Chapter 7

Urbanization and Rural-Urban Migration: Theory and Policy

Economic Development

11th Edition

MICHAEL P. TODARO | STEPHEN C. SMITH

7.1 The Migration and Urbanization Dilemma

- As a pattern of development, the more developed the economy, the more urbanized

- But many argue developing countries are often excessively urbanized or too-rapidly urbanizing

- This combination suggests the migration and urbanization dilemma

- Urbanization: Trends and Projections

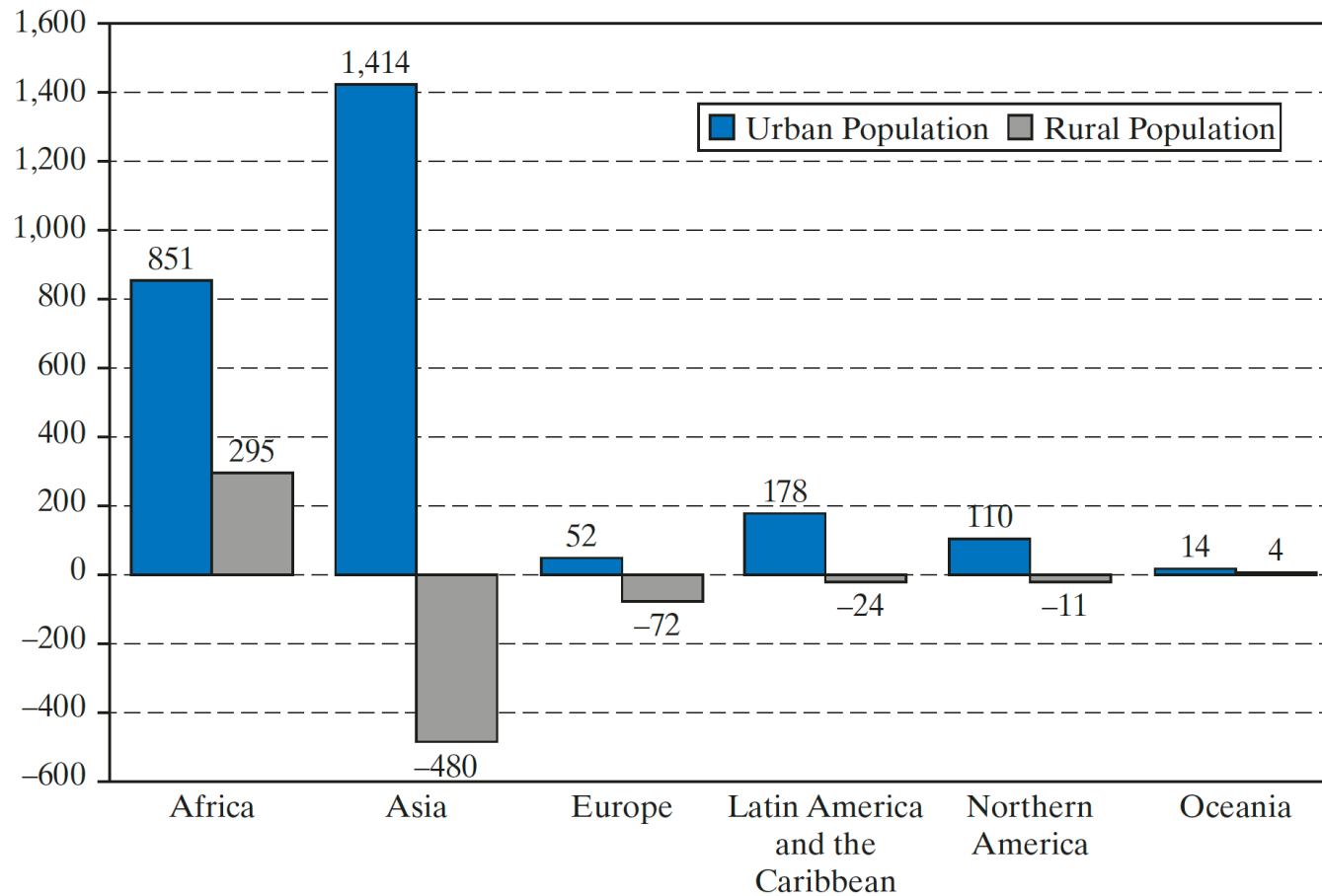**FIGURE 7.1 Changes in Urban and Rural Population by Major Areas Between 2011 and 2050 (In Millions)**

