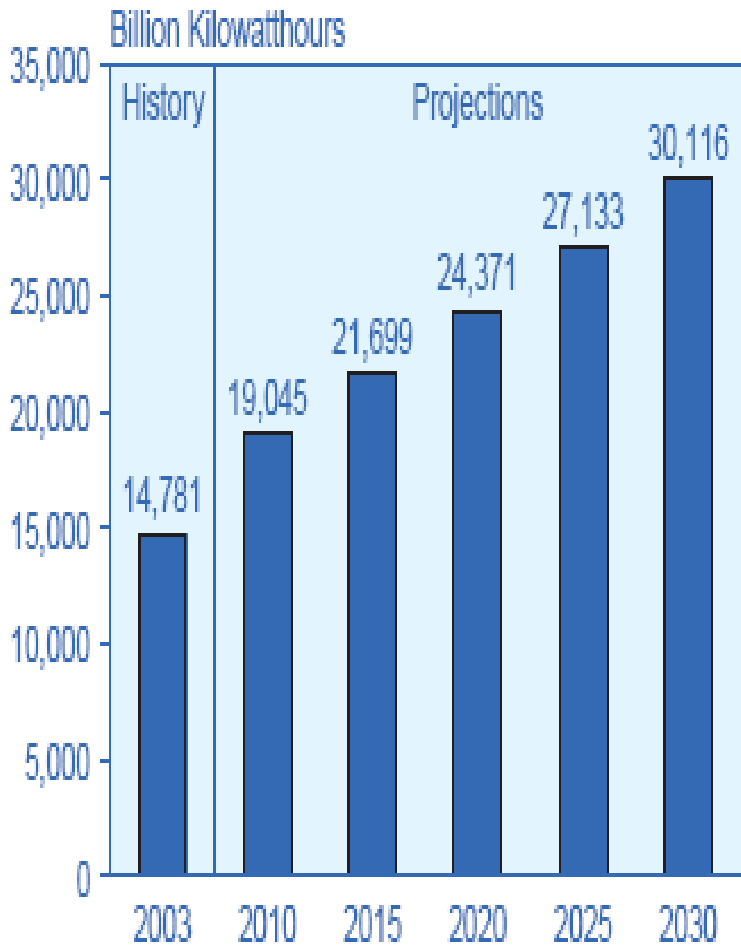
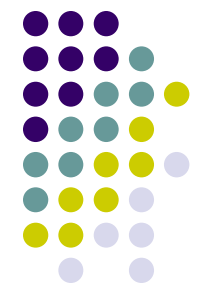


Historical forces that created the “perfect economic storm” and propelled the revolutionary deregulation in the US of wide a variety of economic activities, and much of the country’s public utility industries in the late 1970s and early 1980s: double-digit inflation, “energy crises,” stagflation, heightened environmental concerns, the virtual bankruptcy of a backbone industry, and a perceived erosion of the country’s productivity edge and its international competitiveness. Proponents of deregulation emphasized its potential to combat inflation and restore the growth in productivity by unleashing market forces of competition. The promise of deregulation to contribute to the resolution of the country’s macroeconomic dilemmas had considerable political appeal. Moreover, concerns about the energy crises and environmental protection facilitated the introduction of economically efficient pricing that would discourage wasteful consumption

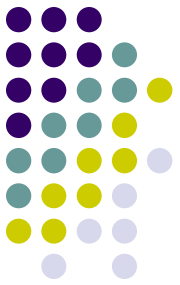
INVESTMENT IN INFRASTRUCTURE TO COMBAT RECESSION



**Investment in infrastructure as a part of a
stimulus package**



PROFOUND REASSESSMENT OF PUBLIC POLICY TOWARDS THE NETWORK UTILITIES



**Views have changed dramatically on how
the network utilities should be owned,
organized, and regulated**

THE NEW PARADIGM FOR INFRASTRUCTURE



OLD MODEL

STATE-OWNED MONOPOLIES

MONOLITHIC ORGANIZATIONS
(VERTICAL INTEGRATION)

CAPTIVE CUSTOMERS

NEW PARADIGM

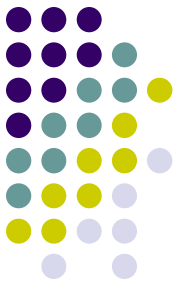
PRIVATE SECTOR
PARTICIPATION

UNBUNDLING

REGULATORY
REFORM

CUSTOMER
CHOICE

PROBLEMS WITH THE OLD MODEL



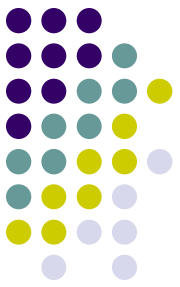
- **CHRONIC REVENUE SHORTAGES AND INADEQUATE INVESTMENT**
- **LOW COVERAGE RATIOS**
- **LOW LABOR PRODUCTIVITY**
- **DETERIORATING FIXED FACILITIES AND EQUIPMENT**
- **POOR SERVICE QUALITY**
- **HIGH SYSTEM LOSSES**
- **POLITICAL INTERFERENCE**
- **LACK OF FISCAL RESPONSIBILITY**
- **LACK OF TRANSPARENCY**

BRAZIL: TELECOMS QUALITY INDICATORS



	Year								
	1981	1982	1983	1984	1985	1986	1987	1988	1989
Repair Request Rate (per 100 terminals)	6.1	5.7	5.6	5.4	5.0	5.0	5.3	5.4	5.7
Rate of Repair Service	85	87	83	89	89	85	76	84	79
Probability of Receiving a Dial Tone	99	99	99	99	98	95	88	85	88
Call Completion Rate (Long-Distance Calls)	81	52	54	55	54	49	43	42	42
Call Completion Rate (Local Calls)	55	56	58	58	57	58			

FACTORS CONTRIBUTING TO FAILURE OF STATE-OWNED ENTERPRISES (SOEs)



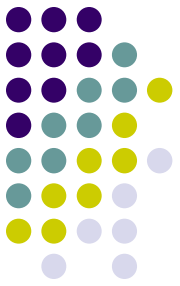
- forced to pursue multiple, poorly-defined and conflicting objectives
- used as instruments of stabilization policy through price controls and investment targets
- management was often appointed on the basis of political loyalty rather than professionalism
- employment and investment patterns reflected bureaucratic preferences rather than market demand and supply conditions
- political expediency and other short-run objectives frequently driving allocation of investment funds
- price controls were imposed in disregard of their performance implications

ATTEMPTS TO REFORM SOEs—VERY LIMITED SUCCESS



- **efficient public enterprise performance requires a large number of complex and demanding policy measures**
- **improvements have not proven sustainable**
- **continuing political interference**

RISING BURDEN IMPOSED BY SOEs



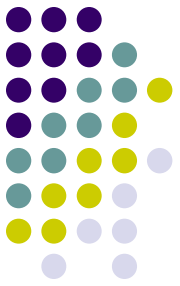
due to

- **dramatic technological change**
- **globalization**
- **ever increasing scarcity of public funds**

and their

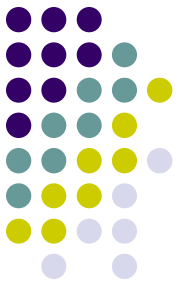
- **constraining economic growth**
- **undermining international competitiveness**

URGENT NEED FOR REFORMING INFRASTRUCTURE



It became evident to policymakers throughout the world that the long-term solution to the problems of poor service delivery, lackluster growth, and damaging political interference required radical structural changes—with the public’s role increasingly restricted to that of regulation which seeks to ensure a fair policy development and recognition of social and other important policy goals

COMBINATION OF INSTITUTIONAL REFORMS



- **market liberalization / competitive restructuring**
- **establishment of regulatory agencies**
- **private sector participation (PSP)**

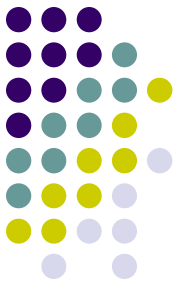
Definition of PSP: private control/management: inclusion of a range of PSP types (full and partial divestitures, concessions, and lease and management contracts)

MARKET LIBERALIZATION DRIVEN BY NEW ECONOMIC THINKING



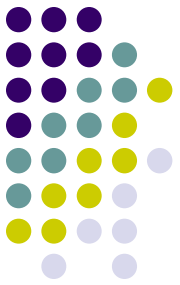
Industry	Activities that are usually not competitive	Activities that can be and sometimes are competitive
Electricity	High-voltage transmission and local distribution	Generation and supply to final customers
Gas	High-pressure transmission and local distribution	Production, supply to final customers, and storage
Telecommunications	Local residential telephony or local loop	Long-distance, mobile, and value added services
Railways	Short-haul track and signaling infrastructure	Train operations and maintenance facilities
Water	Local distribution and local wastewater collection	Production, long-distance transportation, purification, and sewage treatment
Air services	Airport facilities	Aircraft operations, maintenance facilities, and commercial activities

PROMISES OF NEW PARADIGM



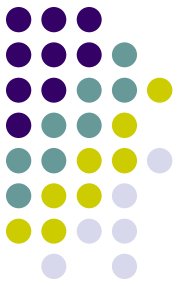
- **INCREASED INVESTMENT**
- **COST-REFLECTIVE TARIFFS**
- **IMPROVED INCENTIVES FOR EFFICIENCY**
- **ACCESS TO SUPERIOR MANAGEMENT**
- **IMPROVED SERVICE QUALITY**
- **POLITICAL INSULATION**
- **GREATER TRANSPARENCY**

PREREQUISITES OF EFFECTIVE PSP



- **A SUITABLE SET OF INSTITUTIONS, A SUITABLE LEGAL SYSTEM, AND A COUNTRY-SPECIFIC STRATEGY**
- **MARKET-FRIENDLY INSTITUTIONAL FRAMEWORK**
- **A MICROECONOMIC STRUCTURE OPEN TO COMPETITION**
- **AN EFFECTIVE SYSTEM OF REGULATION**

CHARACTERISTICS OF DEVELOPING COUNTRIES



- **LOW GOVERNMENT CREDIBILITY**
- **HIGH INCIDENCE OF CAPTURE AND CORRUPTION**
- **LACK OF INSTITUTIONAL CHECKS AND BALANCES**
- **SCARCITY OF TECHNICAL EXPERTISE**
- **POOR AUDITING TECHNOLOGIES**
- **INEFFICIENT TAX SYSTEMS**

