

The background features a dark blue gradient with faint, light blue technical diagrams. These include several circular gauges with numerical scales (e.g., 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) and various circular arrows, some solid and some dashed, indicating a technical or engineering theme.

TECHNOLOGY ACQUISITION, CATCHING-UP AND COMPETITIVENESS IN THE AUTOMOTIVE INDUSTRY

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OUTLINE OF THE PRESENTATION

- Background
- Objective
- Theoretical Considerations
- Pakistan Economy at the Crossroads
- Framework of Analysis
- Conclusion

BACKGROUND

THE CONTEXT



CONVERGENCE THEORY – THE EXPECTATION

- Developed and developing countries - expected to converge
- Developed countries will reach the limit of production expansion
- Developing countries will learn and benefit from experience of developed countries and approach developed countries

CONVERGENCE THEORY – THE FACTS

- How does one explain the divergence between developed and developing countries
 - Fairly consistent, strong growth of developed countries
 - Sporadic growth patterns of developing countries
- Developing countries can be grouped into two categories:
 - Diverging
 - Converging

POLICY AREAS THAT ENABLE CATCH-UP

- Five policy areas identified:
 - **Innovation promotion and imitation**
 - Macroeconomic stabilization
 - Supporting high levels of accumulation
 - Effective allocation of factors of production
 - Social inclusion in developmental goals

KEY CONCERN FOR DEVELOPING COUNTRIES

- What has been the country's performance with regard to technology acquisition?
 - Has the country been effective in its efforts to acquire the appropriate technology needed to boost productivity levels?
 - Has the country made effective use of the technology acquired?
 - What market failure(s), if any, are constraining the country's ability to acquire the technology and make appropriate use of it?

CATCHING-UP AND PRODUCTIVITY GROWTH

- Productivity growth → improved international competitiveness → higher income levels
- Increased demand for domestic and foreign goods → increased domestic output and trade
- Historical context:
 - Green Revolution and introduction of steam engine in Great Britain
 - Mass Production techniques in United States
 - Just-In-Time Manufacturing techniques in Japan

PRODUCTIVITY GROWTH AND TECHNOLOGY ACQUISITION

- Technology has been found to play a key role in productivity growth
- Role more pronounced now
- Research on experience of successful late developers suggests that these countries:
 - Imitated existing technology rather than innovating
 - Successfully procured and absorbed technology and made effective use of it

CATCHING-UP EXPERIENCE

- Many South Asian economies (including Pakistan) have had unimpressive experience with growth and development
- Development efforts warrant a closer look
- Pakistan's experience in particular has been sporadic
- Two widely accepted reasons:
 - Corruption
 - Poor governance

GLOBAL AUTOMOTIVE INDUSTRY

- Global production networks that require significant technological and organizational capabilities for competitiveness
- Pakistan has found it a challenge to integrate into the industry's global value chain on account of weak technological capabilities

OBJECTIVE AND ORGANIZATION

OF THE STUDY



OBJECTIVE

- Assess weak performance in the industrial sector – automotive industry
- **How:** by locating Pakistan's institutional choices and performance in the context of changes in political settlements
- determines outcome of learning efforts and explains weak industrial performance

ORGANIZATION

1. **Theoretical considerations** of technology acquisition, strategies of catching up and competitiveness
2. **Economic performance of Pakistan** since Independence and changing political landscape
3. **Framework of analysis**
4. **Conclusion**

THEORETICAL CONSIDERATIONS

TECHNOLOGY ACQUISITION, STRATEGIES OF CATCHING UP AND COMPETITIVENESS

THE POPULAR APPROACH TO DEVELOPMENT

- Favours setting up appropriate institutions, opening markets and limiting role of the government/state
- Intellectual consensus that political institutions of limited government cause economic growth
- What is historical fact?
- What is missing is the capability to achieve competitiveness

THE LESS POPULAR APPROACH TO DEVELOPMENT

- Acknowledges variations in operations of firms, and crucial role played by technology, technological change and capabilities
- Channels of technology acquisition
- State implements policies geared towards absorbing and assimilating the technology
- Speed of absorption depends on capabilities (according to Lall (1993))

