

Urbanization and Agglomeration Economics

Bhanupong

Lecture 29

Outline

1. The Central Business District (CBD)
2. The Rent gradient
3. Economies of Agglomeration
4. Urbanization around the world
5. Rural and urban divide
6. Urbanization and poverty
7. Urban Primacy

1. Central Business District (CBD)

- CBD refers to the commercial center of a large city (e.g., the Central World in Bangkok)
- CBDs are anything but static.
- Within the CBD, central office functions exert a **mutual attraction**, since they require frequent contact between firms.
- Firms will locate ***close together*** instead of occupying scattered sites.

When firms come to locate at the CBD

- The closer each firm to the CBD, the less costly to it in time and transportation costs in ***maintaining contact*** with each other.
- Thus a location near the CBD will reduce the firm's own costs and other **costs of *maintaining*** contact with that firm.
- Nevertheless, with the fast development digital information network, such demand for closeness can be reduced.

Reilly's law

- The law of **retail gravitation** suggests that people are generally attracted to the largest shopping center in the area.
- Examples abound: Central World, Siam Paragon, Central Embassy, and M-District shopping and Iconsiam.
- Shopping malls provide **retail therapy** for mall rats and generate employment of unskilled workers.
- At the Iconsiam, it was expected to have 150,000 daily shoppers each day
- *But perhaps the owners have forgotten an important philosophy*

How many malls does Bangkok need?

Iconsiam cost \$1.7 billion to build



Total area is as large as 105 football pitches

High demand for limited spaces at the CBD

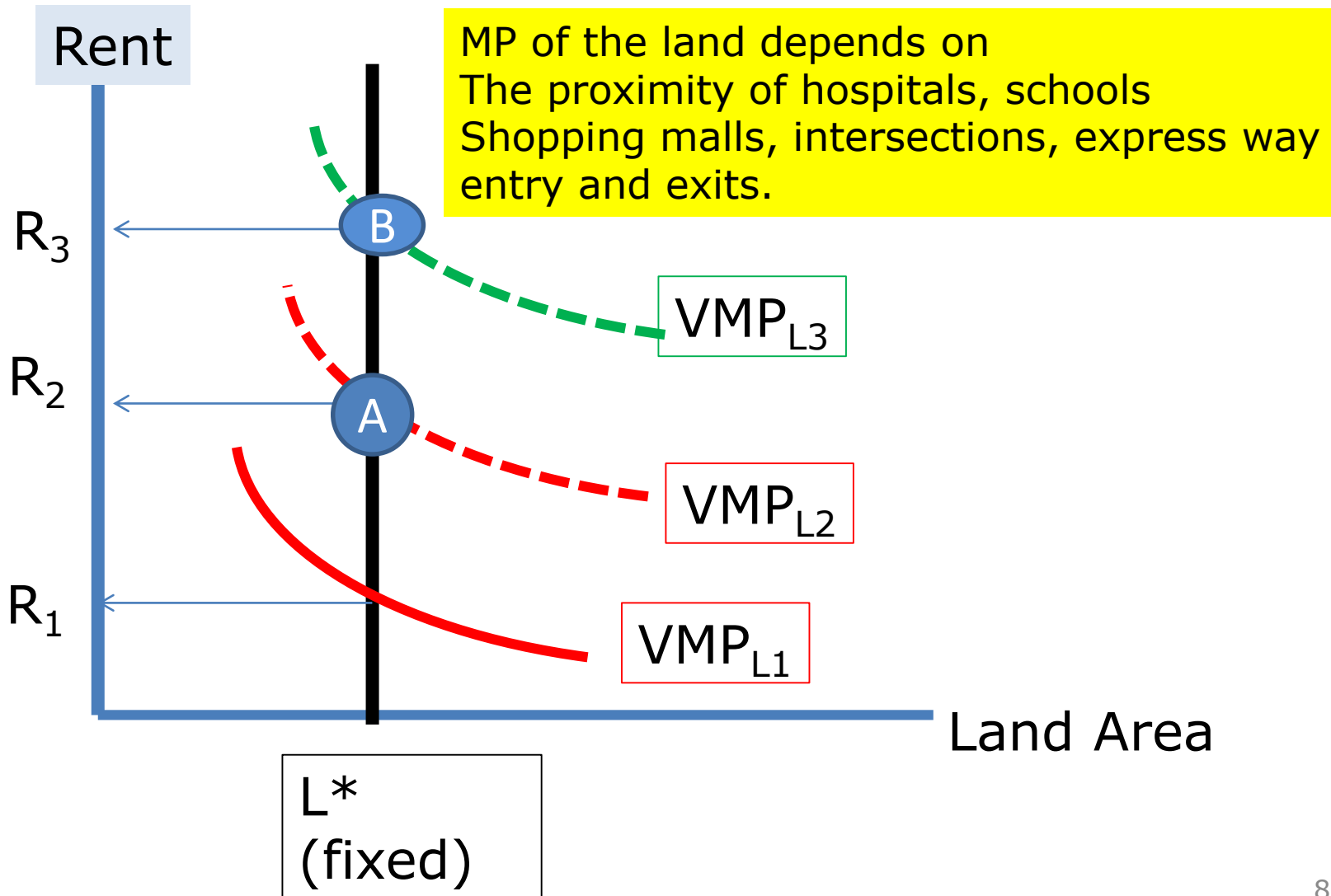
When moving near the CBD, transportation and communication costs among firms will be decreasing;

Sales will be rising as distance to the center diminishes.

