

Development and Structural Transformation: The Lewis Model

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Development and Structural Transformation

- The Harrod-Domar-Solow models are macroeconomic theories of growth
- A key distinction between *growth* and *development*: latter additionally involves changes in structure of the economy
- *Structure*: relative importance of
 - Rural versus Urban
 - Agriculture versus Industry
 - Informal versus Formal sectors
 - Small-scale versus Large-scale
 - Traditional versus modern

Development and Structural Transformation, contd.

- Processes of industrialization, urbanization and modernization are important drivers of growth in living standards
- Because productivity and living standards differ significantly between rural and urban areas, between informal and formal sectors
- Formulation of development policy needs to be based on an understanding of why these differences arise, and focus on speeding up structural transformation

Table: Breakdown of GDP Across Different Sectors, 1999

	Agriculture	Industry	Services
Low Income Countries	27	30	43
Middle Income Countries	10	36	55
High Income Countries	2	30	64

Table: Breakdown of Employment Across Different Sectors, 1990-92

	Agriculture	Industry	Services
L/M Income Countries	58	15	27
OECD	10	32	58

Productivity and Living Standard Differences between Rural and Urban Sectors

- Fact of life: agricultural production is limited by scarcity of land
- Industry and services not limited by any such fixed factor
- Technical progress and rising worker skills raise productivity in industry and services far more than in agriculture
- Hence development typically goes hand-in-hand with industrialization and urbanization

Informal versus Formal Sector Enterprises

- Enterprises in the informal sector: unregistered, unregulated, outside tax net, low access to technology and institutional finance
- Few hired employees; high reliance on family labor
- Most farms in LDCs are informal
- Producing goods for self-consumption; not operating on a commercial (profit-making) basis
- As development proceeds, they switch to cash crop cultivation on a commercial basis

Dualism within Urban Areaa

- Large informal sector also exists in urban areas: selling services or low quality goods, or subcontracting with formal sector firms
- Coexists with formal sector: factories, banks, supermarkets, hospitals, government etc.
- Vast gaps in wages, job security and working conditions between formal and informal sector
- Formal sector characterized by commercial principles and legal contracts enforced by law
- Informal sector by 'customs' and 'norms'

The Lewis Model of Development based on Structural Transformation

- Lewis (1955) models development as a process of transformation of a traditional rural agricultural economy into a modern urban industrial economy
- Based on the observation that most traditional LDCs have an almost 'unlimited supply of labor' in the countryside and in the urban informal sector

Rural Sector: Surplus Labor and Traditional Norms

- Phenomenon of 'disguised unemployment' or 'surplus labor' in rural sector: have low productivity jobs with lots of time to spare
- Not hired on a commercial basis, but on the basis of family/kinship relations or customary norms
- 'Traditional' wage \bar{w} is based on sharing norms, equals average (not marginal) product of labor
- The rural wage is going to remain fixed at this level, until a later stage when labor scarcity arises in the countryside and labor markets emerge

Industrial Sector

- Industrial sector: factories owned by capitalists, operated on commercial lines
- Wage rate in industry equals marginal product of labor
- Main impetus for growth and development: investment in new factories by capitalists

Rural-Urban Migration

- Workers can migrate from rural to urban sector
- Unlimited (initially) supply of labor in rural sector
- Hence urban wage equals (is determined by) the (given) rural wage \bar{w}

Inter-Sectoral Labor Misallocation

- Let P denote the cost of living in the city for workers (price of food relative to industrial good (numeraire))
- In industry, workers hired till
$$MP_L^I = P * w^I = P * \bar{w} = P * AP_L^A > 0 = VMP_L^A$$
- Productivity difference between the sectors:
$$VMP_L^I > VMP_L^A = 0$$
- Rural-urban migration would raise GDP, but won't happen by itself in the free market

What Determines Migration?