LITERATURE TREE

Theme

Efficacy of
technology
acquisition

Branches

Achieving goal of
development based on
neoclassical and
institutional
foundation

Political economy
foundation of
technology acquisition
strategies by
developing countries

Approaches

A: Begin with increasing capital
accumulation levels

B: Begin with appropriate institutions

Political economy supporting emergence
and enforcement of appropriate institutions

TECHNOLOGY ACQUISITION

- Two components:
 1. The physical technology itself
 2. What Lall (1992) calls technological and organizational capabilities

TECHNOLOGICAL CAPABILITIES

- Capabilities are:
 - revealed and
 - unrevealed
- Capabilities include:
 - Technical and managerial skills
 - Know-how and know-why
- Require long period of learning in developing countries
- Already developed in advanced countries

TECHNOLOGICAL CAPABILITIES DEVELOPMENT EFFORT

Micro (Firm-Level)	Social (State-Level)
Trainings	Trainings
Search for new technical and related information	Enabling access to information
Creating, communicating and diffusing knowledge within the organization	Education
Production trial runs and product prototyping	Promoting interactions between firms and institutions for research and learning, quality control

Source: Based on Lall (1993)

KEY COSTS IN THE DEVELOPMENT OF TECHNOLOGICAL CAPABILITIES

- There are two core costs in the development of technological capabilities:
 - Time
 - Financing

SUCCESS IN CAPABILITIES DEVELOPMENT

- Depends on (among other things):
 - Existing level of skills
 - Complexity of technology being acquired
 - Conflict of interest between recipient firm and technology provider
 - Market failures

CAPABILITIES DEVELOPMENT AND MARKET FAILURES

- The more complex the technology the more likely is there to be a market failure, such as:
 - Externalities
 - Lack of information
 - Inability of the firm to finance the learning period
- Solution: finance the period of learning by allowing the firm(s) to operate in a closed market till the learning period is over
- Can lead to market failure
- But East Asian Tigers were successful

PAKISTAN

ECONOMY AT THE CROSSROADS



ECONOMIC GROWTH TRENDS AND REGIONAL PERSPECTIVE

- Economic growth unsustainable
- Regional Perspective:
 - South Korea - embarked on a developmental agenda in the 1960s - leapfrogged Pakistan subsequently
 - India - sluggish performance in the 1960s ; surged ahead in the 1980s
 - Share of expenditure on Education in total government expenditure and in GDP < regional shares
 - Public sector expenditures are skewed Military > education **and** health
- Implications for capabilities development

MANUFACTURING SECTOR EVOLUTION

- In comparison to state of the industrial sector at time of Independence, substantial progress has been made
- Regional context is much weaker
- Traditionally large scale manufacturing has been favoured
 - Average growth of 8.8 percent
- Share of SME in GDP: 4.6 percent \uparrow 5.3 percent

INDUSTRIAL DEVELOPMENT – EARLY YEARS

- Focus by state on developing domestic consumer goods industry to relieve pressure on imports and foreign currency reserves
- State -> highly active and interventionist role
- Policies implemented:
 - Featured direct controls on imports, investment and prices
 - Designed to regulate and guide economic activity
 - Number of key industries set up to widen industrial base and dis-invested subsequently