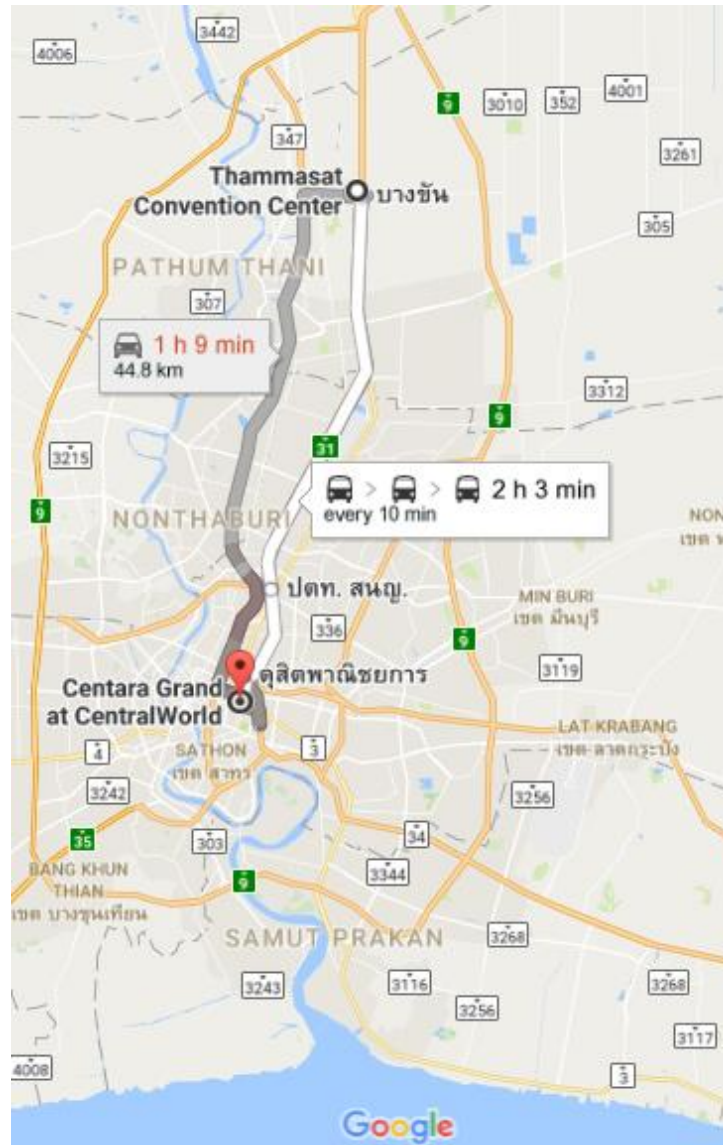
But there is also a high cost of staying at the CBD—the high rent and the high cost for employees to travel to the offices.

The rent at CBD rises because of high demand for limited spaces

$$\text{Rent} = (\text{MP}_{\text{Land}} \times P) = \text{Value of Marginal Product of land}$$



From Thammasat Rangsit Campus to Central World *45 km, 2 hours by bus, 1 hour 10 mins by car*



Lionel McKenzie (1976)

"Turnpike Theory" *Econometrica* (Vol. 44)

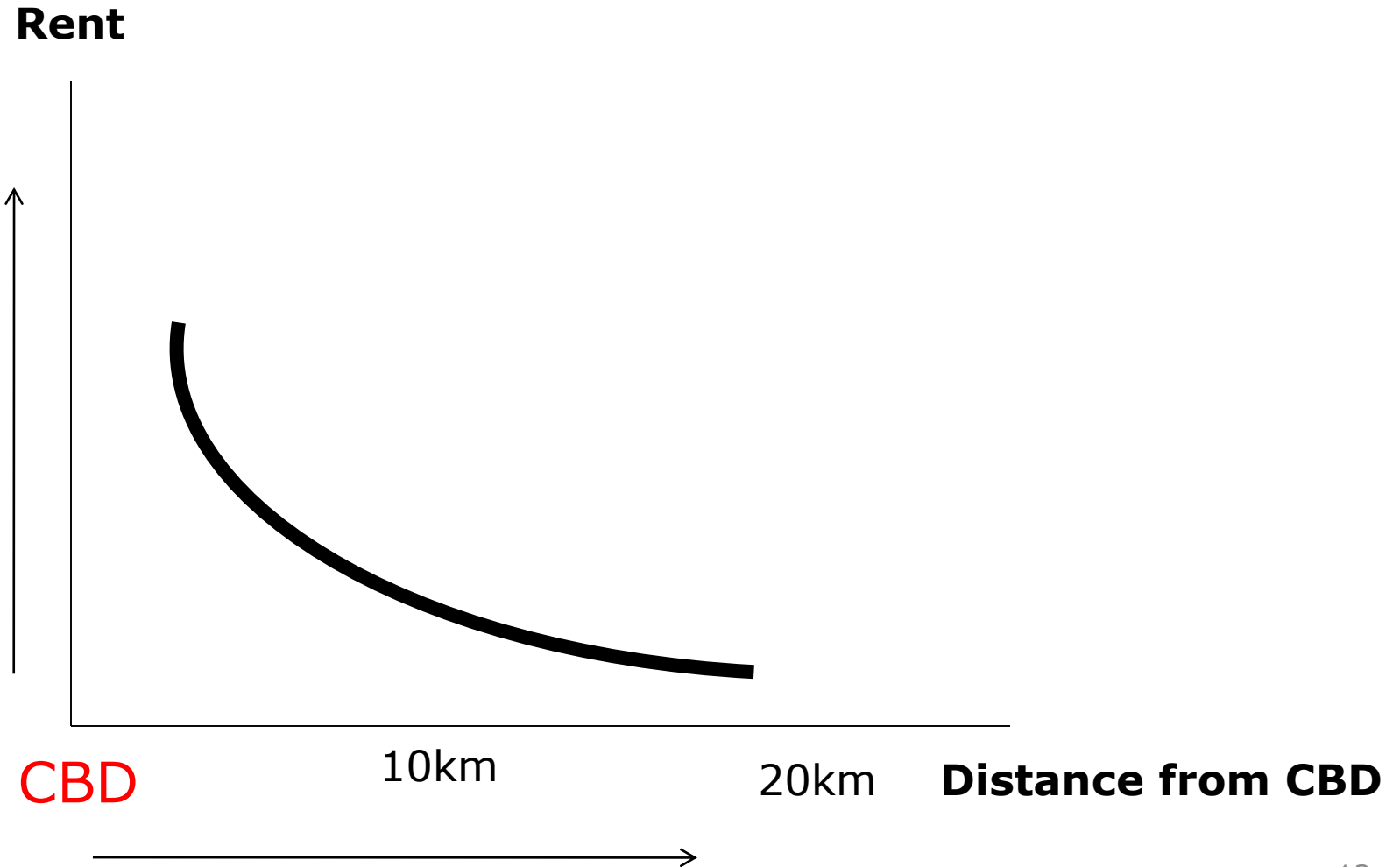
- The single most effective way for the system to grow, so that **if we are planning long-run growth**, no matter where we start, and where we desire to end up, *it will pay in the intermediate stages to get into the fastest growth path as fast as possible.*
- It is exactly like a turnpike paralleled by a network of minor roads. Turnpike is the fastest route between any two points; and if the origin and destination are close together and far from the turnpike, the best route may not touch the turnpike.
- But if the origin and destination are far enough apart, it will always pay to get on to the turnpike and cover distance at the best rate of travel, even if this means adding a little mileage at either end