FIGURE 7.2 Relationship Between Urbanisation and Per Capita GDP, 2010, with Comparison to Relationship in 1960
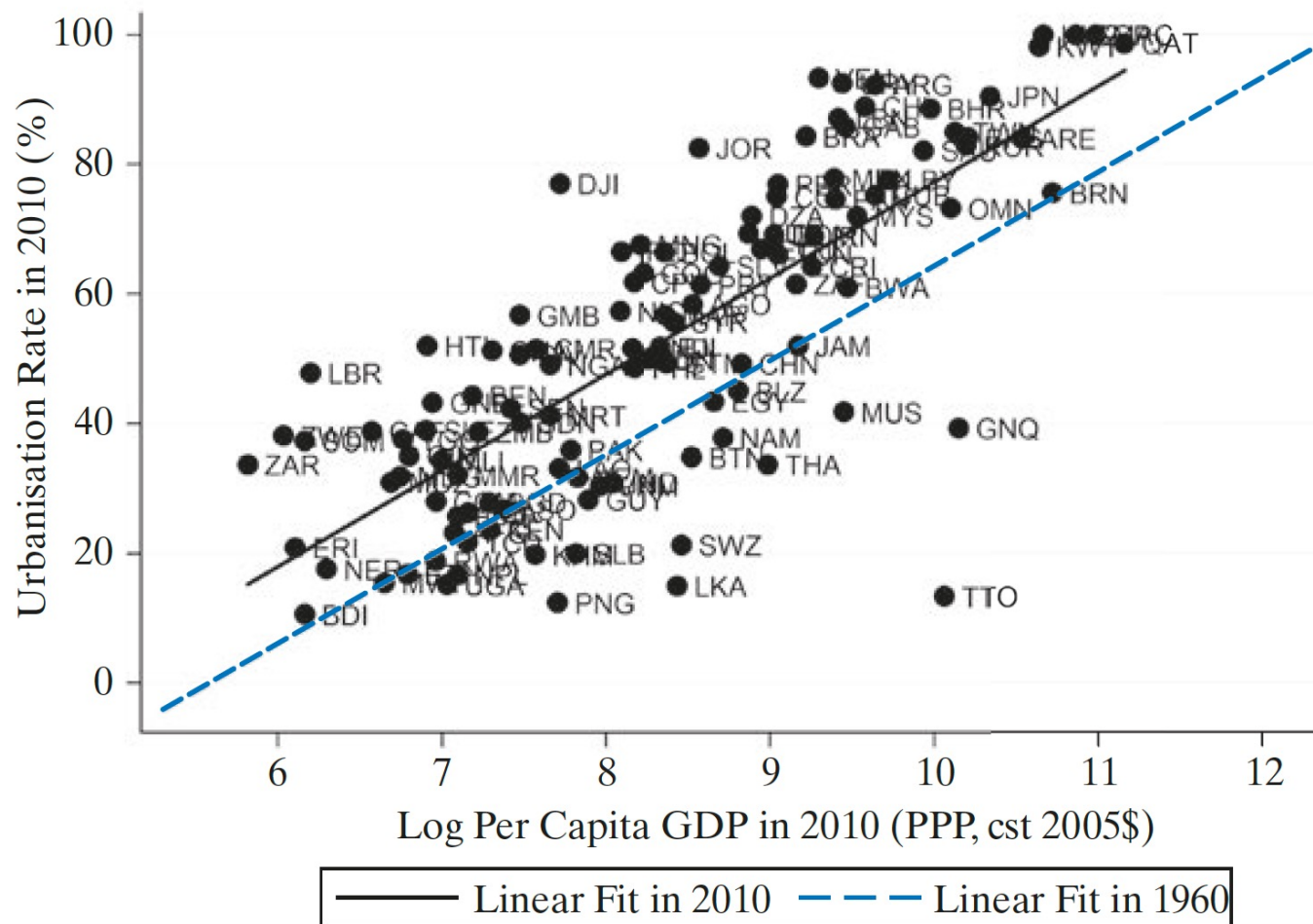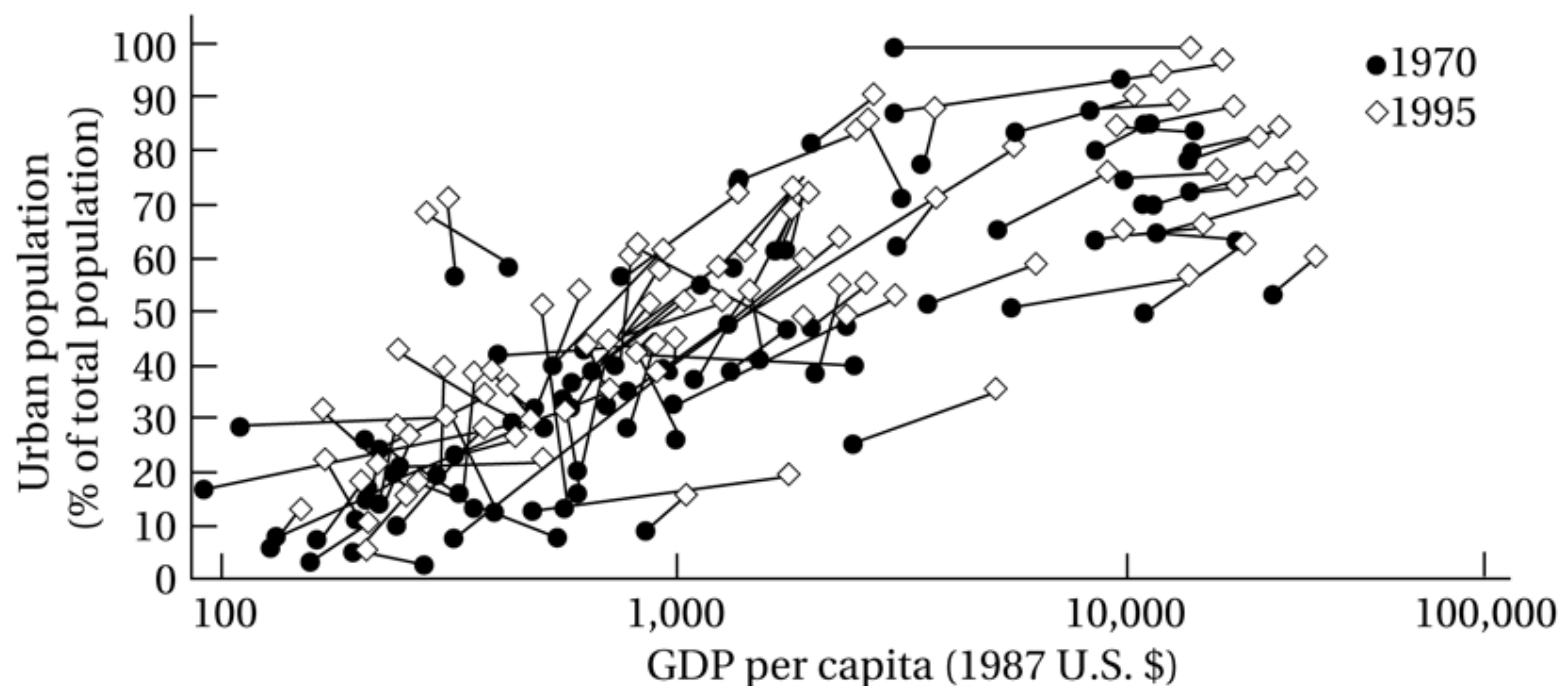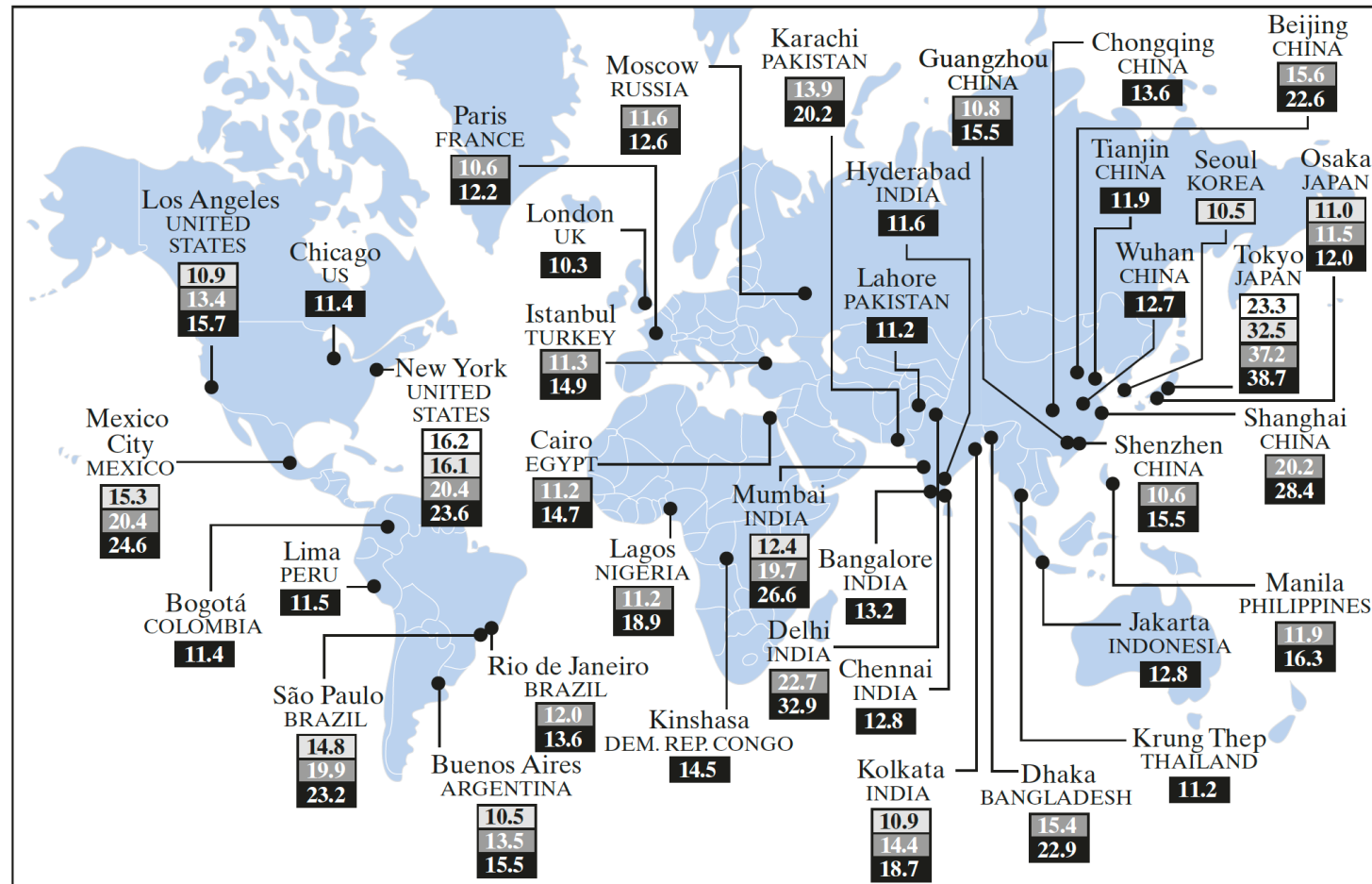
Figure 7.3 Urbanization across Time and Income Levels

- Urbanization is occurring everywhere, at high and low levels of income and whether growth is positive or negative.