OUTCOMES OF PSP / RESTRUCTURING



GROUNDNS FOR CAUTIOUS OPTIMISM

- **PSP led to significant improvements in labor productivity, efficiency, and product/service quality**
- **in some sectors and countries PSP led to significant increase in output and coverage**
- **increase in investment, although perhaps of modest magnitude**
- **on average, (almost) no tariff effect associated with PSP**

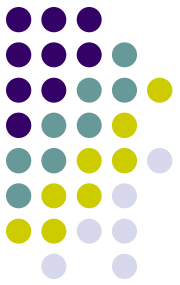
SUMMARY OF PSP OUTCOMES



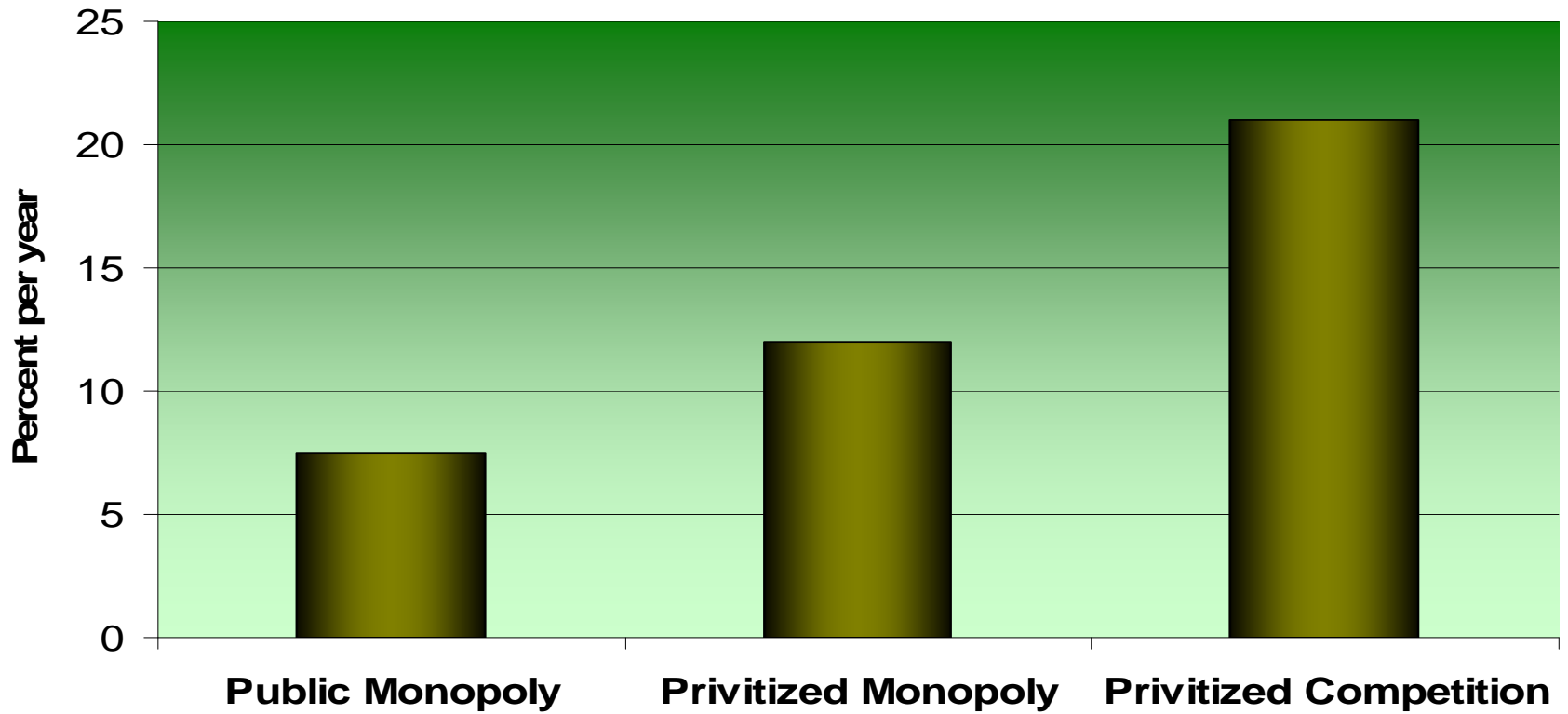
	Electricity Distribution		Fixed Telecommunications		Water Distribution	
	Transition	Post Transition	Transition	Post Transition	Transition	Post Transition
Number of subscribers (*)						
Output (*)						
Number of employees						
Labor productivity (*)						
Distributional losses						
Quality						
Coverage (*)						
Average Prices						
Monthly Residential Charges						
Price for a Residential Installation						

Note: (*) these variables were reported after the firm-specific time trend consideration.