- Creation of jobs in the industrial sector, owing to investment in new factories by capitalists
- Rate of investment in new factories equals savings of capitalists (workers are too poor to save)
- Savings of capitalists equals capitalist profits times their saving rate
- Like the Solow model, growth rate depends on investment in new capital
- **Lewis Assumptions:** no investment in rural sector; capitalist m.p.c. on food is zero

Three Stage Process of Development

- **Stage 1:** Workers move from agriculture to industry at a rate determined by new industrial investment:
 - MP_L^A remains zero (drawing down of surplus labor)
 - food supply (hence P) remains fixed
 - industrial wage is fixed at $P * \bar{w}$

Three Stage Process of Development, contd.

- **Stage 2:** starts when surplus labor in rural sector ends and MP_L^A becomes positive
- Continues as long as MPL^A remains below \bar{w} : no labor scarcity yet in rural sector
- Wage continues to be \bar{w} in rural sector
- But food supply falls, causing urban cost-of-living for workers P to rise
- Raises wage that workers must be paid in urban areas, reducing capitalist profits and rate of growth

Third/Last Stage of Development

- Stage 2 ends when $MP_L^A = \bar{w}$: labor scarcity in countryside
- Agriculture becomes commercialized: labor markets emerge
- Farms hire workers on the market, until $MP_L^A = w^A$

Third/Last Stage of Development, contd.

- Agricultural wage w^A now starts rising owing to growing labor scarcity
- Resulting in further reduction in capitalist profits and industrial growth rate
- Economy is now modern and mature; no spatial mis-allocation any more ($VMP^A = VMP^I$)
- Solow model works from now on

Features of the Lewis Development process

- Similarity to Solow growth process: once an industrial sector and capitalist class emerges, development proceeds more or less automatically
- Driven by investment in new industrial capital
- Rate of growth slows down over time
- But not owing to (technological) diminishing returns to industrial investment
- Instead: limited by availability of food and labor from the countryside

Inequality in Lewis Development process

- Unevenness of development pattern
- Benefits of development in early stages accrue entirely to capitalists
- Why inequality tends to rise in early stages
- Benefits flow down to workers only in last stage

Role of Agriculture in Economic Development (Eswaran-Kotwal, Ch 8 in UP)

- Model focuses attention also on role of agriculture:
- Need to prevent critical shortages in supply of food and workers which lower growth rates by raising inflation and industrial wage costs
- Complementarity between agriculture and industry in early stages of development (e.g., India and China vs Russia)
- Become substitutes later on, during the third stage of the Lewis process

Role of Population Growth

- Lewis theory differs from Solow theory also with respect to effects of higher population growth
- In first stage, higher population raises demand for food and cost of living, hastens onset of second stage, so has negative effect
- But it helps prolong the second stage, by preventing rapid emergence of labor scarcity
- Trade-off between food shortage and labor shortage

Role of Globalization

- If the developing country has access to a world food market, the price of food is constant, which eliminates the transition from the first to second stage
- Prevents food shortages: helps prolong first stage
- Ability to export industrial goods raises growth rate, while competition from foreign imports slows down growth
- Foreign investment raises growth rate, but foreign investment tends to fall in second and third stages owing to declining capitalist profits (Thailand, China experience)

Implications for Government Policies

- Minimum wage legislation in urban sector slows down growth and creates urban unemployment (next lecture)
- Early development creates pressures (esp in democracies) to promote redistribution from capitalists to workers, which slow down growth

Implications for Government Policies, contd.

- Need for government to promote agricultural growth first (via land reform, investments in infrastructure and technical diffusion), to support industrial growth
- Trade policy: need to ensure access to cheap food imports to keep growth rates high (Corn Laws in early 19th century UK)
- Need to attract foreign capital inflows

Critique of Lewis Model Assumptions

- Surplus Labor assumption not applicable in some contexts (eg Africa in 1960) (next lecture)
- Agriculture sector: traditional family farms, no labor markets, no technical progress, no scope for investments
- No role assigned to human capital investments and its importance in industrial progress
- Assumptions concerning motive for migration: 'selfish' migrants