FIGURE 7.4 Megacities: Cities with 10 Million or More Inhabitants

Karachi, PAKISTAN — 13.9 / 20.2

Moscow, RUSSIA — 11.6 / 12.6

Guangzhou, CHINA — 10.8 / 15.5

Chongqing, CHINA — 13.6

Beijing, CHINA — 15.6 / 22.6

Paris, FRANCE — 10.6 / 12.2

Hyderabad, INDIA — 11.6

Tianjin, CHINA — 11.9

Seoul, KOREA — 10.5

Osaka, JAPAN — 11.0 / 11.5 / 12.0

Los Angeles, UNITED STATES — 10.9 / 13.4 / 15.7

Chicago, US — 11.4

London, UK — 10.3

Lahore, PAKISTAN — 11.2

Wuhan, CHINA — 12.7

Tokyo, JAPAN — 23.3 / 32.5 / 37.2 / 38.7

Istanbul, TURKEY — 11.3 / 14.9

New York, UNITED STATES — 16.2 / 16.1 / 20.4 / 23.6

Mexico City, MEXICO — 15.3 / 20.4 / 24.6

Cairo, EGYPT — 11.2 / 14.7

Mumbai, INDIA — 12.4 / 19.7 / 26.6

Shenzhen, CHINA — 10.6 / 15.5

Shanghai, CHINA — 20.2 / 28.4

Lima, PERU — 11.5

Lagos, NIGERIA — 11.2 / 18.9

Bangalore, INDIA — 13.2

Manila, PHILIPPINES — 11.9 / 16.3

Bogotá, COLOMBIA — 11.4

Delhi, INDIA — 22.7 / 32.9

Chennai, INDIA — 12.8

Jakarta, INDONESIA — 12.8

São Paulo, BRAZIL — 14.8 / 19.9 / 23.2

Rio de Janeiro, BRAZIL — 12.0 / 13.6

Kinshasa, DEM. REP. CONGO — 14.5

Krung Thep, THAILAND — 11.2

Buenos Aires, ARGENTINA — 10.5 / 13.5 / 15.5

Kolkata, INDIA — 10.9 / 14.4 / 18.7

Dhaka, BANGLADESH — 15.4 / 22.9

Population in millions
- 1970
- 1990
- 2011
- 2025 (projected)

FIGURE 7.5 Total Population in Millions by City Size Class, 1970, 1990, 2011, and 2025
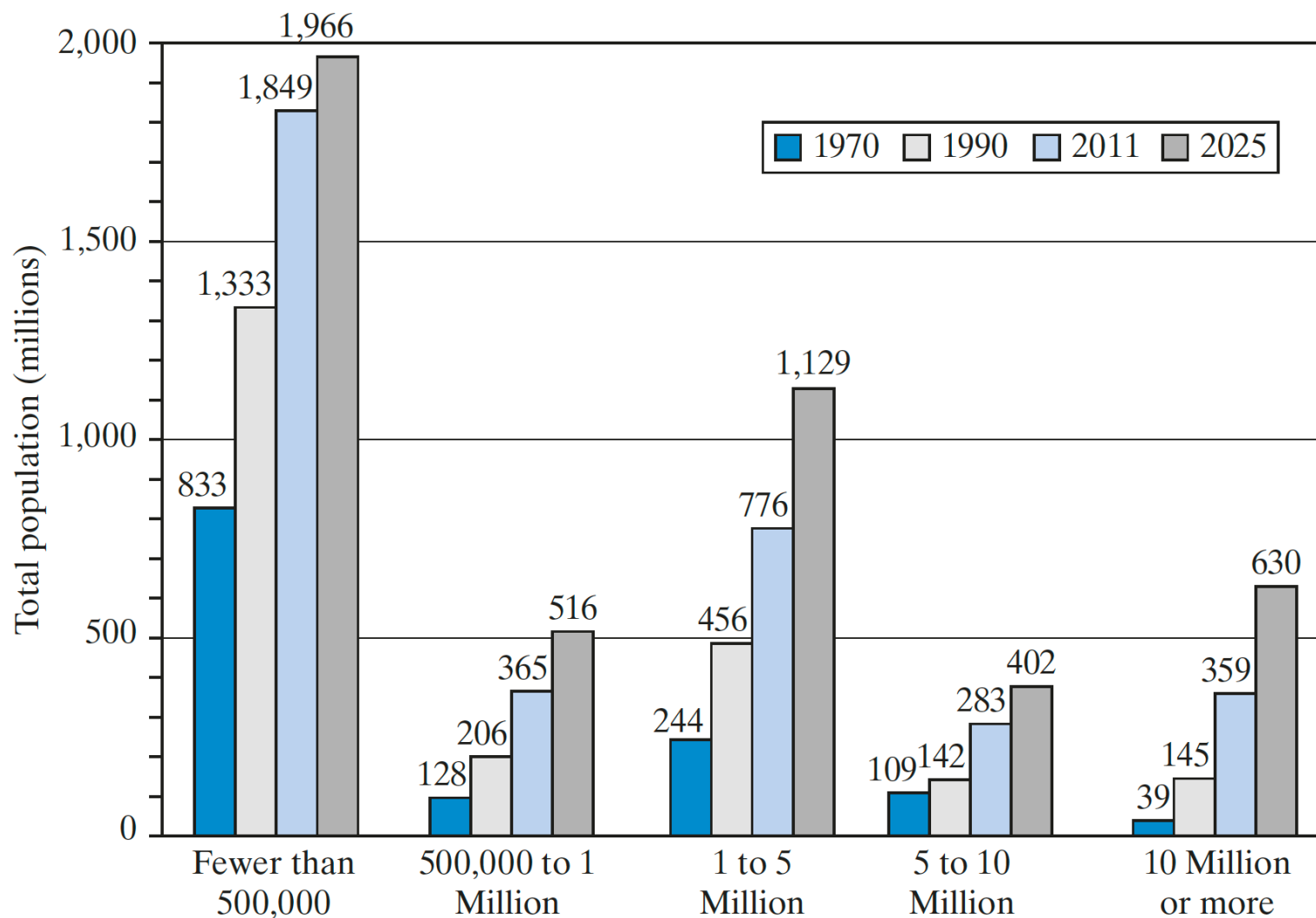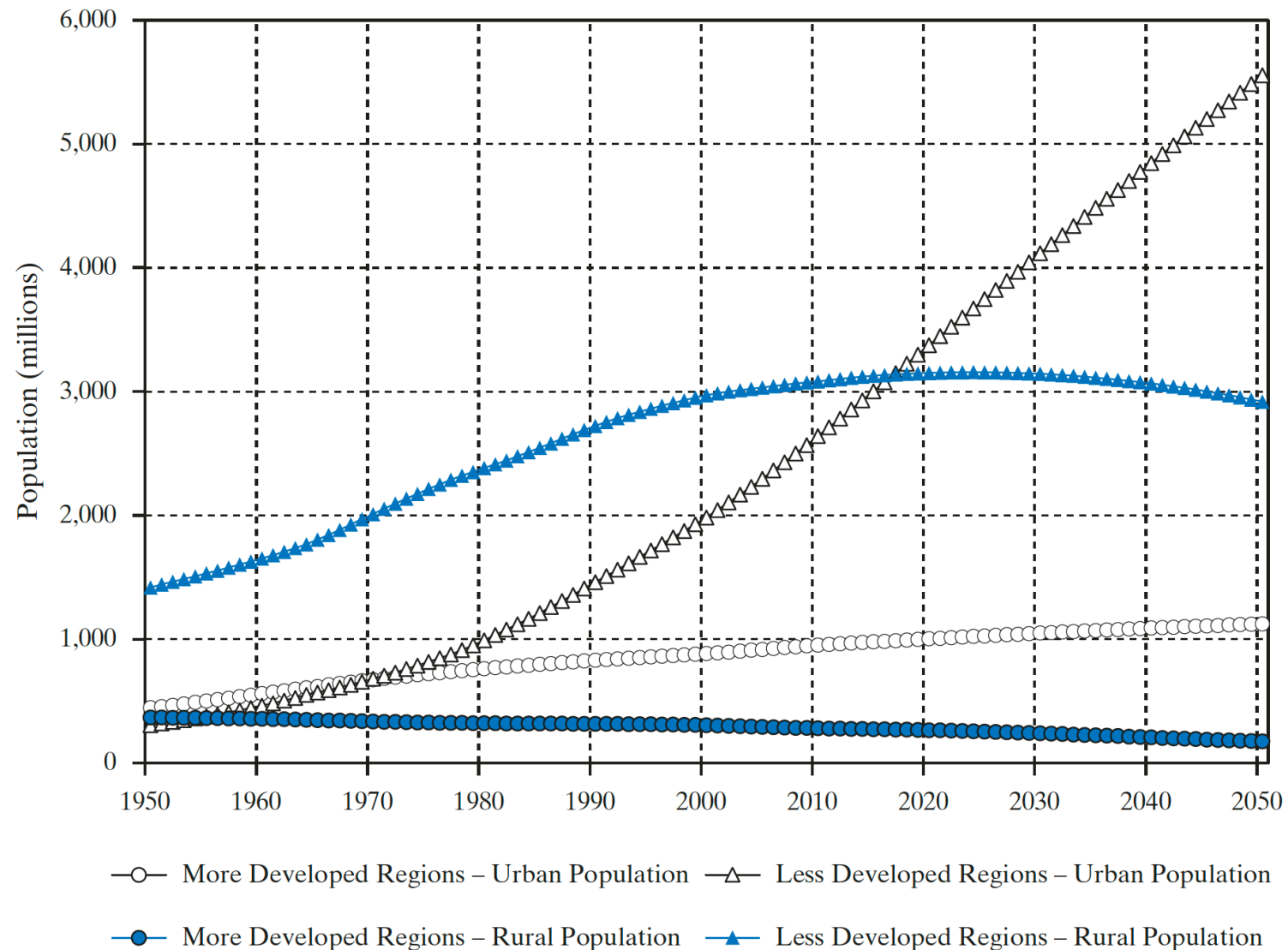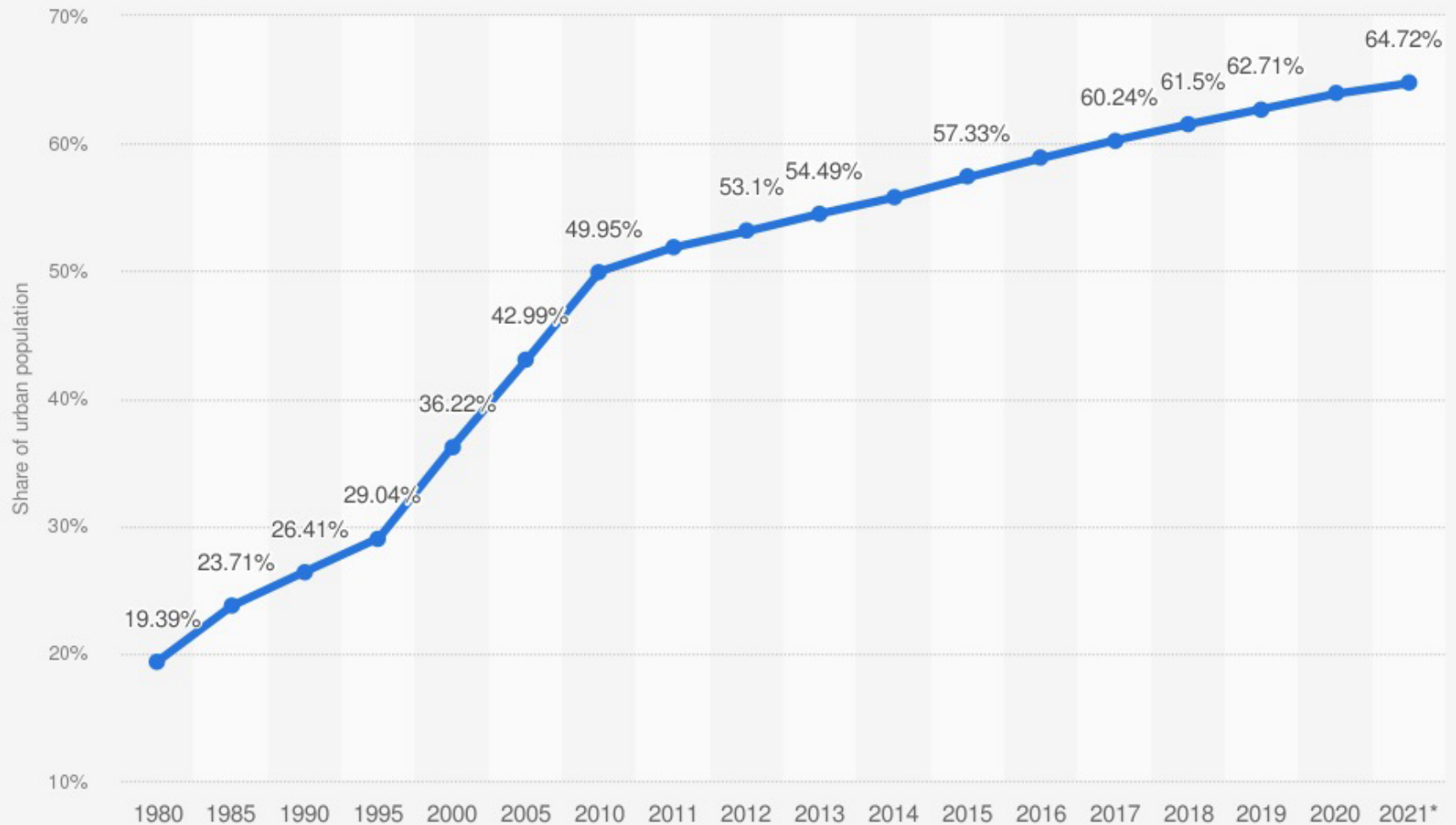
FIGURE 7.6 Estimated and Projected Urban and Rural Population of the More- and Less-Developed Regions, 1950–2050