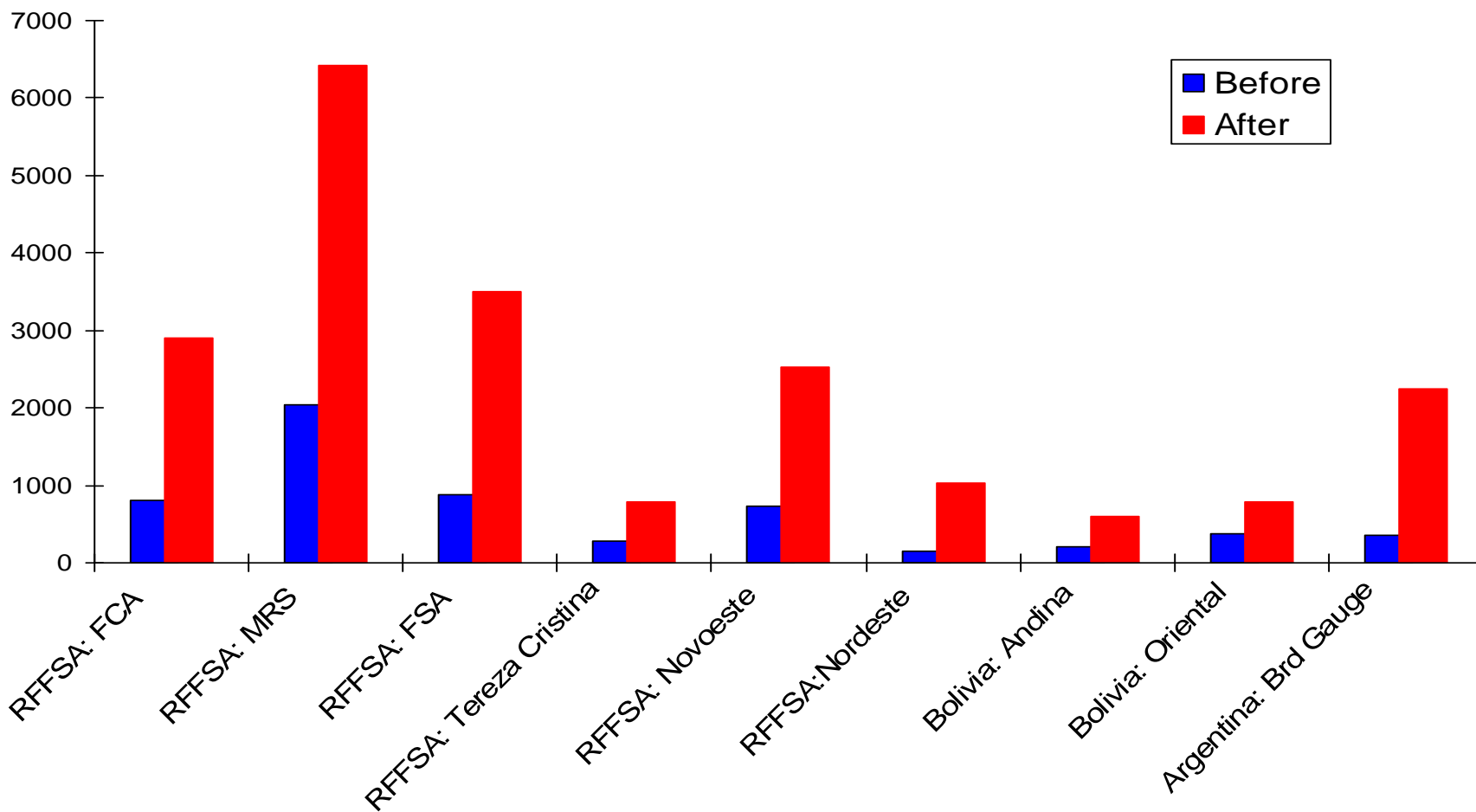
IMPORTANCE OF COMPETITION



**Telecom Line Growth Rates in Latin America
Role of Ownership and Competition**



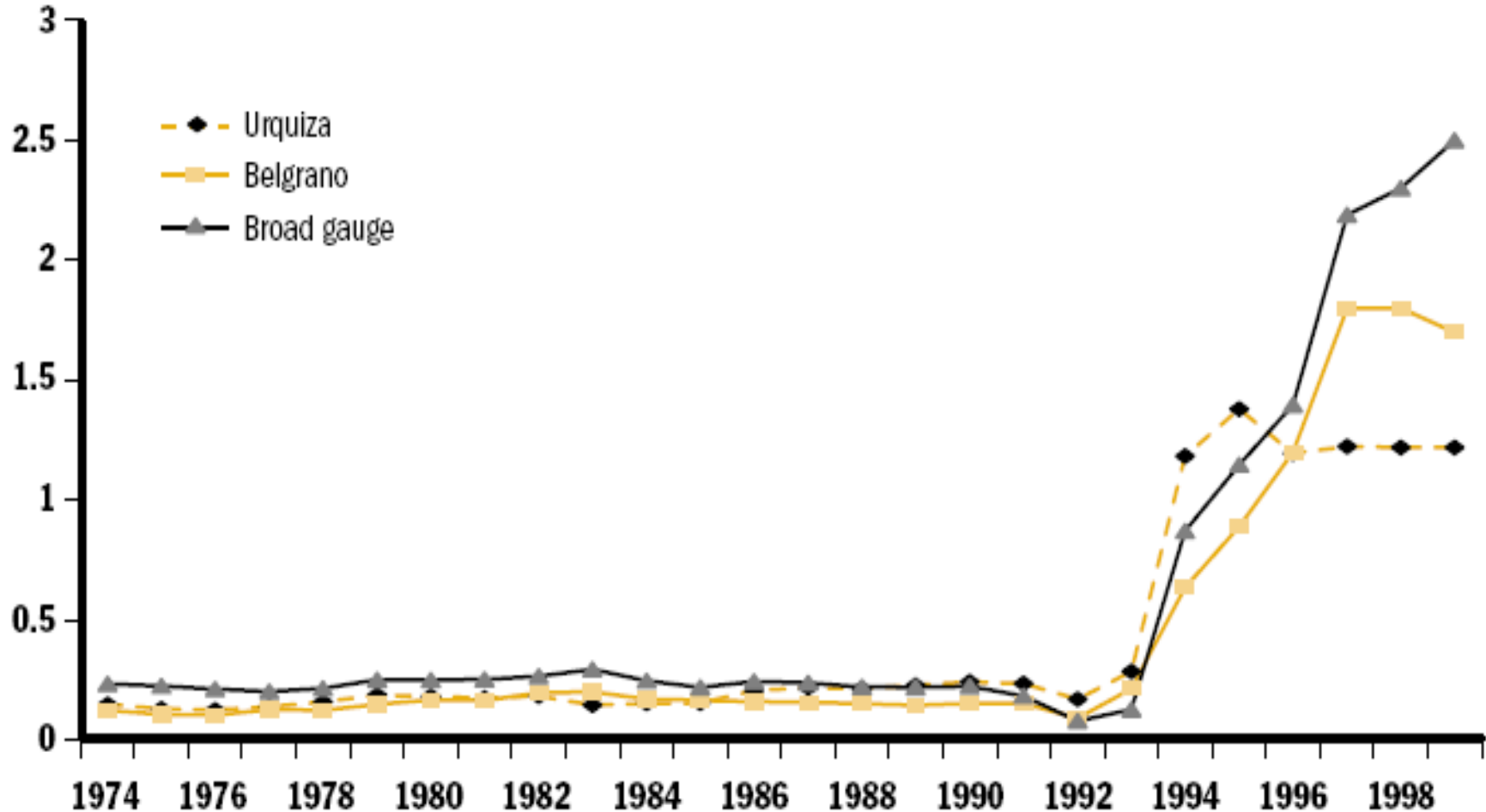
RAIL LABOR PRODUCTIVITY IN BRAZIL BOLIVIA AND ARGENTINA BEFORE AND AFTER CONCESSIONING (000 TU/EMPLOYEE



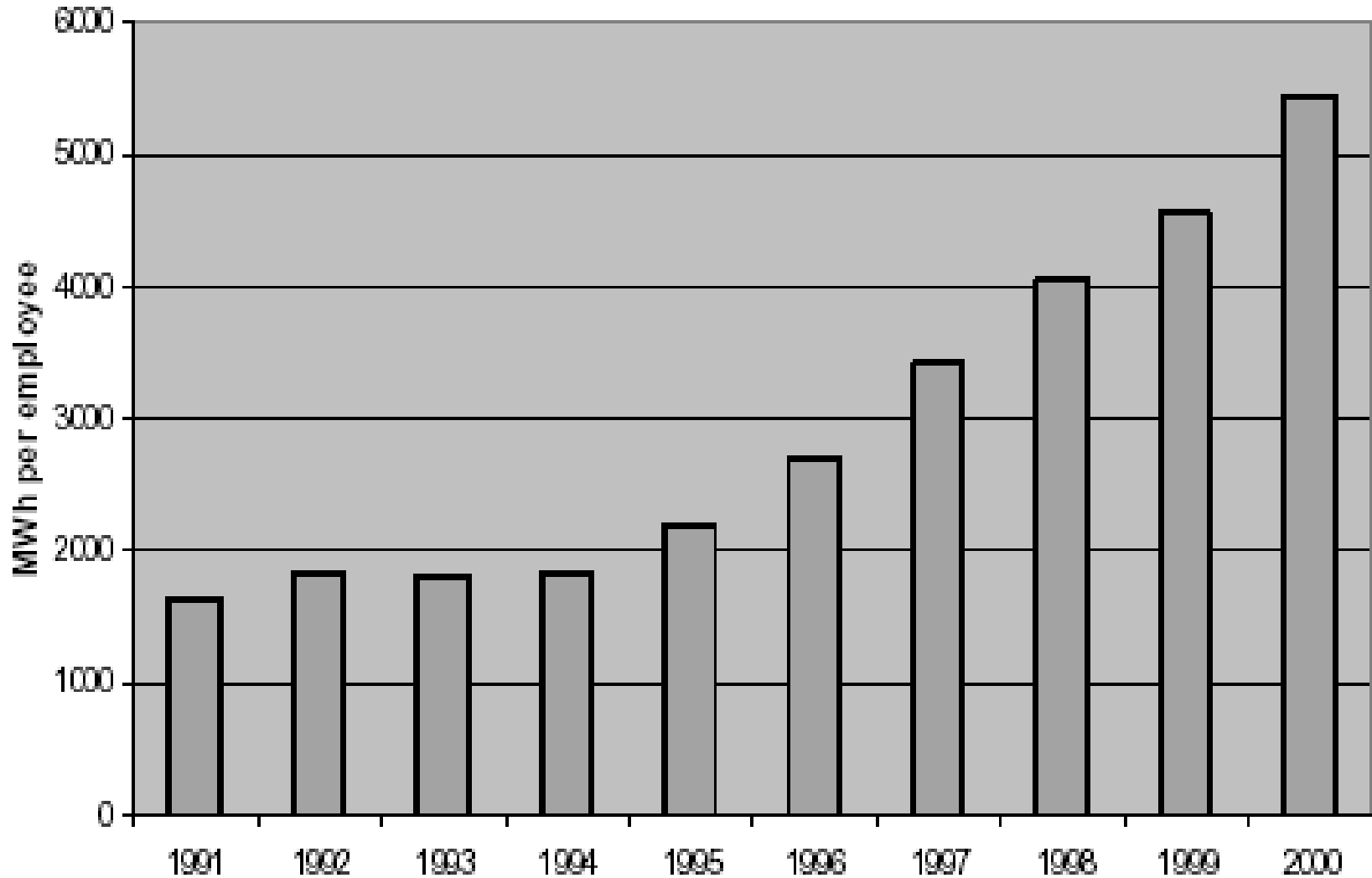
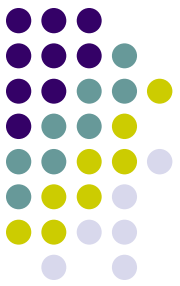
RAIL LABOR PRODUCTIVITY IN ARGENTINA 1974-2000



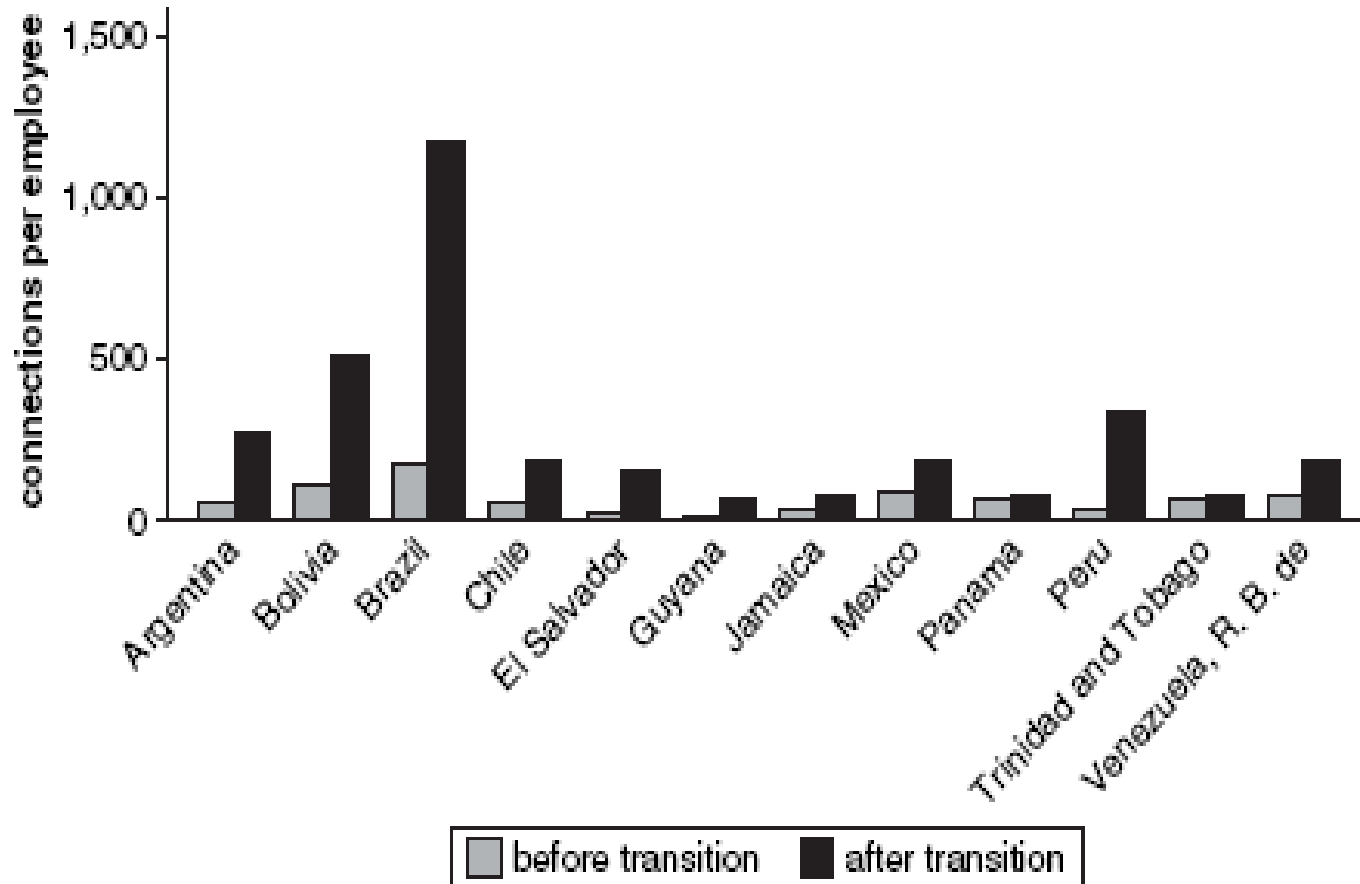
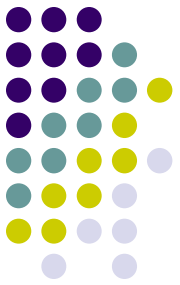
Millions of traffic units per employee