Where the rich live

Land parcels along the BTS at Siam, Chidlom and Ploenchit stations were among the highest in prices at B1.75 million per square wa.

Along the BTS at *Nana* and *Asoke* stations the land areas were valued at B1.7million per square wa.

2. Rent Gradient



Alonso–Mills–Muth model

Location bid rents Urban configuration

- Alonso, W., (1964), Location and land use, Cambridge, Mass.: Harvard University Press
- Mills E., (1967), “An aggregative model of resource allocation in a metropolitan area,” American Economic Review, 57, 197-210.
- Muth, R., (1969), “Cities and housing,” Chicago: University of Chicago Press

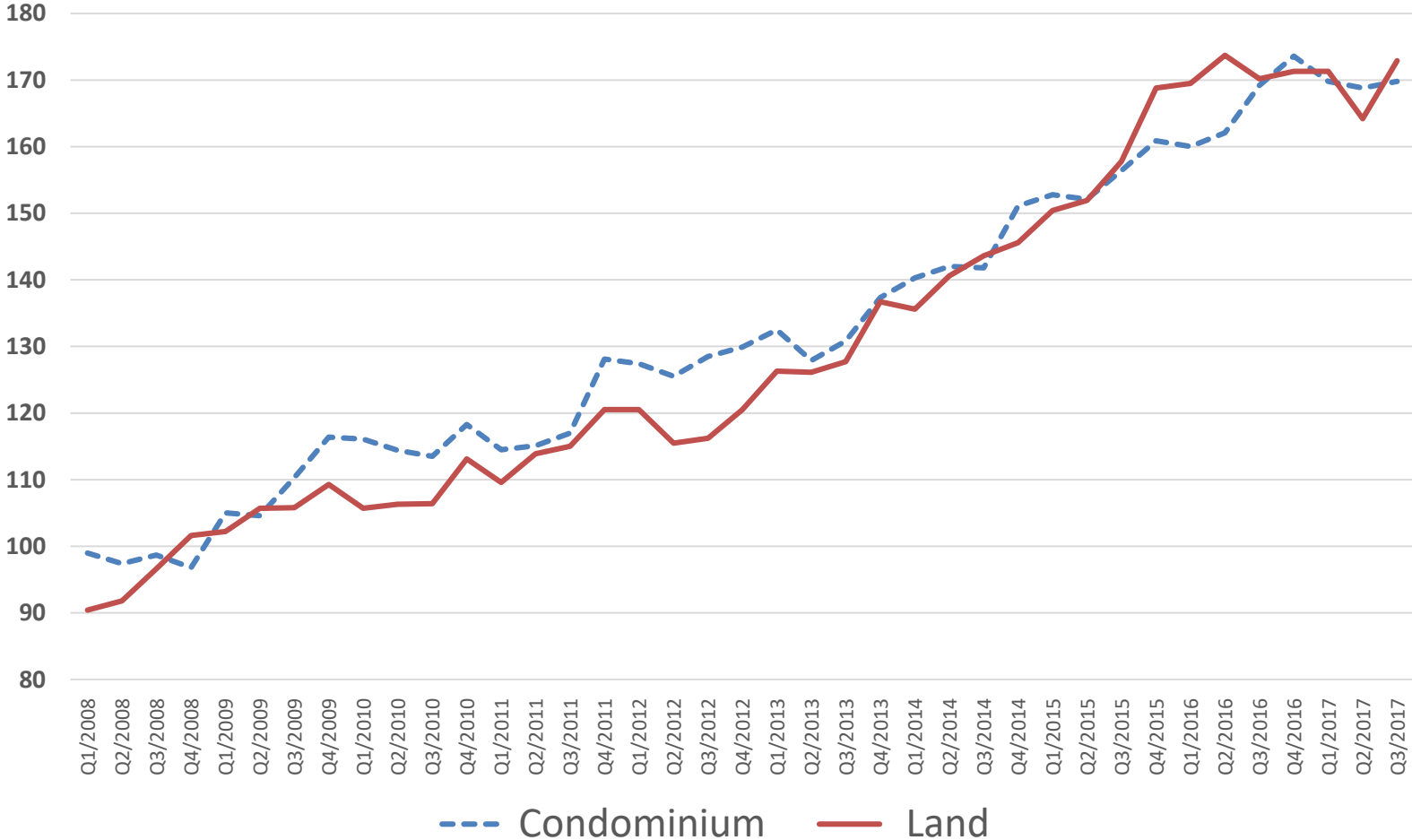
A trade-off: Accessibility to CBD and bigger space far away from CBD