Legend:
- —O— More Developed Regions – Urban Population
- —△— Less Developed Regions – Urban Population
- —●— More Developed Regions – Rural Population
- —▲— Less Developed Regions – Rural Population

7-8

Degree of urbanization in China from 1980 to 2021

Share of urban population

64.72%

62.71%

61.5%

60.24%

57.33%

54.49%

53.1%

49.95%

42.99%

36.22%

29.04%

26.41%

23.71%

19.39%

1980 1985 1990 1995 2000 2005 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021*

Urban and rural population of China from 2011 to 2021

(in million inhabitants)

Chart: Urban and rural population of China from 2011 to 2021 (Inhabitants in millions)

Year	Urban regions	Rural regions
2011	699.27	649.89
2012	721.75	637.47
2013	745.02	622.24
2014	767.38	609.08
2015	793.02	590.24
2016	819.24	573.08
2017	843.43	556.68
2018	864.33	541.08
2019	884.26	525.82
2020	902.2	509.92
2021*	914.25	498.35

● **Urban regions** ● **Rural regions**
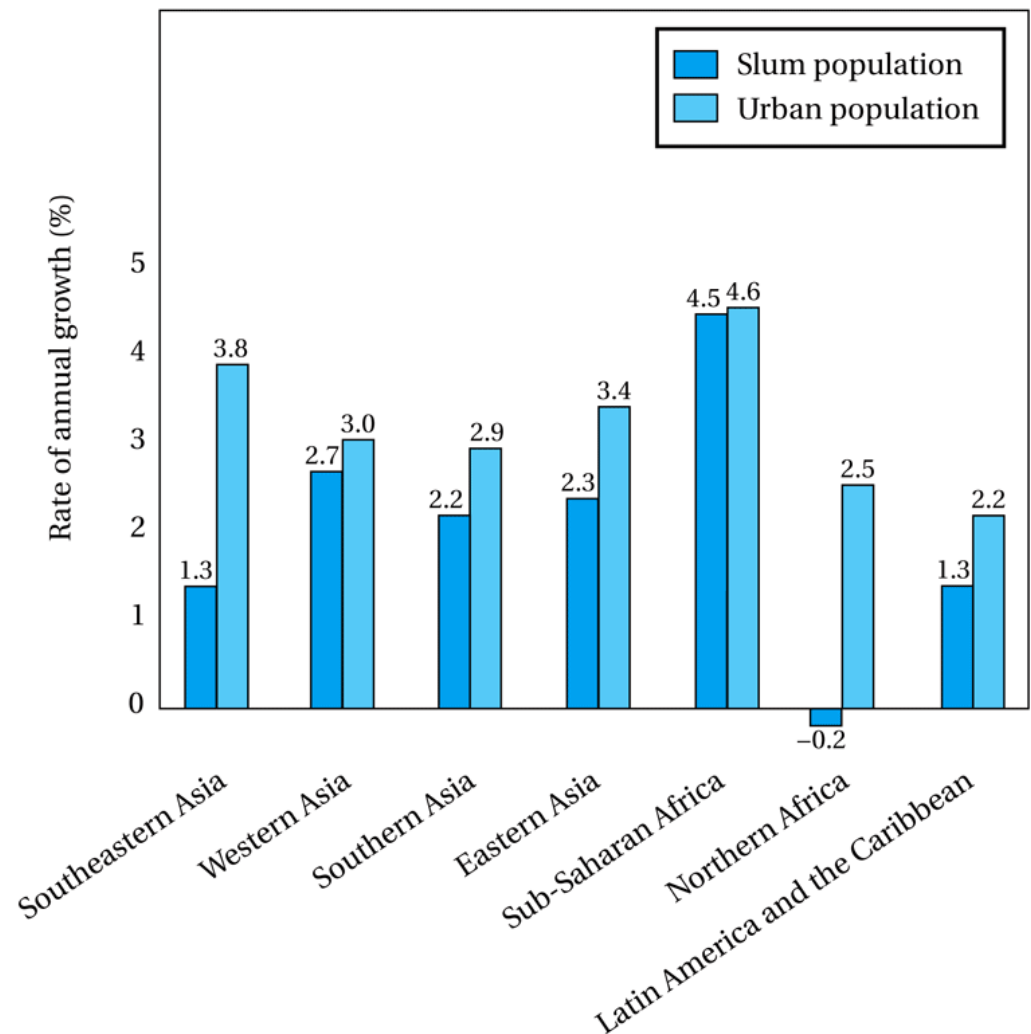
Additional Information