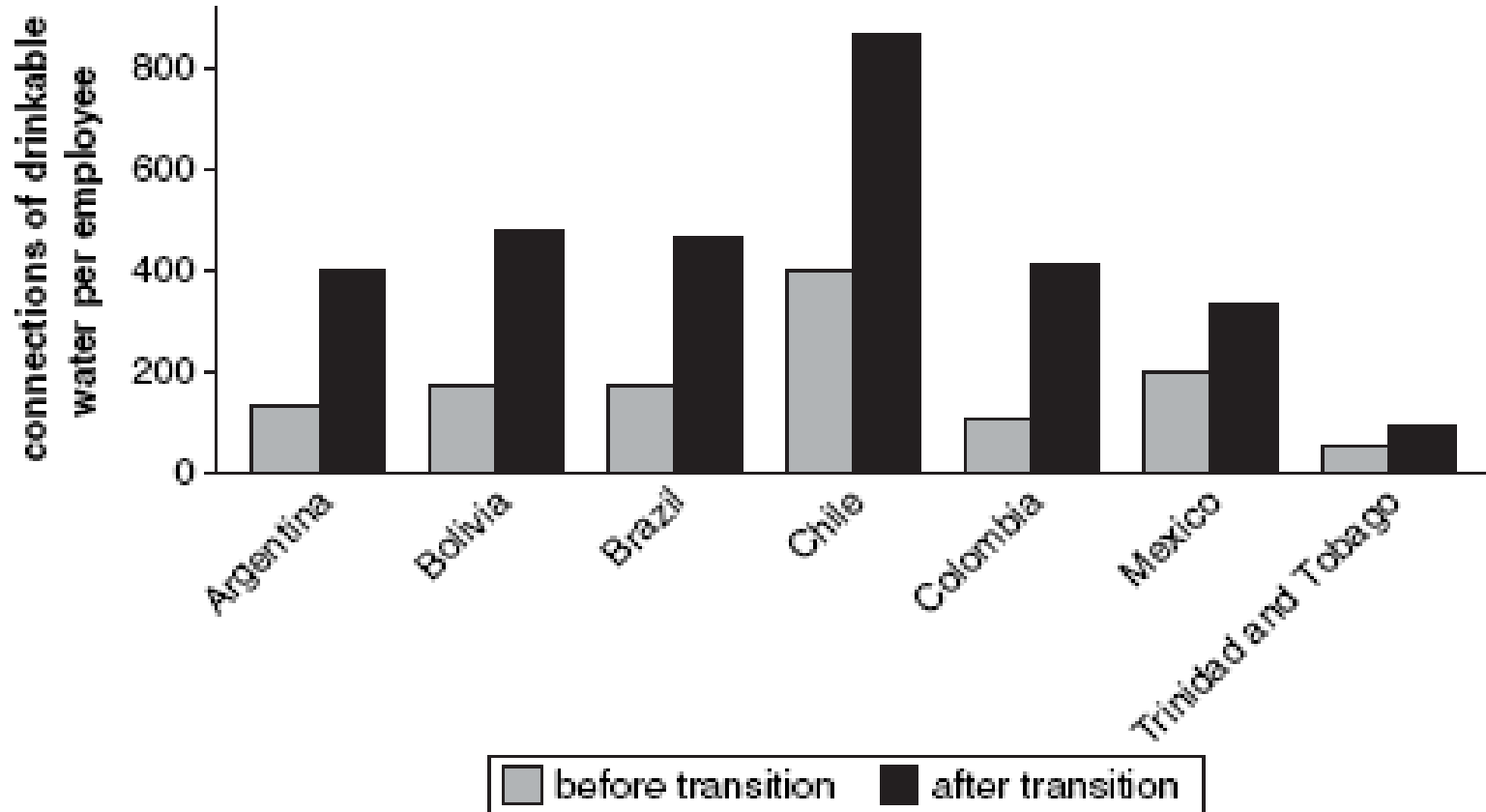
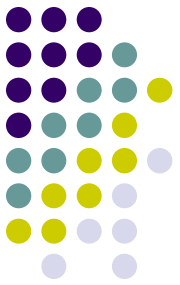
LABOR PRODUCTIVITY OF THE DISTRIBUTION/SUPPLY BUSINESSES IN BRAZIL, 1991–2000



BEFORE AND AFTER COMPARISON OF TELECOMMUNICATIONS LABOR PRODUCTIVITY



BEFORE AND AFTER COMPARISON OF WATER CONNECTIONS PER EMPLOYEE

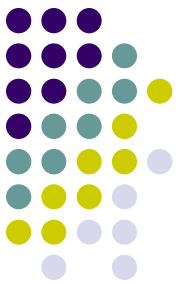


OPERATING PERFORMANCE OF COLOMBIAN PORTS BEFORE AND AFTER REFORMS

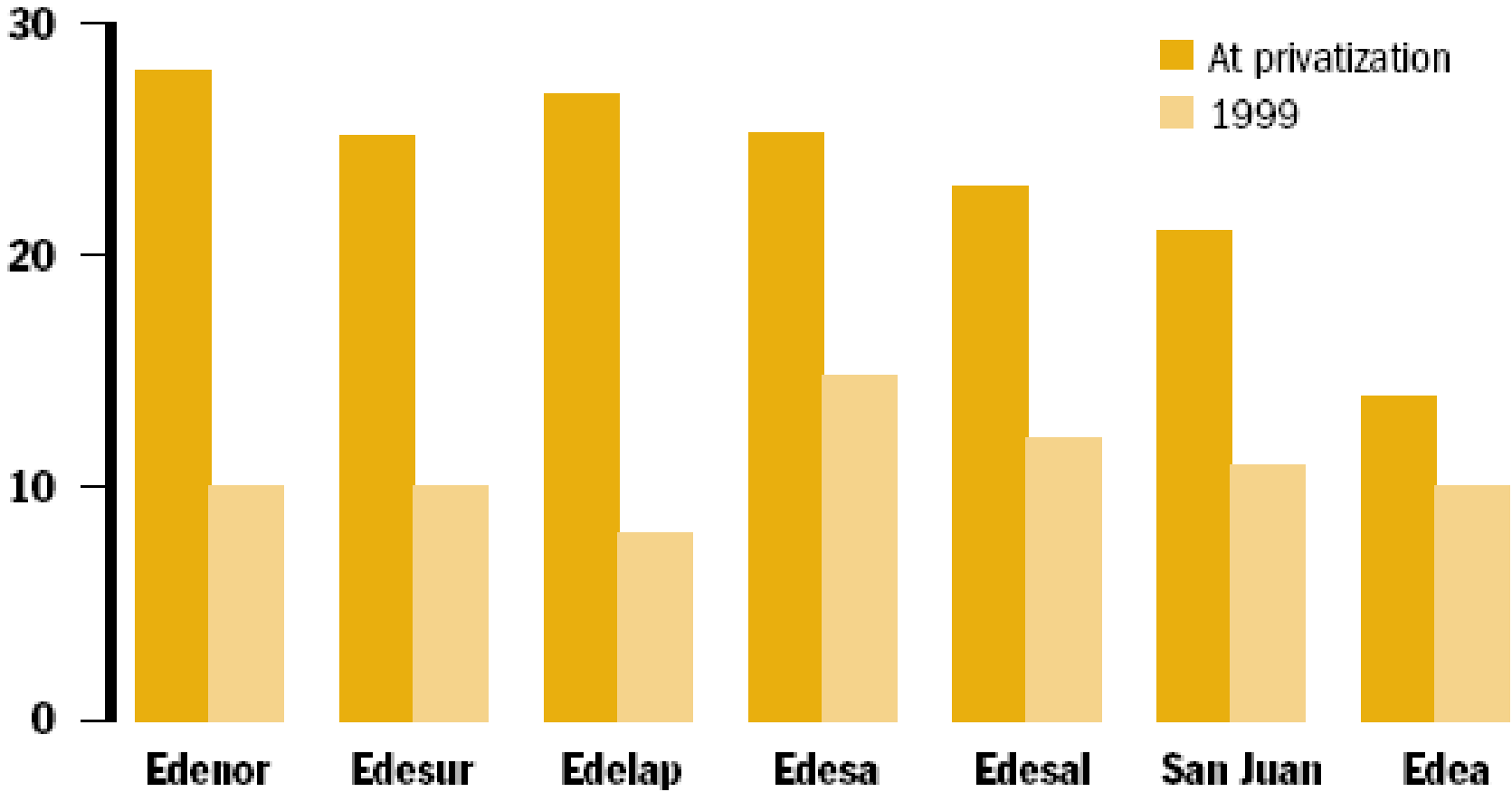


Indicator	Before 1993	1996
Average vessel waiting time (days)	10	No wait or hours, depending on the port
Working days per year	280	365
Working hours per day	16	24
Tones per vessel per day		
Bulk cargo	500	2,500 minimum
General cargo	750	1,700
Containers per vessel per hour (gross)	16	25