- Land prices are required to *decline with distance* to *compensate for higher transportation costs*, as individual moves away from the CBD.
- Individuals can acquire a larger piece of land in compensation for less convenient access to the CBD.
- Thus, there is a trade-off relationship between the access to CBD and space.
- Staying in the suburbs: More difficult and more costly to access CBD but bigger space to live.

As the cost of commuting to the CBD keeps on rising, land prices in CBD continue rising exorbitantly

Property Price Index

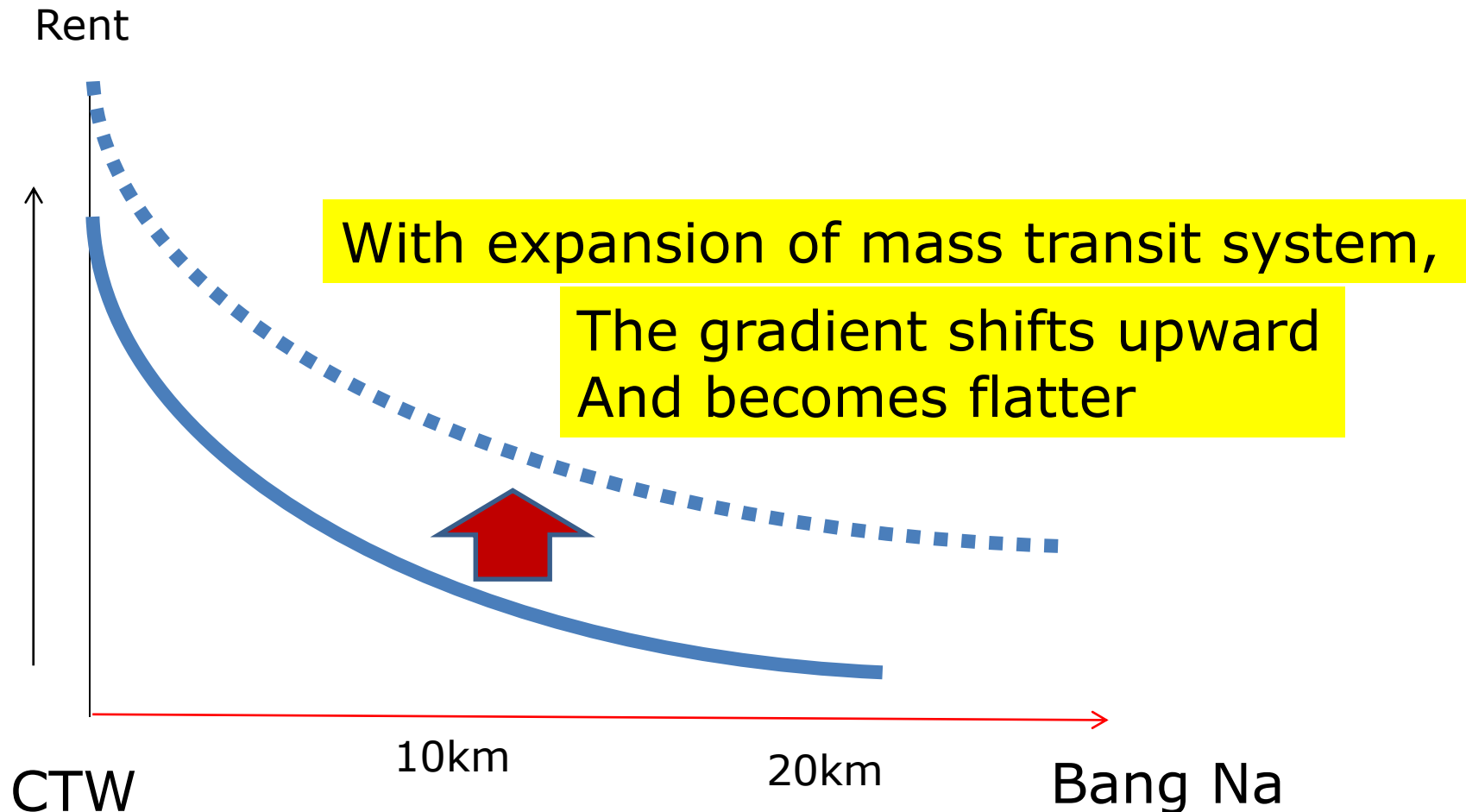
Source: BoT



Rent gradient can change the intercept and its slope

- Inflation (land as inflation hedge)
- Transportation cost (oil prices)
- Traffic jam (higher opportunity cost)
- New infrastructure: expansion of the BTS and MRT
- De-concentration (new shopping malls arise far away from the old CBD)