Show source

Figure 7.6
Annual Growth of Urban and Slum Populations, 1990-2001

- A central question related is how cities will cope – economically, environmentally, and politically – with such acute concentrations of people.
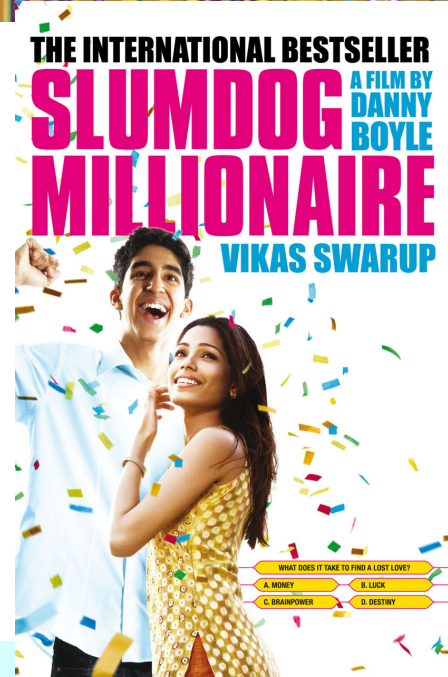

Source: Adapted from United Nations, *Millennium Development Goals Report, 2006* (New York: United Nations, 2006), p. 20.

Left : India

Below :
Guangzhou

Russia

THE INTERNATIONAL BESTSELLER
SLUMDOG
MILLIONAIRE
A FILM BY
DANNY
BOYLE
VIKAS SWARUP

WHAT DOES IT TAKE TO FIND A LOST LOVE?
A. MONEY   B. LUCK
C. BRAINPOWER   D. DESTINY

7.2 The Role of Cities

- Agglomeration集聚 economies
  - Cost advantages to producers and consumers from location in cities and towns 成本优势
  - Come in two forms
① Urbanization economies 城市化
  - Agglomeration effects associated with the general growth of a concentrated geographic region
② Localization economies 本地化
  - Agglomeration effects captured by particular sectors of the economy, such as finance or automobiles, as they grow within an area

- Saving on firm-to-firm, firm-to-consumer transportation
- Firms locating near workers with skills they need
- Workers locating near firms that need their skills
- Firms benefit from (perhaps specialized) infrastructure基础设施
- Firms benefit from knowledge spillovers知识溢出 in their and related industries
- (Also: consumers may benefit from urban amenities)

Industrial Districts and Clustering工业区和产业集群

- Quality of clusters, or Industrial Districts, is a key to sectoral efficiency

- Unfortunately a majority of developing countries have made only limited progress

- China: a country that has made huge strides in generating industrial districts over the last decade (Findings Box 7.1)

表1: 中国超级产业冠军小城产品的市场占有率

序号	地点	称号	产业	市场份额
1	湖南邵东市	打火机之都	一次性打火机	全球70%
2	深圳市布吉大芬村	中国油画第一村	装饰油画	全球60%
3	浙江嵊州市	中国领带名城	领带	全国90%，全球60%
4	河南商丘市虞城县	中国钢卷尺城	钢卷尺	全国85%
5	浙江诸暨市山下湖镇	中国珍珠之都	淡水珍珠	全国80%，全球70%
6	浙江永嘉县桥头镇	中国纽扣之都	纽扣	全国80%，全球60%
7	广西横州市	中国茉莉之乡	茉莉花	全国80%，全球60%
8	江苏扬州市杭集镇	中国牙刷之都	牙刷	全国80%，全球30%
9	江苏丹阳市	中国眼镜之都	镜片	全国70%，全球50%
10	山东德州市宁津县	中国健身器材生产基地	商用健身器材	全国70%
11	广西荔浦市	中国衣架之都	衣架	全国70%
12	河北邢台市平乡县	中国童车之都	童车	全国70%
13	江苏泰兴市黄桥镇	中国提琴产业之都	小提琴	全国70%
14	浙江诸暨市大唐街道	中国袜业之乡	袜子	全国65%，全球1/3
15	浙江江山市	羽毛球之乡	羽毛球	全国65%
16	山东菏泽市曹县	中国泡桐加工之乡	棺材	全国60%以上，日本90%
17	江苏省灌云县		情趣内衣	全国60%
18	广东中山市古镇镇	中国灯饰之都	灯饰	全国60%
19	河北邢台市南和区	宠物食品之乡	宠物食品	全国60%
20	广东汕头市澄海县	中国玩具礼品之都	塑料玩具	全国50%

Urbanization Costs, and Efficient Urban Scale

- But, cities also entail "congestion costs"
- Economically efficient urban scale (from point of view of productive efficiency) found were average costs for industries are lowest
- Generally, differing efficient scales for different industrial specializations imply different city sizes
- More extensive (expensive) capital, infrastructure required in urban areas
- Smaller cities may be expected in labor-intensive developing countries

7.3 The Urban Giantism Problem

- There may be general urban bias
  - The notion that most governments in developing countries favour the urban sector in their development policies, thereby creating a widening gap between the urban and rural economies
- Cities are capital intensive so may expect large cities commonly located in developed countries
- But urbanization in developing countries has taken place at unexpectedly rapid pace

- Huge informal sectors in shantytowns棚屋区, favelas贫民窟
  - The part of the urban economy of developing countries characterised by small, competitive, individual or family firms, petty retail trade and services, labour-intensive methods, free entry, and market-determined factor and product prices.
- Large fraction of workers outside formal sector
- Much urban growth is in mid-size cities, but urban bias remains a serious issue in many developing countries

Table 7.1 Population of the Largest and Second-Largest Cities in Selected Countries (millions)

Country	Largest-City Population	Second-Largest-City Population	Ratio
Canada	Toronto, 5.035	Montreal, 3.603	1.40
United States	New York, 18.727	Los Angeles, 12.303	1.52
Argentina	Buenos Aires, 12.551	Cordoba, 1.423	8.82
Brazil	São Paulo, 18.647	Rio de Janeiro, 11.368	1.64
Chile	Santiago, 5.605	Valparaiso, 0.837	6.70
Mexico	Mexico City, 18.735	Guadalajara, 4.057	4.62
Peru	Lima, 8.081	Arequipa, 0.732	11.04

Source: From UN World Urbanization Prospects 2009 Revision, 2005 data (most recent non-projected year).
Note: Definitions of city size differ across studies.