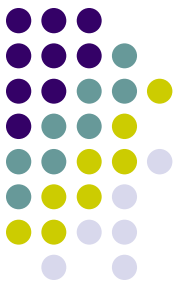
DISTRIBUTION LOSSES IN ARGENTINA, AT PRIVATIZATION AND IN 1999



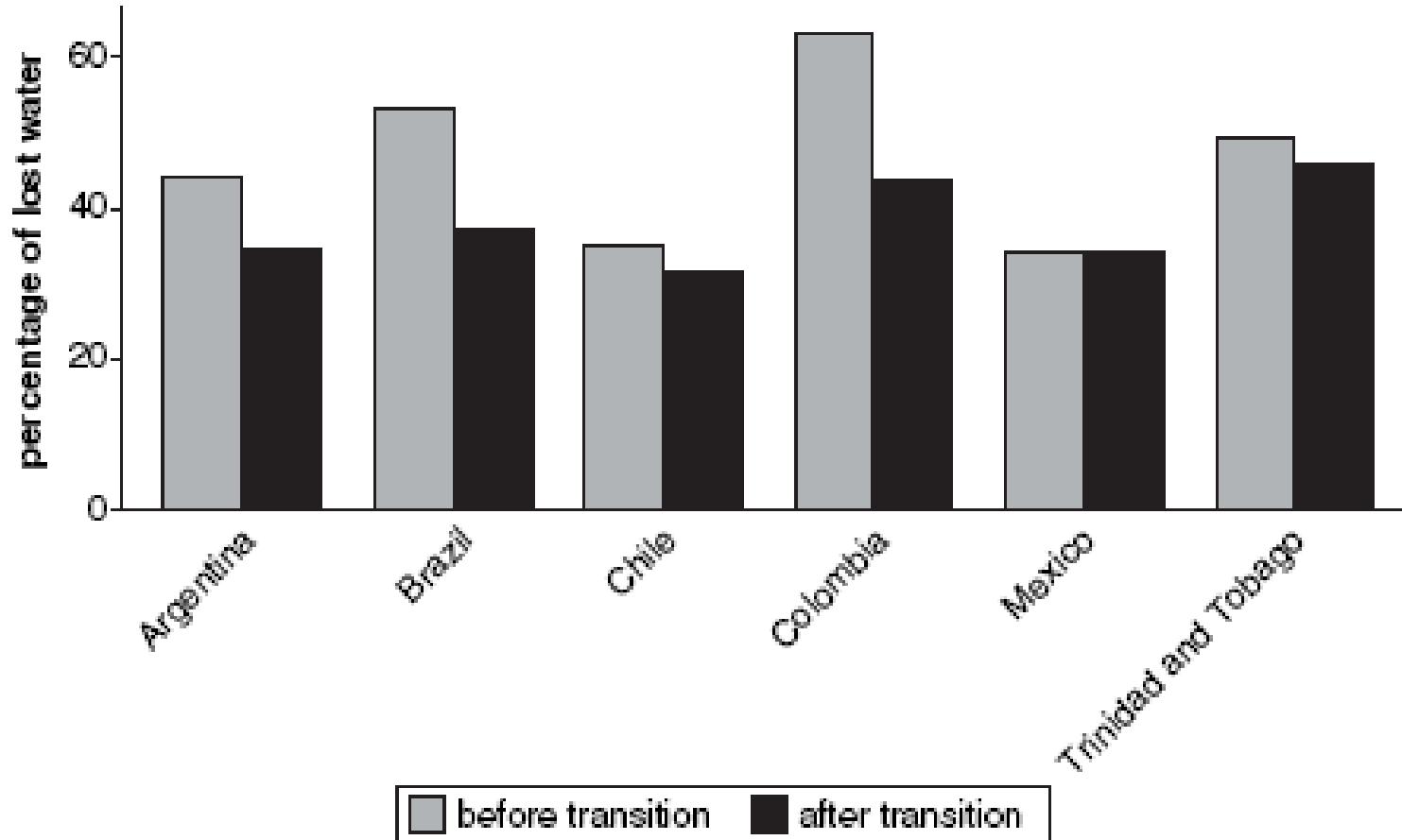
Energy losses (percent)