Changes in factor affecting land rent *slope and intercept shifts*



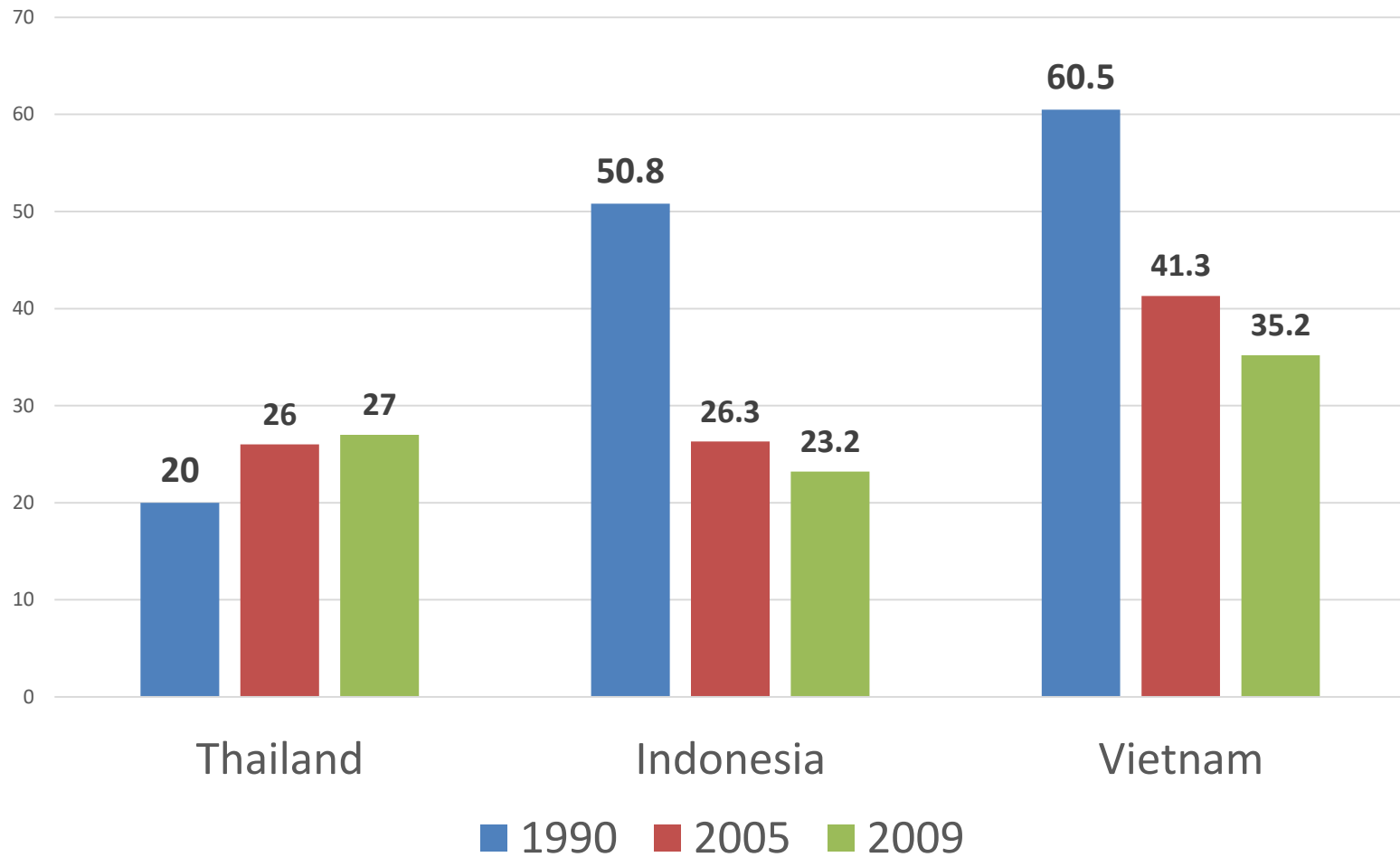
Where the rich lives

- The cost of commuting depends on distance.
- Wealthy families settle on large plots of relative cheap land toward the city's edge. (But that was before the condominium-boom era, which shortens the travelling time)
- To increase living areas in CBD, condominium buildings became taller and taller.
- Price per square meter of housing unit has increased dramatically.

Where the poor lives

- The average size of condominium in the city has been declining to maintain the unit price, in some cases below 20 sqm.
- Poor families tend to occupy very small portions of higher priced land near the center.
- In developing countries, there are a large number of slums in capital cities.

Slum population (% urban population)



Khlong Toey sits on land owned by the Port Authority of Thailand. Many of the residents first relocated here in the 1950s, looking for work. The community of over 100,000 that resides. Many still do not own the homes in which they live, even having been there for decades. The slum is about 1.5 square kilometers in size, and the land is relatively low and swamp-like. Many of the tin-roofed homes are on stilts over stagnant, polluted water.



Where do you live?

- For the poor family, the increase in commuting costs as distance increases will diminish rapidly the small fund of income available for housing.
- Consequently the poor cannot bid much for locations where commuting cost is expensive.
- The rich, who are prepared to spend large sums on housing, find the barrier of *commuting costs* rather *inconsequential* and they can bid higher prices than the poor for land at distance locations.