7.3 The Urban Giantism Problem

- There may be First-City Bias (favoring largest city)
- Causes of Urban Giantism:
  - Import substitution industrialization: less trade, incentive to concentrate in a single city largely to avoid transportation costs
  - "Bread and circuses马戏团" to prevent unrest不安
  - Hub and spoke中心辐射型 transportation system (rather than web) makes transport costs high for small cities
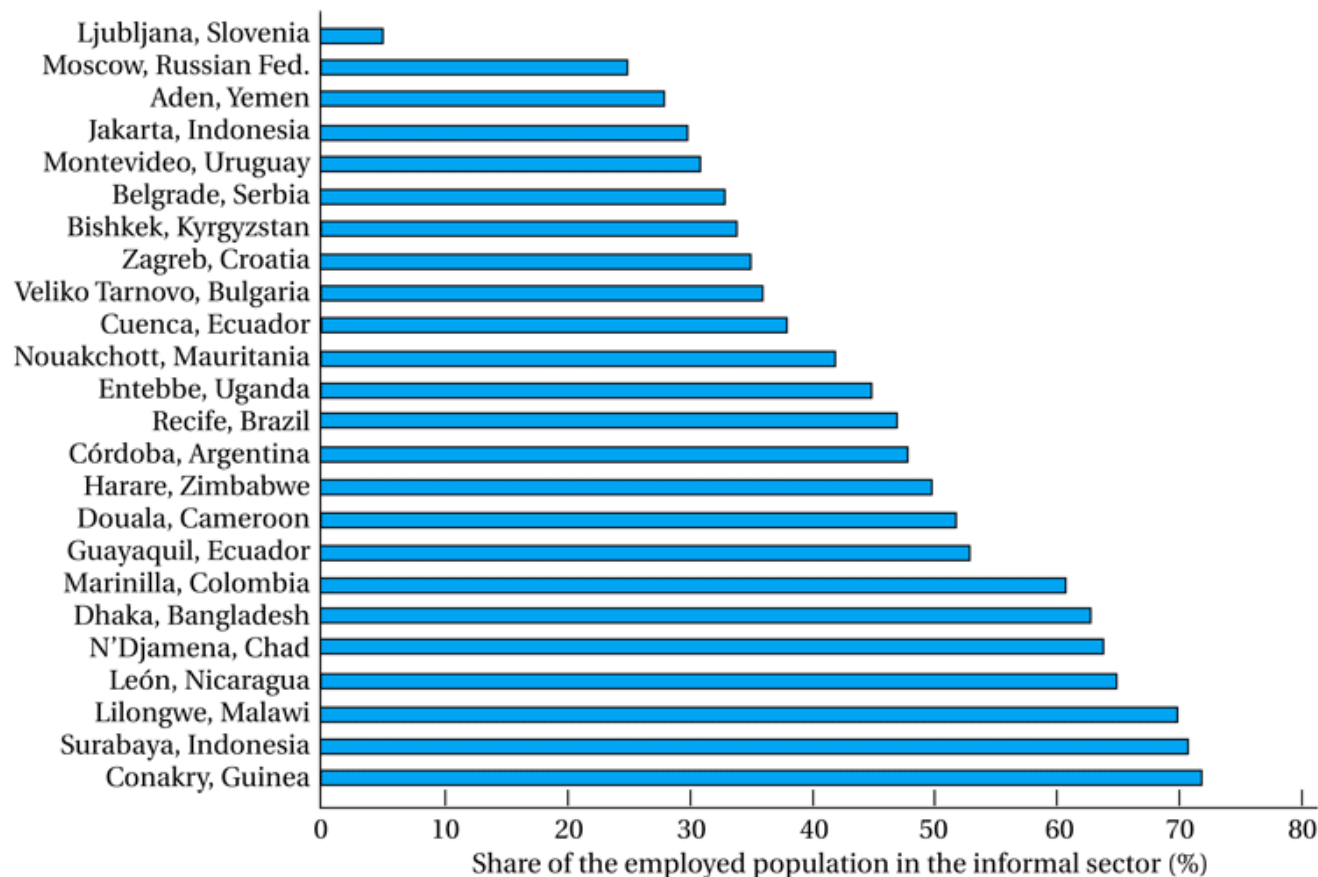 - Compounding effect of locating the national capital in the largest city

The new railway connecting Shanghai and Huzhou is anticipated to commence operations by the end of 2024, significantly reducing the train journey time to a swift 40 minutes.

沪苏湖铁路线路走向示意图

中国铁路上海局集团有限公司融媒体中心

GS（2021）6026号-甲测资字11111342

7.4 The Urban Informal Sector

- ## Why promote the urban informal sector?
  - Generates surplus despite hostile environment
  - Creating jobs due to low capital intensivity
  - Access to (informal) training, and apprenticeships
  - Creates demand for less- or un- skilled workers
  - Uses appropriate technologies, local resources
  - Recycling of waste materials
  - More benefits to poor, especially women who are concentrated in the informal sector

Figure 7.8 Importance of Informal Employment in Selected Cities

Source: UN-Habitat, "State of the World's Cities, 2001," http://www.unchs.org/Istanbul+5/statereport.htm. Reprinted with permission.

7.5 Migration and Development

- Rural-to-urban migration was viewed positively until recently

- The current view is that this migration is greater than the urban areas' abilities to
  - Create jobs
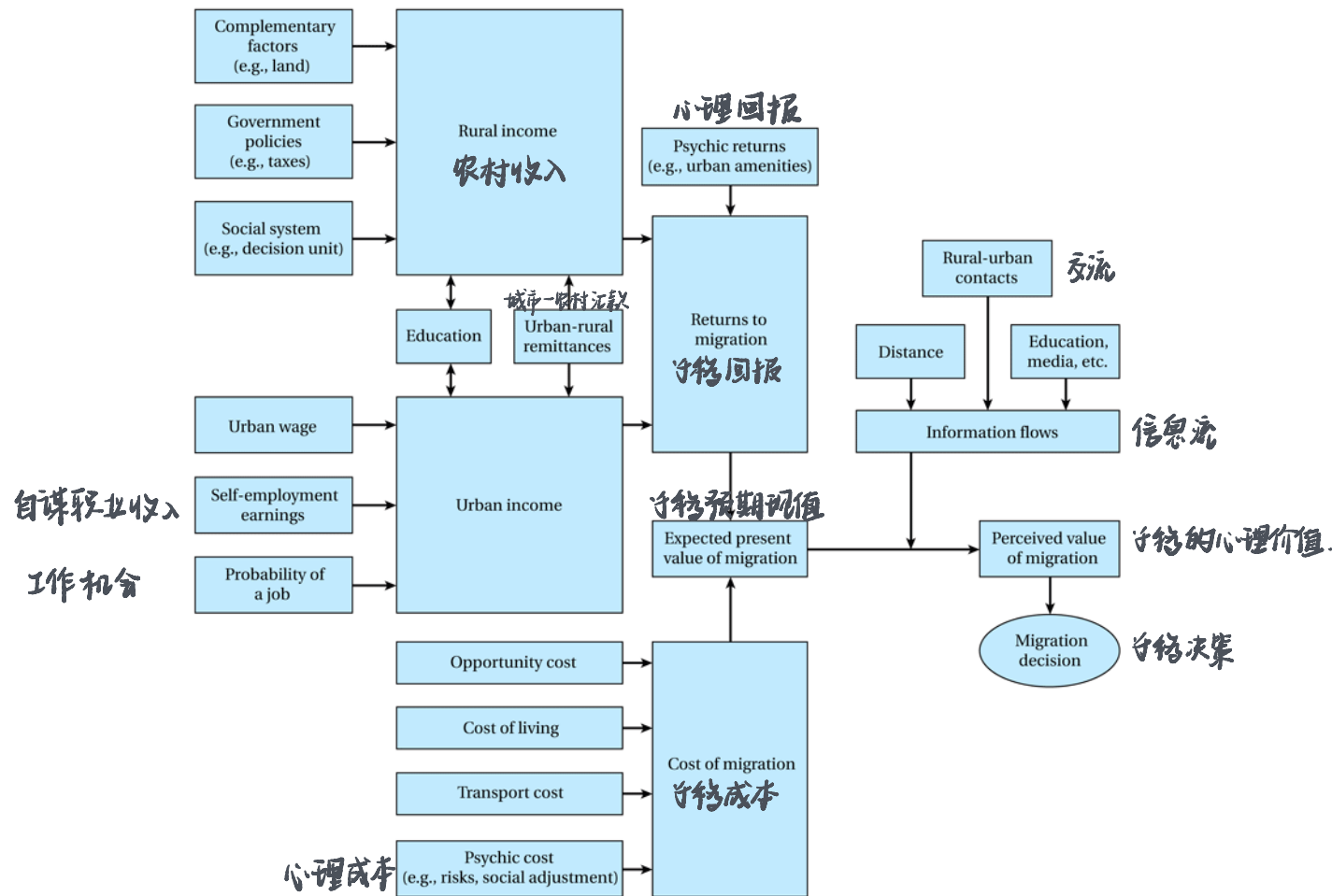 - Provide social services

Figure 7.10 Components of Migration in Selected Countries

Source: *World Development Report, 1999–2000,* "Internal migration and urbanization: Recent contributions and new evidence," by Robert E. B. Lucas. Copyright 1999 by World Bank. Reproduced with permission of World Bank via Copyright Clearance Center.