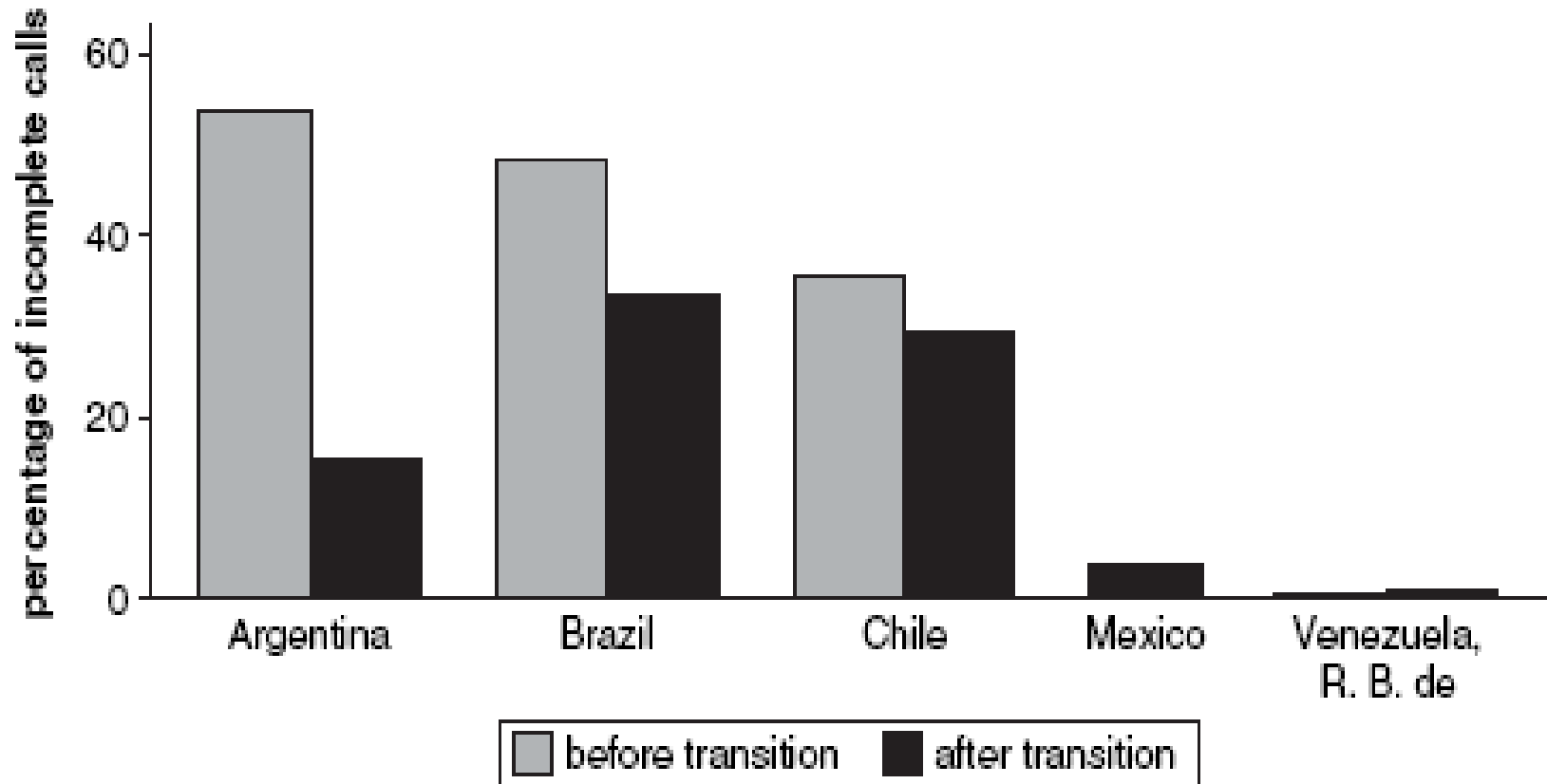
BEFORE AND AFTER COMPARISON OF WATER DISTRIBUTION LOSSES



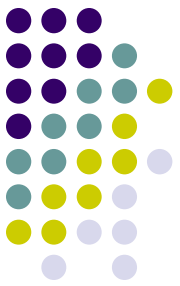
Water distribution



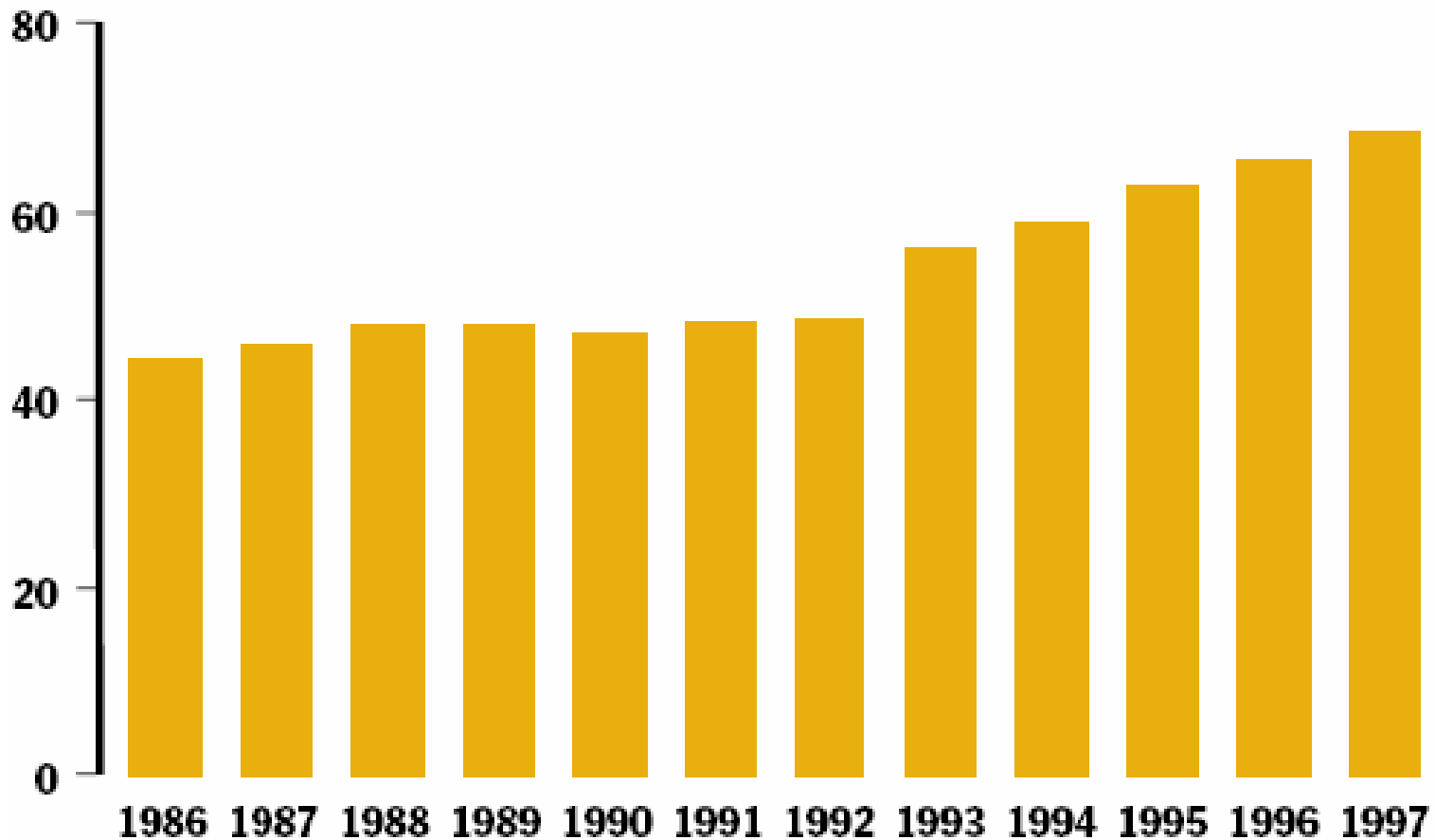
BEFORE AND AFTER COMPARISON OF TELECOMMUNICATIONS : INCOMPLETE CALLS



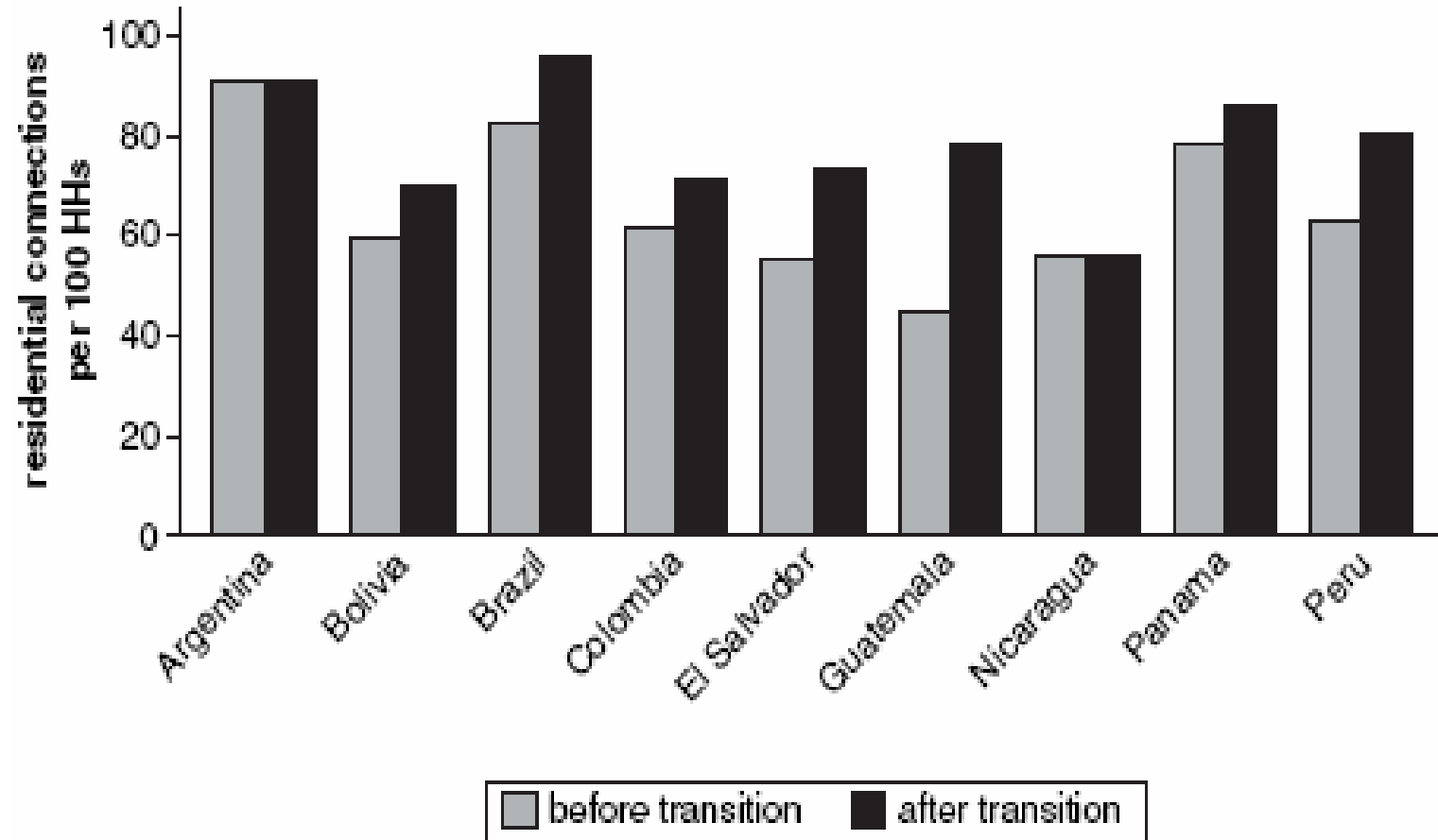
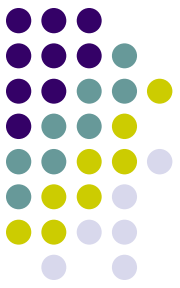
ELECTRICITY COVERAGE IN PERU, 1986-1997



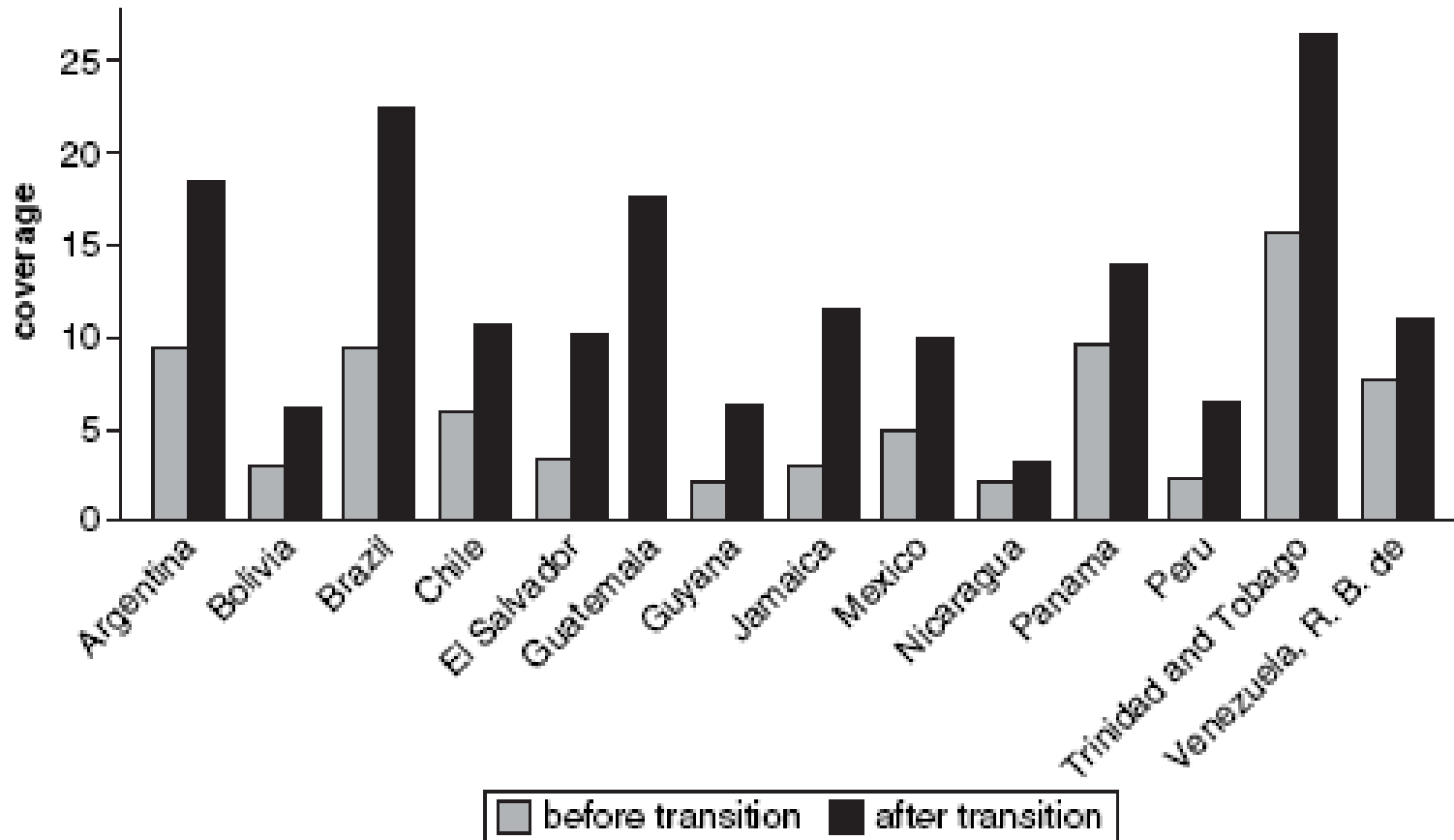
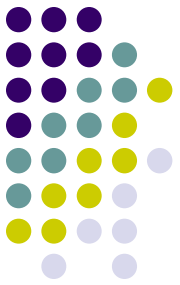
Percentage of population