Klong Toi Porters



Other factors affecting land prices

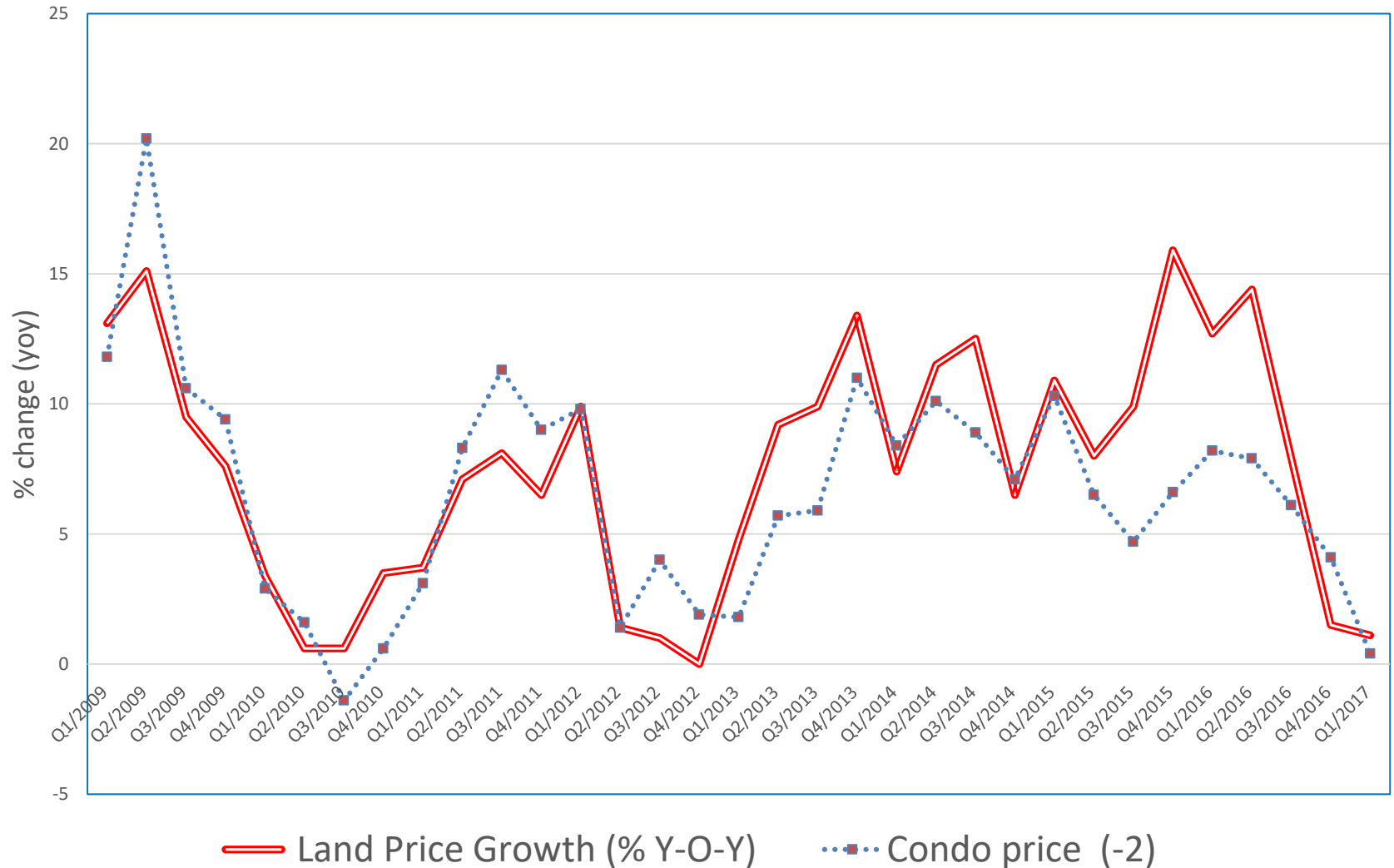
- Urban land markets are differentiated and can be segmented into sectors by transportation routes.
- **Quality of infrastructure and transportation routes** in different areas produces different impact on land prices.
- There can be *multiple CBDs* within the city, depending on network of transportation system.
- Another CBD: The Government Office Complex

Land prices are highest near the Government Office Complex

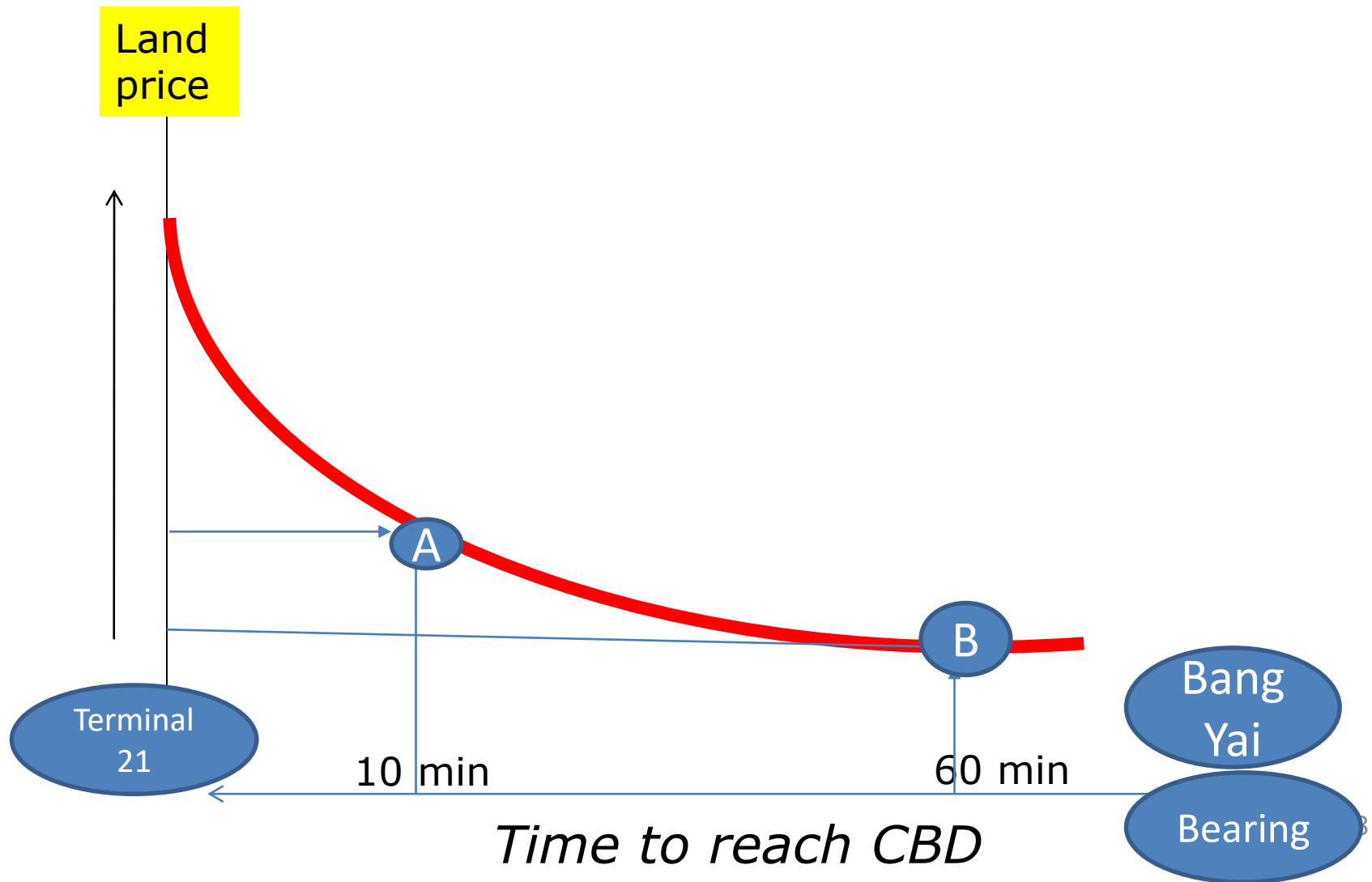
The monorail has tremendously lifted up the land prices