7.6 Toward an Economic Theory of Rural-Urban Migration

- A Verbal Description of the Todaro Model
  - Migration is a rational decision 移民是理性决定
  - The decision depends on expected rather than actual wage differentials
  - The probability of obtaining a city job is inversely related to the urban unemployment rate
  - High rates of migration are outcomes of rural urban imbalances

Figure 7.11 Schematic Framework for Analyzing the Rural-to-Urban Migration Decision
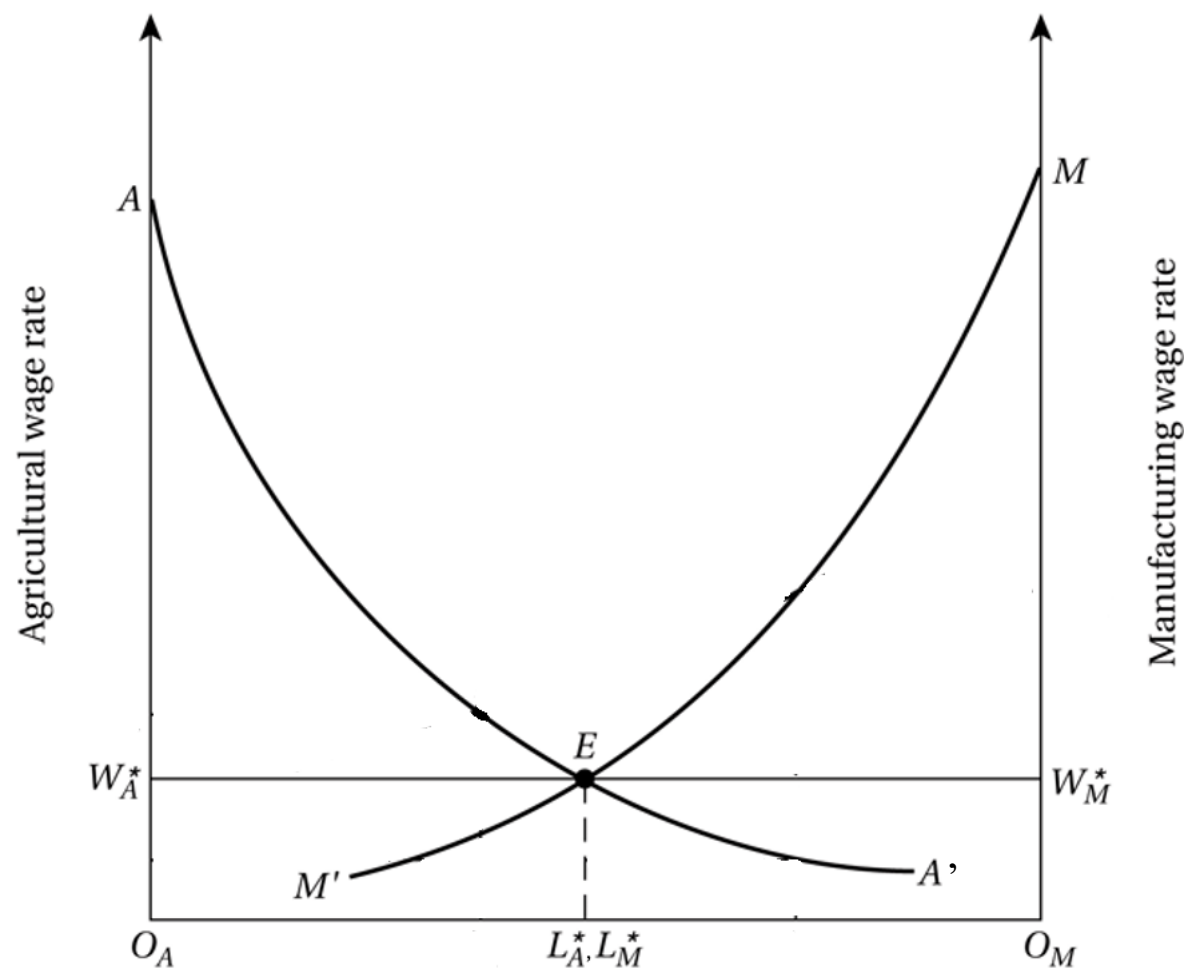
A Diagrammatic Presentation

- Two sectors: rural agriculture and urban manufacturing
- Labor demand in agriculture: AA'
- Labor demand in manufacturing: MM'
- Total labor force: $O_A O_M$
- In a neoclassical, flexible-wage, full-employment market economy, the equilibrium wage is
$$W_A^* = W_M^*$$

with $O_A L_A^*$ workers in agriculture, and $O_M L_M^*$ workers employed in urban manufacturing.
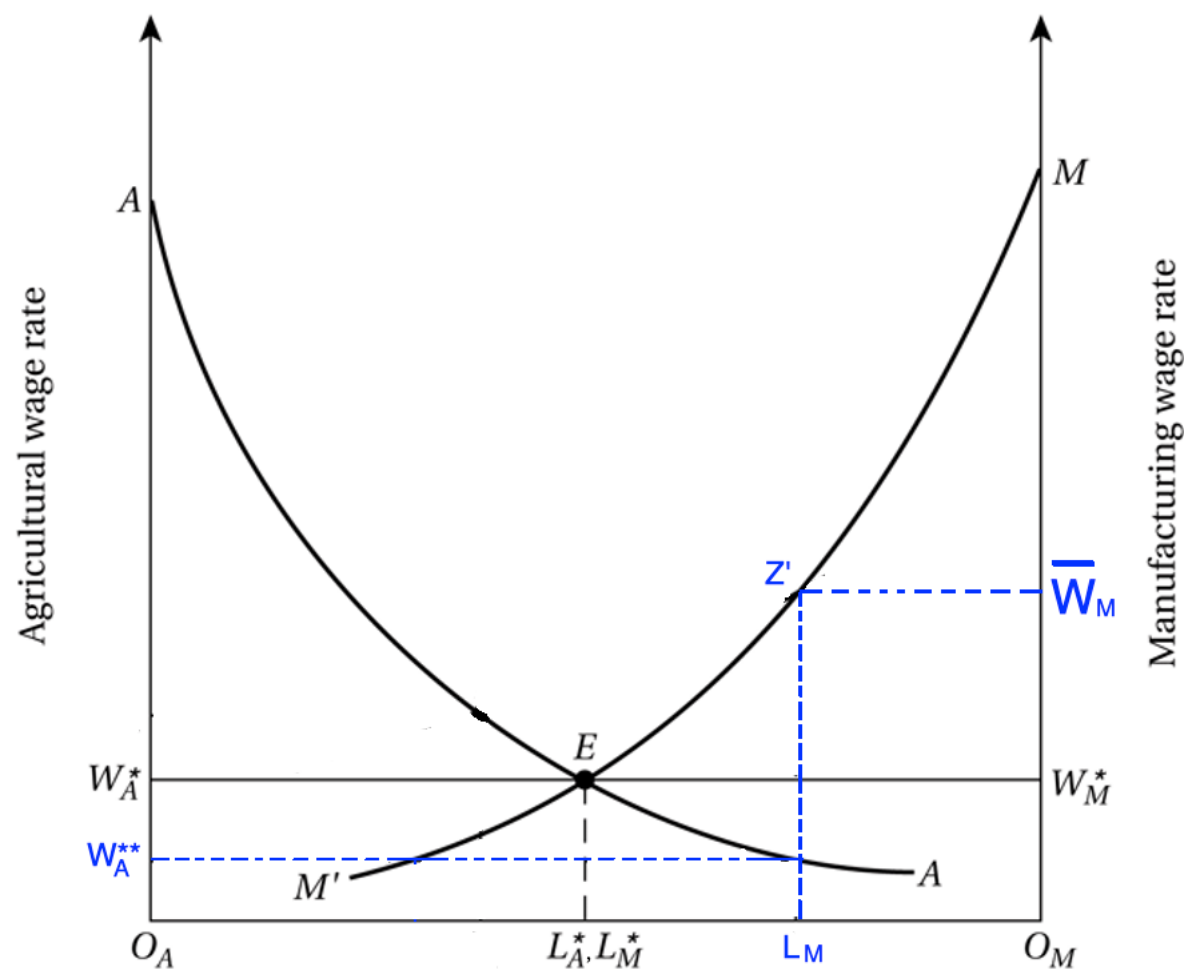
All available workers are employed.