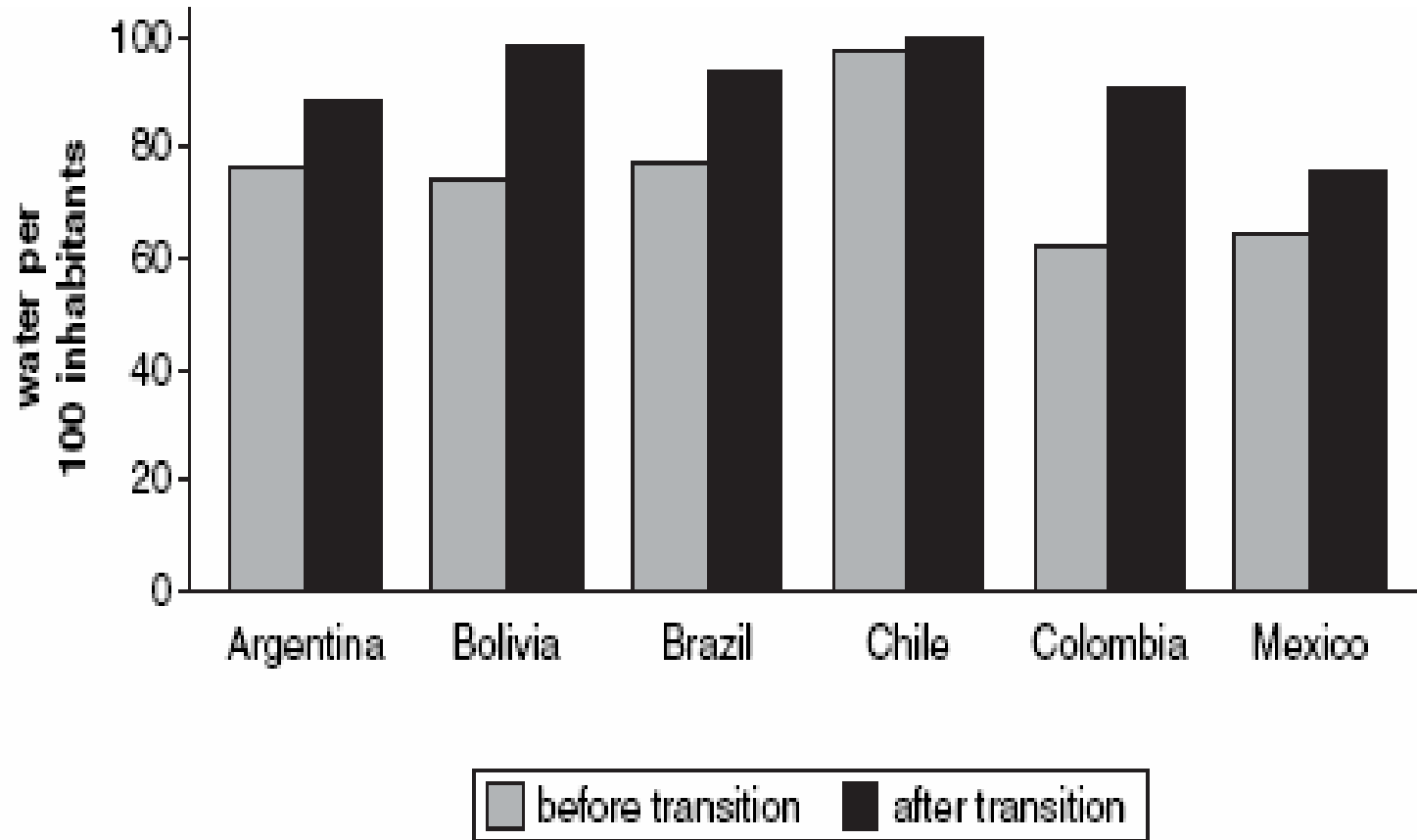
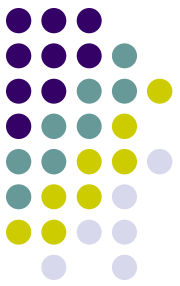
BEFORE AND AFTER COMPARISON OF ELECTRICITY COVERAGE LEVELS



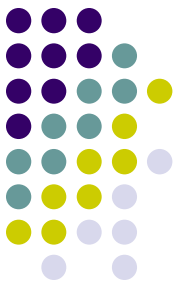
BEFORE AND AFTER COMPARISON OF TELECOMMUNICATIONS COVERAGE LEVELS



BEFORE AND AFTER COMPARISON OF WATER COVERAGE LEVELS



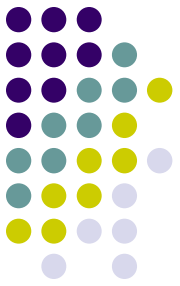
GAINS NOT LIMITED TO LATIN AMERICA



A recent analysis of 1,230 utilities (302 with PSP and 928 SOEs) in 71 developing and transition countries shows that PSP led to

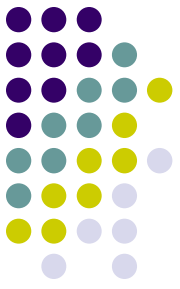
- **12% increase in residential connections for water utilities**
- **54% increase in residential connections per worker for water utilities and a 29% increase for electricity distribution companies**
- **19% increase in residential coverage for sanitation services**
- **18% increase in water sold per worker and a 32% increase in electricity sold by worker**
- **45% increase in bill collection rates in electricity**
- **11% reduction in distribution losses for electricity and a 41% increase in the number of hours of daily water service**

PROMISES AND RISKS OF NEW MODEL



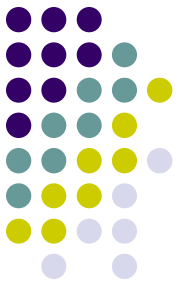
- **new model, poses significant risks if not accompanied by appropriate structural and regulatory safeguards**
- **however, if implemented correctly, it offers benefits too big to ignore—for governments, operators, and consumers**
- **by now, there is enough experience to guide its implementation**
- **it should not be pursued in a specific country or industry without carefully assessing its institutional and structural prerequisites and without explicit attention to the concerns it raises**

UNBUNDLING IS NO PANACEA...AND REQUIRES CAREFUL REGULATION



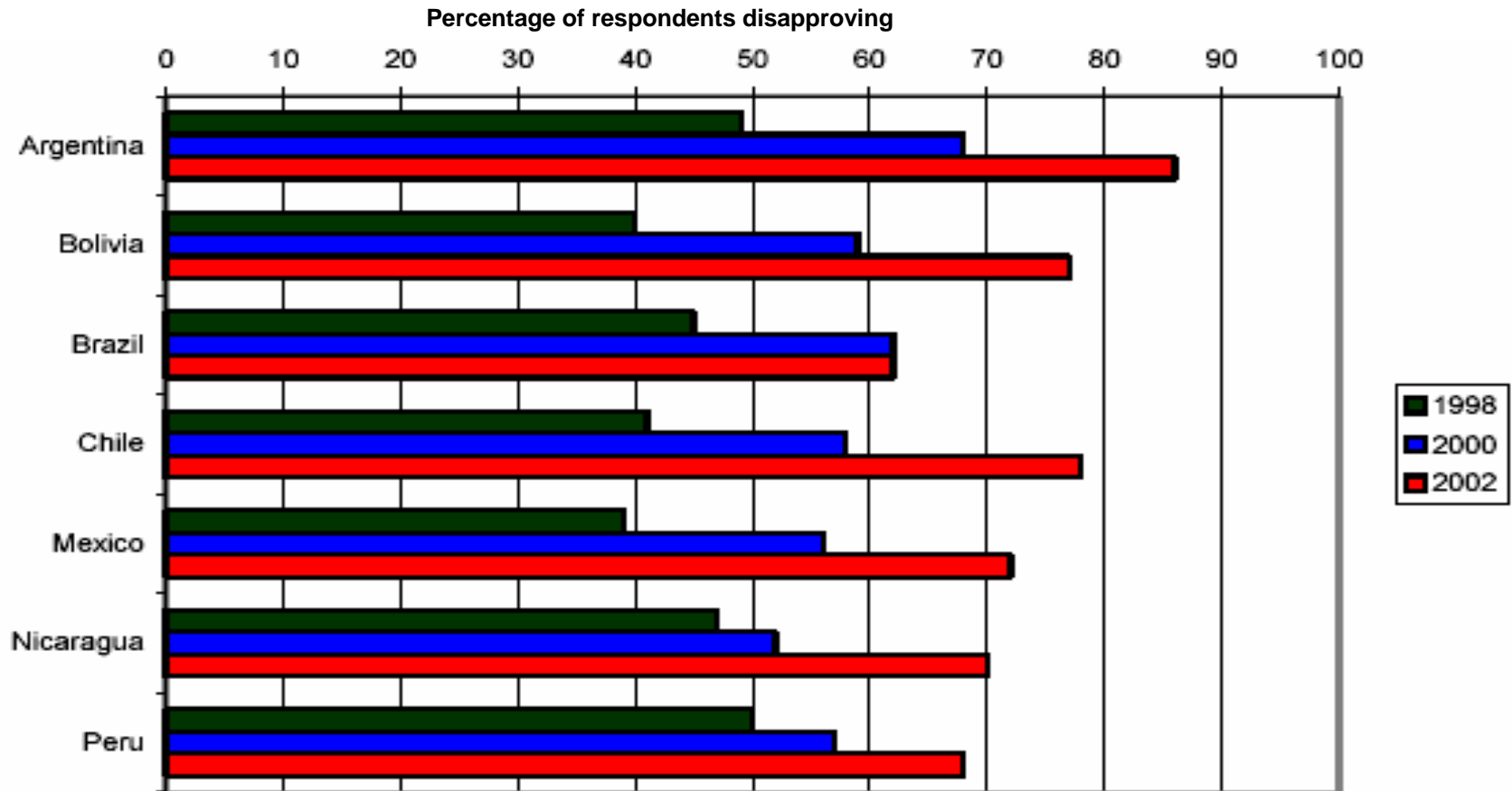
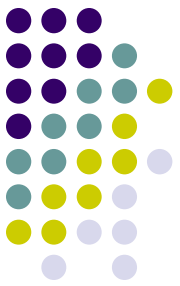
- **industrial countries relied on the old, vertically integrated model to develop good infrastructure and have only recently pursued unbundling**
- **tradeoff between potential losses of coordination and scope economies and possible increases in transaction costs, relative to potential efficiency gains from competition and increased transparency**
- **unbundling can reduce the need for regulation by isolating monopoly segments**
- **however, performance becomes much more sensitive to regulatory efficacy**