The expectations of mass transit routes raise condo prices, which in turn increase land prices after six months (two quarters)



Travel time to the city center

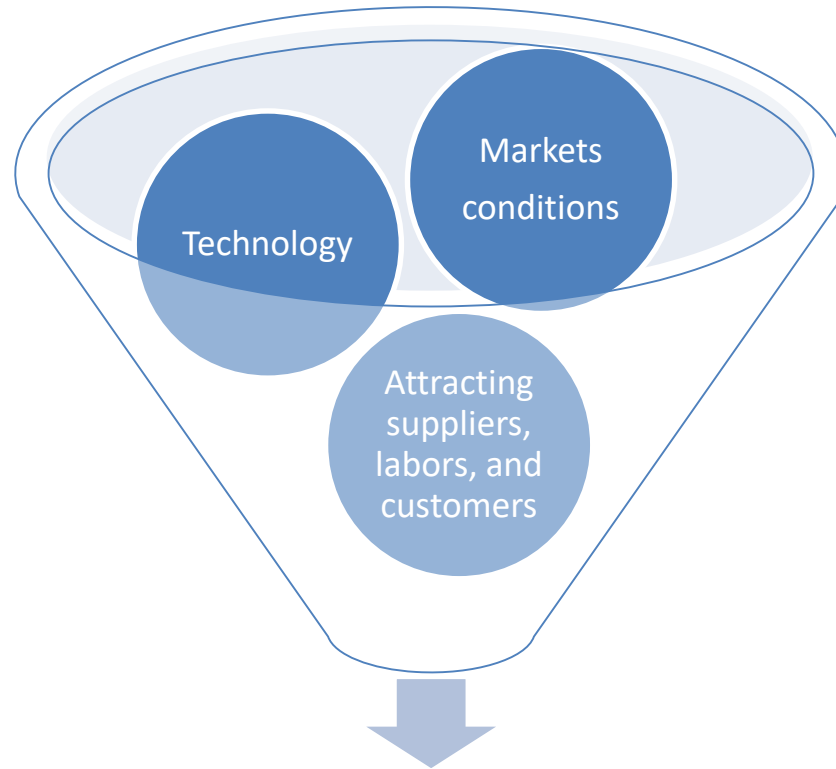


3. Economies of Agglomeration

Productivity increases when other firms are located nearby

- Alfred Marshall(1890) explained spillover benefits for a plant to other plants in the neighborhood in terms of **information spillover** about technology, suppliers, purchases, and market conditions.
- Economic activity agglomerates (lot of many different things brought together) in cities because of local external economies of scale in production—**a plant's productivity** is enhanced if other plants are located **nearby**.

Information spillovers



Economies of Agglomeration
Increased productivity

Why did they locate in the same areas?

- IT centers, Panthip plaza, MBK mall
- Pratunam, Platinum mall, Bo Bae tower
- K Village and J village in Sukhumvit area
- Even when competing firms are in the **same** location, there may be advantages because that location **attracts** more suppliers and customers than a single stand-alone firm could.

Benefits of Spillover Effects

- The *proximity* of buyers and sellers reduces *transportation* costs of trade and *search costs* in retailing.
- Increased *diversity of suppliers* to local producers.
- ***Lower search cost***: Search for workers and matching improvements between workers and firms in local ***labor markets***.
- That is why they agglomerates into one specific place.

Economies of agglomeration: Growing cities

- The *more related* firms that are clustered together, the *lower* the cost of production (firms have competing multiple suppliers, greater specialization and division of labor result) and the greater the market that the firm can sell into.
- Cities are forming and growing to exploit *economies* of agglomeration.