INDUSTRIAL DEVELOPMENT – 1970

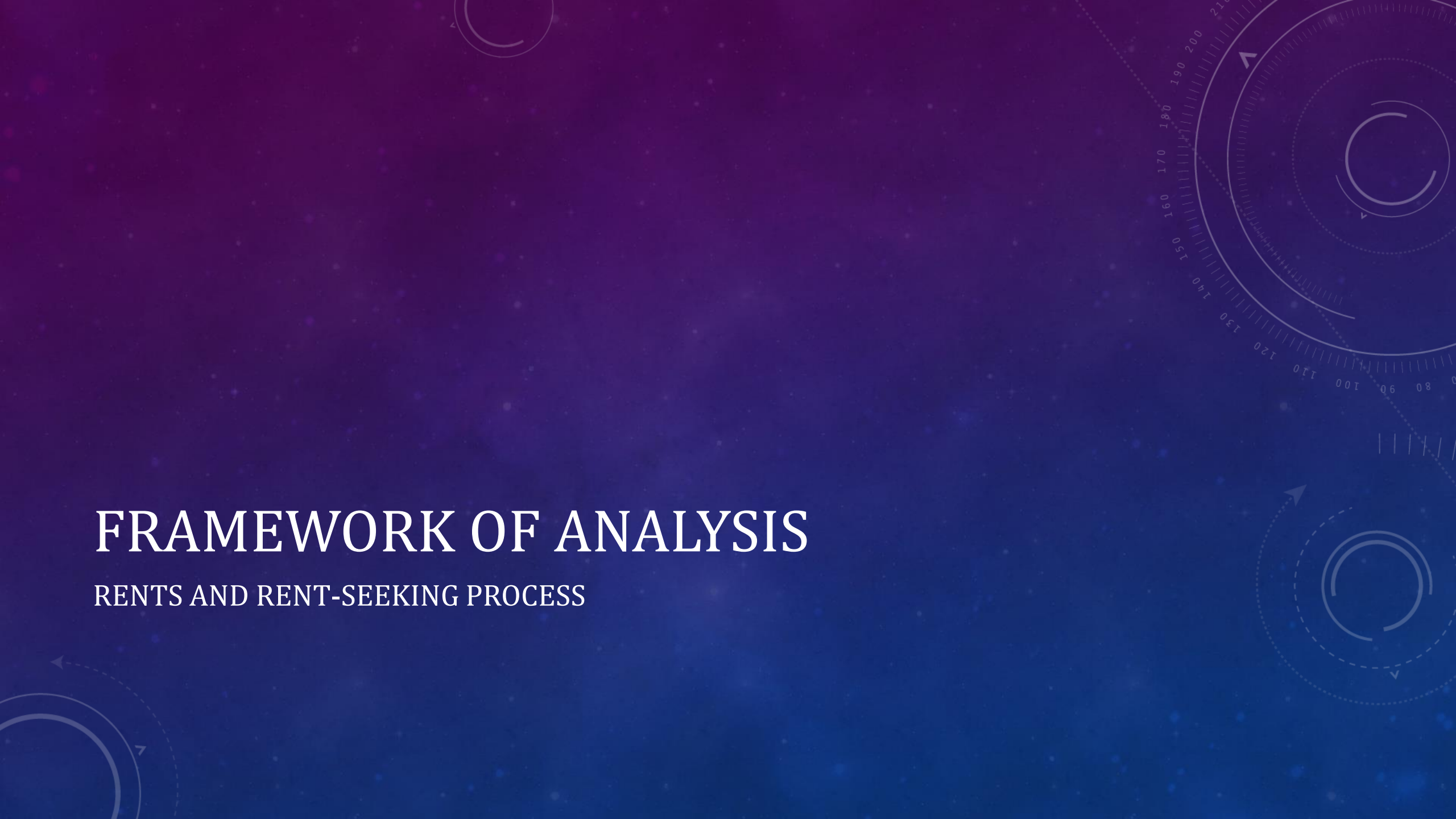
- Policies pursued had lasting impact on domestic industrialization
 - Nationalization of heavy/large scale manufacturing
 - Reserving sectors exclusively for public sector operations
 - Restrictions on private sector operations under Profiteering and Hoarding Act
- Uncertainty created resulting in fall of private investment and flight of capital (human and physical)

INDUSTRIAL DEVELOPMENT – 1980

- Direct controls replaced by market-oriented forces
- Bias against private sector reduced
- Import policy liberalized
- Tariff structure rationalized
- Industrial activity recovered as production levels increased but limited development of capabilities and capacity expansion