PRIVATIZATION HAS BEEN OVERSOLD AND MISUNDERSTOOD

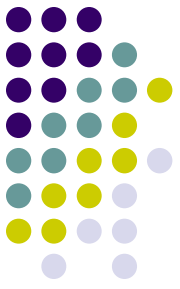


- **privatization was heralded as an elixir that would rejuvenate lethargic, wasteful infrastructure industries—today it is viewed more critically**
- **opinion polls in several developing and transition economies, especially in Latin America, reveal growing public dissatisfaction with privatization**
- **public discontent with privatization has been fueled by perceived price increases, job reductions, and the high profits of firms that have improved operating performance—as well as by economic and political crises that had little to do with government policy toward infrastructure**

PUBLIC OPINION ON PRIVATIZATION IN LATIN AMERICA



PRICING AND OTHER ADJUSTMENTS WERE NECESSARY FOR REFORMS TO ACHIEVE THEIR PUBLIC INTEREST OBJECTIVES



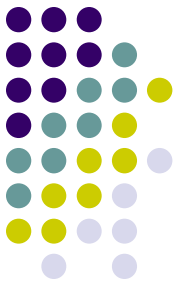
- **inadequate revenue was a key problem of the old model**
- **the choice was either higher prices or more taxation**
- **a sensible, and arguably less regressive, response was to realign prices with costs**
- **state utilities in most developing and transition economies had high excess employment before reforms**
- **efficiency and competitiveness require eliminating redundant jobs**
- **the market's primary incentive is the prospect of profits for firms that succeed--preventing monopoly profits is a legitimate goal for public policy, but it should not lead to artificial limits on post-privatization profits**

LINGERING DISTRIBUTIONAL CONCERNS



- **no clear pattern in price changes**
- **adverse distributional impacts on the bottom half of the income distribution due to job cuts in the privatized utilities**
- **distributional effects of layoffs offset by improvements in service quality, increased access for poor people, and the changed structure of public finances, which benefited poor people more**

TWO PSP TRAPS TO AVOID



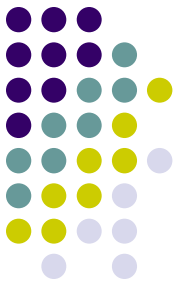
Privatization without competitive restructuring:

- **some fiscally strapped governments have sold utilities as monopolies**
- **tendency toward exclusivity has been encouraged by prospective investors and underwriting investment banks**
- **the basic argument for exclusivity is economically flawed, and such arrangements have led to problems after privatization**
- **exclusivity is likely to be especially damaging in poor countries where the incumbent state-owned monopoly has not provided reliable nationwide service**

Weak regulatory capacity

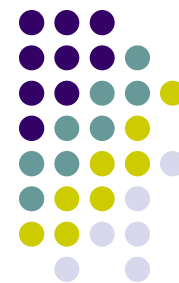
- **establishing appropriate regulation was frequently subordinated to the immediate goal of closing transactions**
- **regulatory institutions were often created simply by replicating systems from advanced industrial countries**

REFORMS REQUIRE PROPER SEQUENCING



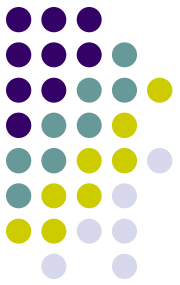
- **hard or costly to change structural choices after privatization**
- **restructuring to introduce competition should occur before privatization**
- **regulation should be in place to assure potential buyers of both competitive and monopoly elements**

EACH SECTOR MUST CHOOSE AMONG IMPERFECT OPTIONS



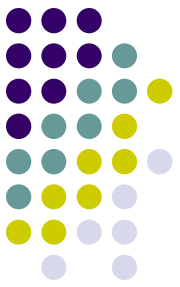
- **there is no universally appropriate model for restructuring network utilities**
- **the fact that state ownership is flawed does not mean that privatization is appropriate for all infrastructure activities and all countries**
- **the telecommunications sector offers the most compelling case for privatization and liberalization**
- **the case for privatizing transport network infrastructure is much less compelling than that for privatizing services operating on the network**
- **electricity restructuring and privatization are more problematic and dependent on administrative ability**
- **scope for introducing competition in the supply of water is far more limited**

GOVERNMENTS HAVE ADOPTED A VARIETY OF PSP MODELS



Approach	Asset Ownership	Operation & Maintenance	Capital Investment	Commercial Risk	Contract Duration
Service Contract	Public	Public/private	Public	Public	1-2 years
Management Contract	Public	Private	Public	Public	3-5 years
Lease	Public	Private	Public	Shared	8-15 years
Concession	Public	Private	Private	Private	25-30 years
Build-Operate-Transfer (BOT)	Public and Private	Private	Private	Private	2-30 years
Divestiture	Private or Public and private	Private	Private	Private	Indefinite or limited by license

FACTORS THAT MAY LOWER PRIVATE SECTOR INTEREST, INCREASE COST OF CAPITAL



- **economic and political instability: difficulty in assessing economic viability of projects**
- **backlash against privatization: increased perception of risk**
- **weak regulatory and legal framework: frequent disputes and renegotiations**
- **private sector willing to take on financial, operational, commercial and construction risks ... but investors wary of taking on government related risks: political, regulatory (e.g. contract breach), exchange rate**
- **some of these issues even more acute at the sub-national level: weaker institutional capacity, policy framework, credit worthiness**

EFFECTIVE REGULATION IS CRITICAL TO THE SUCCESS OF PSP



Successful reform requires regulation that:

- **provides a credible commitment to safeguarding the interests of both investors and customers**
- **clarifies property rights, allocates them sensibly, and assures private investors that their sunk investments will not be subject to regulatory opportunism**
- **institutional design and substantive content must be consistent with country circumstances**

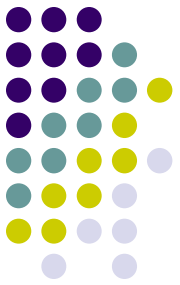
DEVELOPING EFFECTIVE REGULATION REMAINS A MAJOR CHALLENGE



Regulatory effectiveness is frequently undermined by:

- **lack of independence due to political interference**
- **unclear demarcation of responsibilities between sectoral ministries, national, and state/provincial regulatory agencies**
- **insufficient statutory authority**
- **insufficient technical capacity**
- **lack of transparency**

DIFFERENCES BETWEEN DEVELOPED AND DEVELOPING COUNTRIES



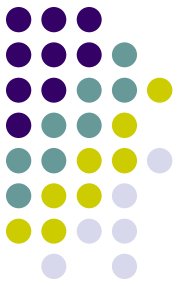
- **Access:**

- Lack of access to services by large portions of the population is a key issue in many developing countries-- achieving greater efficiency in the provision of services to existing customers is the main issue in developed countries
- Pricing rules that promoted efficiency in developing countries did not always promote access in developing countries

- **Pricing:**

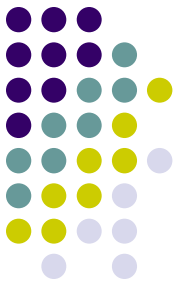
- Regulation in developed countries has been focused on protecting consumers from excessively high prices due to monopoly power--however, a bigger problem in developing countries is often related to excessively low prices that do not allow for cost recovery

OUR UNDERSTANDING OF INFRASTRUCTURE MARKETS HAS EVOLVED AS WELL



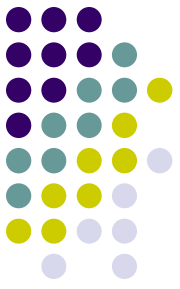
- **Optimal Market Structure:**
 - **Market unbundling & technological changes were to increase competition, thus eliminating need for intervention**
 - **Actual relations appear more complex, and regulation/ monitoring / planning are often needed to achieve intended results**
- **Market Composition:**
 - **Not all firms were privatized, and in some countries, SOEs and PPPs do play a significant role**
- **Services for the poor in rural and peri urban areas:**
 - **Trickle down approach did not work**
 - **Connection subsidies may not always be sufficient to ensure proper services**

DIFFICULTIES OF IMPLEMENTATION



- **Challenging Initial Conditions:**
 - **Legal and institutional frameworks very weak, no tradition of rule of law**
 - **Poverty levels magnify the social impact of cost recovery tariffs, even though in some areas users are paying more for less service**
 - **Lack of regulatory information, lack of good accountability practices, and lack of transparency in contracts**
- **Limited Capacity of Regulators:**
 - **Failure to provide adequate financing for regulation**
 - **Technical capacity—inadequate expertise a major challenge**
 - **Decision capacity--in some countries, regulators are not a real player in the sector**

SOME GREY AREAS IN PRACTICE



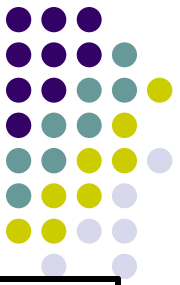
- **Institutional Design:**
 - **Complete regulatory independence may be neither feasible nor desirable**
 - **Autonomy with accountability and transparency may be the target, but it may be still difficult to achieve**
- **Practical Use of Institutions:**
 - **Policies vs. regulation**
 - **Interface of Regulation vs. Competition**
- **Emerging Challenges:**
 - **Financial crisis, food and fuel prices: to which extent are the solutions a matter for policy makers and/or for regulators?**



Sectoral Policies- Evolution

Theme	Vision 1990s	Vision Today
Market Structure	Unbundling the norm	Molded to country conditions
Mode of service Provision	Private sector	Both modes considered and hybrids as well
Extent of Modes of Subsidies	No cross-subsidies Limited social tariffs/access	Cross subsidies Social tariffs Access subsidies
Coverage Targets and Access	Quasi natural-trickle down	Much more aggressive targets included in contract

SUBSTANTIVE REGULATORY POLICIES--EVOLUTION



Theme	Vision 1990s	Vision Today
Risk Allocation	Heavy on private sector	More nuanced
Tariff Structure	Limited or no attention to the poor	Social tariffs
Mode of Regulation	Price-caps	Consideration to rate of return (number of contexts)
Output mode	By intermediate indicators	By level of service
Renegotiation Framework	Open by default	More restricted and normed

SECOND GENERATION REFORMS



PSP improvements in performance will be limited, and probably unsustainable, unless accompanied by appropriate second generation regulatory reforms:

- **Designing pricing policies that strike a balance between economic efficiency and social equity**
- **Developing rules governing access to bottleneck infrastructure facilities**
- **Adapting regulation to address emerging problems, changing circumstances, and new information in regulated infrastructure sectors**
- **Finding new ways to increase poor people's access to services**