Figure 7.12 The Harris-Todaro Migration Model

When urban wages are set to be $\overline{W_M}$

- Suppose there is no unemployment
- $O_M L_M$ workers get urban jobs, $O_A L_M$ workers settle down in rural areas at $O_A W_A^{**}$ wages
- There is a wage gap
- Rural workers are willing to take their chances in the urban job lottery

Figure 7.12 The Harris-Todaro Migration Model

7.6 Toward an Economic Theory of Rural-Urban Migration (cont'd)

$$W_A = \frac{L_M}{L_{US}} (\overline{W_M}) + (1 - \frac{L_M}{L_{US}})0$$

$\underbrace{\phantom{W_A = \frac{L_M}{L_{US}}}}_{\text{employment rate}}$ $\underbrace{\phantom{(1 - \frac{L_M}{L_{US}})}}_{\text{unemployment rate}}$

$$W_A = \frac{L_M}{L_{US}} (\overline{W_M})$$

Where

W_A is agricultural income,

$L_M (O_M L_M)$ is employment in manufacturing

L_{US} is total urban labor pool

$\overline{W_M}$ is the urban minimum wage

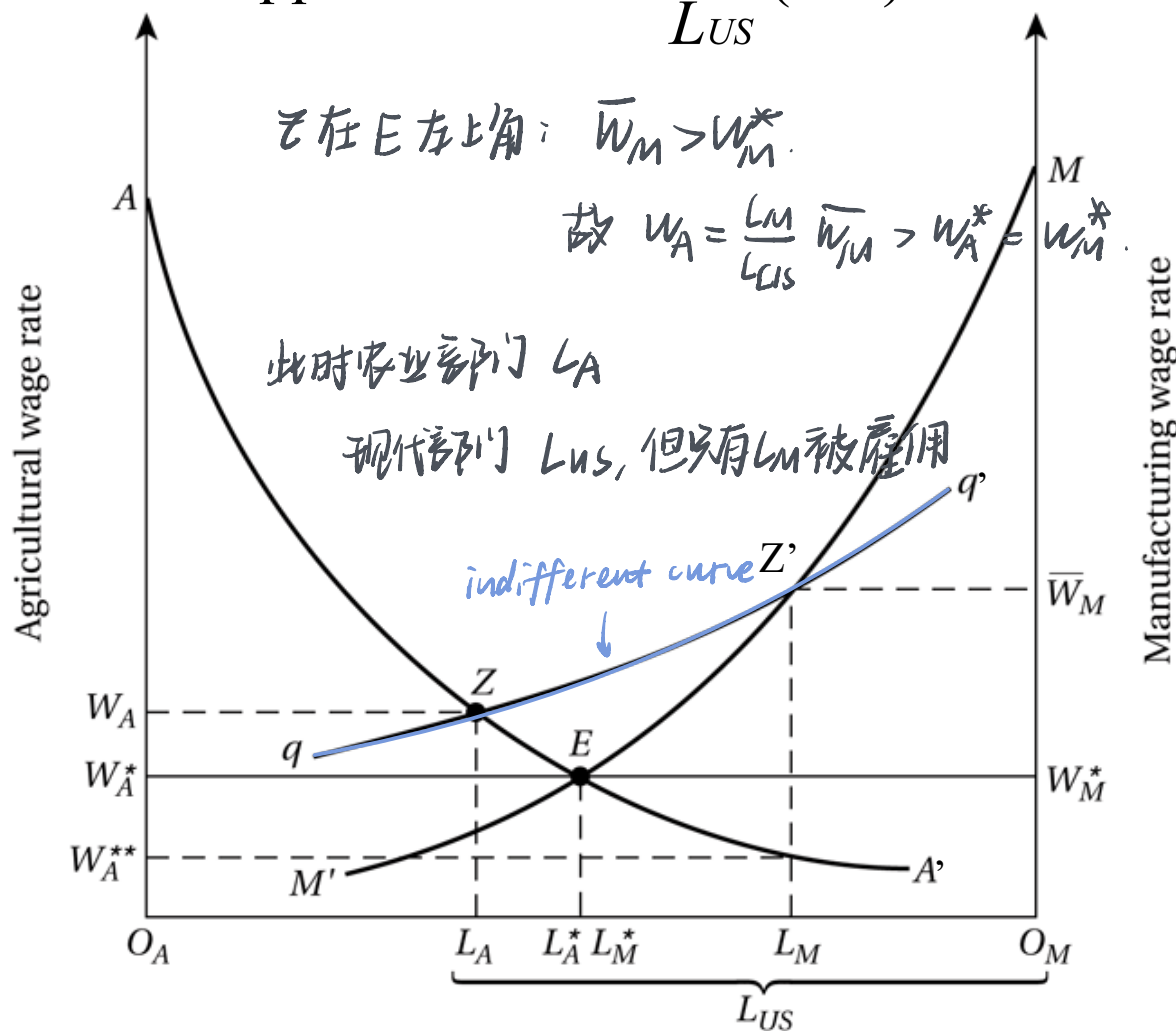# 7.6 Toward an Economic Theory of Rural-Urban Migration (cont'd)

$$Case\ 1:\ W_A = \frac{L_M}{L_{US}}(\overline{W_M}),\ indifferent$$

$$Case\ 2:\ W_A > \frac{L_M}{L_{US}}(\overline{W_M}),\ stay\ in\ rural$$

$$Case\ 3:\ W_A < \frac{L_M}{L_{US}}(\overline{W_M}),\ migrate\ to\ urban$$

Figure 7.12 The Harris-Todaro Migration Model

qq' curve: $W_A = \dfrac{L_M}{L_{US}}(\overline{W}_M)$

Z在E左上角: $\overline{W}_M > W_M^*$

故 $W_A = \dfrac{L_M}{L_{US}}\overline{W}_M > W_A^* = W_M^*$

此时农业部门 L_A

现代部门 L_{US}, 但只有 L_M 被雇用

indifferent curve

- It shows the probability of urban job success necessary to equate agriculture income W_A with urban expected income $(L_M > L_{US})$ $(\overline{W}_M)$, thus causing a potential migrant to be indifferent between job locations.

- The locus of such points of indifference is given by the *qq'* curve.

- The new unemployment equilibrium occurs at point Z, where the urban-rural actual wage gap is $\overline{W}_M - W_A$.

- $O_M L_A - O_M L_M$ are either unemployed or engaged in low-income informal sectors.

7.6 Toward an Economic Theory of Rural-Urban Migration (cont'd)

- **Five Policy Implications**
  - Reduction of urban bias
  - Imbalances in expected income opportunities is crucial
  - Indiscriminate educational expansion fosters increased migration and unemployment
  - Wage subsidies and scarcity factor pricing can be counterproductive
  - Programs of integrated rural development should be encouraged

7.7 Summary and Conclusions: A Comprehensive Migration and Employment Strategy

- Create a urban-rural balance
- Expand small-scale, labor intensive industries
- Eliminate factor price distortions 消除要素定价扭曲
- Choose appropriate labor-intensive technologies of production
- Modify the linkage between education and employment
- Reduce population growth
- Decentralize authority to cities and neighborhoods

城市附近 权力下放

- *Exercise 1:*

(Chapter 7) Draw a diagram such as Figure 7.12 in the text. That is, put the agricultural wage rate, W_A, on the left vertical axis, the manufacturing wage rate on the right vertical axis, label the lower-right origin 0_M and the left origin 0_A. Graph the agricultural labor demand curve AA' as a function sloping downward from left to right. Graph the manufacturing labor demand curve MM' as a function sloping upward from left to right. Label the point of intersection E. Finally, add the migration indifference curve as a function that lies above point E, and slopes upward but is not as steep as MM'. Label this function qq'.

a) If wages in both sectors are perfectly flexible, what will be the wage rate in both sectors? Label these wage rates W_A^* and W_M^*.

b) Suppose a minimum wage is put into effect in the manufacturing sector. This minimum wage, $\overline{W}_M$, occurs where the migration indifference curve crosses MM'. If no unemployment is allowed (and there is no informal sector), what will be the wage in the agricultural sector?

c) How many workers will be employed in the manufacturing sector? Mark this distance as $0_M L_M$.

d) How many workers will be employed in the agricultural sector? Mark this distance as $0_A L_M$.

e) If migration occurs, how many workers will migrate?

Exercise 2: If the rural wage is 4 and the formal urban wage rate is 10, there will be rural to urban migration if the formal urban unemployment rate is

- (a) 50% ✓
- (b) 60%
- (c) 70%
- (d) all of the above

$$W_A = \frac{L_M}{L_{US}} \, \bar{w}_M$$

$$\frac{z}{\bar{s}} = \frac{L_M}{L_{US}} \quad \Rightarrow \quad \text{Equilibrium} \quad u = 0.6$$

$$W_A < (1-u) \, \bar{w}_M$$

$$\Rightarrow \quad u < 0.6$$

1. The notion that cities are generally formed because they provide cost advantages to both consumers and producers is known as
A. urban giantism.
B. first-city bias.
C. agglomeration (集聚) externalities.
D. urban attenuation (城市衰减，the process by which certain effects in the urban environment gradually diminish as the distance from the city center increases, such as noise, pollution, and the urban heat island effect).

2. An argument supporting promotion of the urban informal sector is
A. the formal sector is incapable of providing enough employment.
B. informal sector workers are poorly educated.
C. it uses a relatively high capital intensity.
D. it would reduce urban bias.