FRAMEWORK OF ANALYSIS

RENTS AND RENT-SEEKING PROCESS



IN THE CONTEXT OF TECHNOLOGY ACQUISITION AND CAPABILITIES DEVELOPMENT

- Builds on importance of rents in creating
 - incentives,
 - opportunities and
 - compulsions
- Focus not on Schumpeterian rents for innovation but on learning rents

RENTS FOR LEARNING

- Simplistic definition:

“the portion of earnings in excess of the minimum amount needed to attract a worker to accept a particular job or a firm to enter a particular industry” [Milgrom & Roberts (1992)]

Amount over and above minimum amount needed to attract an unemployed worker to accept a job

- More appropriate interpretation:

“An economic agent is the recipient of a rent if the agent earns an income higher than the minimum that agent would have otherwise accepted, the minimum being income from the agent’s next-best employment opportunity” [Khan (2000)]

RENTS AND ECONOMIC DEVELOPMENT

- Some rents can aid growth and development
- Then popular liberal policy prescription that all rents are bad and must be done away with – cause more harm than good
- Further investigation and deeper understanding of role of rents to design reforms for rents, both
 - Growth enabling
 - Growth retarding

RENTS AND ECONOMIC DEVELOPMENT POLICIES

- Late developers performed well by
 - addressing market failures in technology acquisition efforts
 - Using arrangements uniquely suited to prevailing conditions
 - **NOT** by using a generic set of arrangements
- Infant industry protection -> revealed capability for growth
- Subsequent policies -> learning by doing to develop underlying capabilities

MANAGEMENT OF RENTS

- Policy interventions to address market failures will create rents and encourage rent-seeking activity
- Can completely off-set any potential benefit from correction market failure
- Management of rents to prevent creation of new market failures while enhancing social welfare in the existing context is crucial

RENT-SEEKING PROCESS

- Expenditure of resources to generate, sustain or transfer rents
- Includes legal as well as illegal rents
- Resources expended are a social cost – warrant further investigation
- Ability to undertake rent-seeking depends on:
 - Economic factors
 - Socio-political factors as well

RENT-SEEKING PROCESS

- Rents are related to rights – changed through process of institutional change
- Beneficiaries of rents depends on:
 - Political power
 - Political settlements

IMPLICATIONS OF RENTS AND RENT SEEKING

- Approach to implications of rents, rent-seeking MUST incorporate:
 - Political economics
 - Institutional economics
- To explain:
 - Level of effort expended
 - Types of rights and rents created

RESEARCH ON IMPLICATIONS OF RENTS AND RENT-SEEKING

- Rent seeking can result in destruction of value reducing rents
- Rent seeking is a process through which structure of rights in society can change
- East Asian institutions kept rent-seeking costs low while rents were associated with substantial value enhancements

More important than **high rent seeking cost** is **ability/failure to create and maintain socially valuable rents**

RESEARCH ON IMPLICATIONS OF RENTS IN PAKISTAN

- Rents for learning in Pakistan were found to have not encouraged widespread learning
- Success in technology acquisition was sporadic
- Value reducing rents created due to failure to allocate and manage conditions associated with rents
- Rents took form of redistributive rents rather than true learning rents
- Key factor found to be unwillingness or inability of state to discipline recipients and withdraw support when performance lagged

CONCLUSION

The background is a dark blue gradient with a field of small white stars. On the right side, there are several technical diagrams. At the top right, a circular gauge with a scale from 0 to 210 and a needle pointing to approximately 190. Below it, a circular diagram with concentric circles and arrows. At the bottom right, another circular diagram with concentric circles and arrows. On the left side, there are also some faint circular diagrams and arrows.

FINAL THOUGHTS

- Ineffective rent management by the state
 - Substantial productive capacity built up by Pakistan in early years
 - Limited and weak technological capabilities built up
- Intervention in an unfavourable policy environment can still lead to capability development
- Research instances of successful technology acquisition and capabilities development to see what worked and what did not
- Policy challenge: Develop policy instruments to develop capabilities at industry level in the context of clientelist political settlements