Economies of Agglomeration



Diseconomies of Agglomeration

- Diseconomies of agglomeration take place when *additional competition* drives down pricing power.
- Large cities encounter problems of crowding and congestion.
- *Should you locate your office in Asoke (Sukhumvit Soi 21)?*
- It is this tension between economies and diseconomies that allows cities to grow, **but keeps them from becoming too large.**

Non-standardized industries

- Non-standardized industrialization occurs *more in urban areas* because of opportunities to exploit scale economies of local agglomeration.
- There are scopes for local **intra-industry specialization** of plants in specific activities
- Firms which engaged in non-standardized products benefit from urbanization economies.

Why big cities?

- The non-standardized production includes special-order machinery, **fashion apparel**, **entertainment services**, and publishing.
- Plants for non-standardized products need to obtain *specialized services* beyond their own industry.
- They also need *large local market* to test their products; they need to stay in mega or big cities

Where to locate your firm?

Standardized vs. non-standardized products

- Production in **large** metropolitan areas focuses on *services* and *non-standardized* manufacturing.
- **Standardized** manufacturing production tends to be **de-concentrated** into **smaller** and medium-size metropolitan areas to avoid higher operating cost in big cities.
- But standardized firms also need to stay (agglomerate) together to exploit the localized economies of scale.

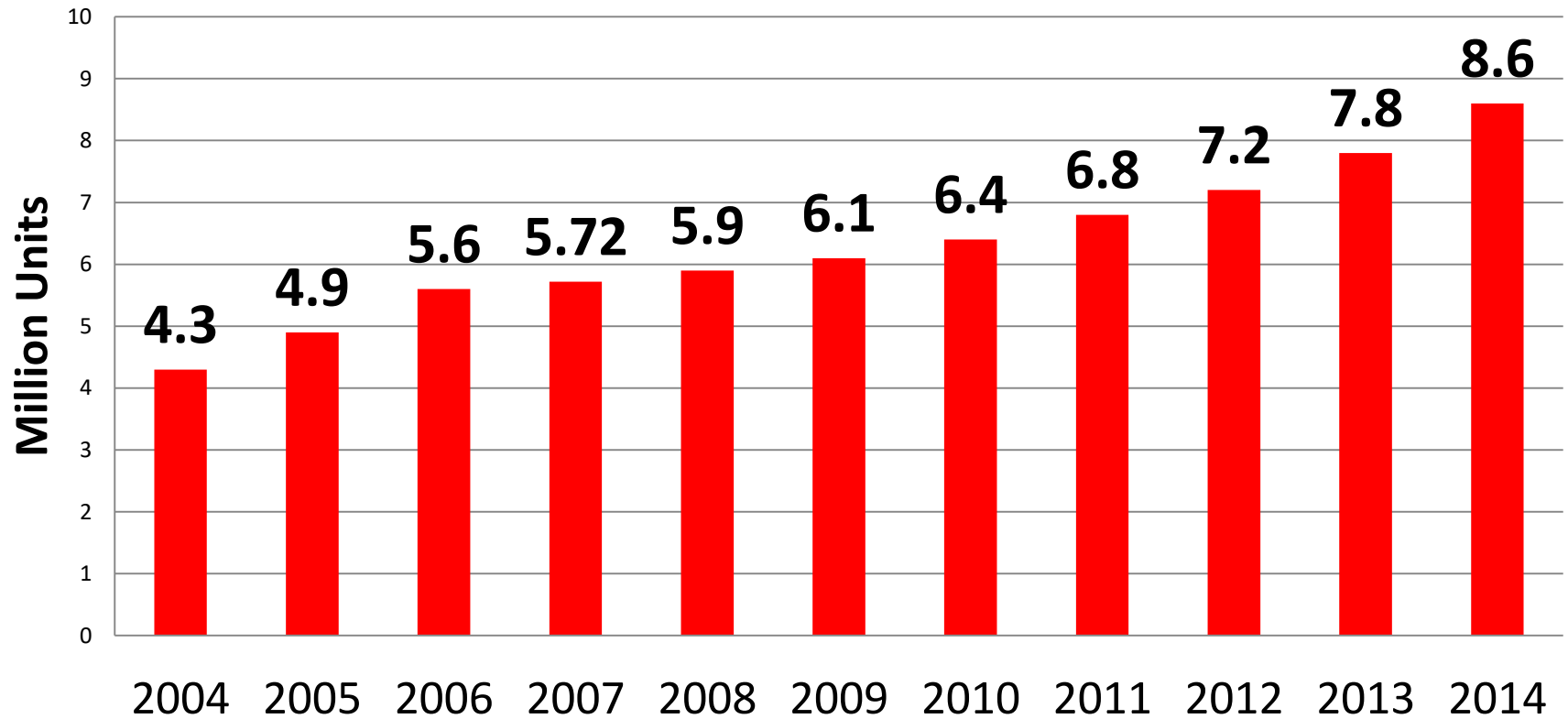
Standardized products: relatively low degree of product differentiation

- Plants producing ***standardized*** products, such as **textiles, steel, ceramics, food processing**, ***learn mostly from other plants in the same industry locally.***
- They benefit primarily from what are called ***localized economies.***
- If the cities are growing too fast, they do not have sufficient time for effective and efficient planning and management.

Consequences of heavy concentration

- **Growth losses** in countries with excessive mega-cities resulting from significantly deficient human and physical capital investment.
- ***Wages, land and infrastructure costs escalate*** with mega-city size relative to scale benefits for standardized products, making it more difficult to attract foreign investment and to remain competitive in world markets.
- Bangkok is an example of city with excessive congestion.

Accumulated number of cars registered in Bangkok

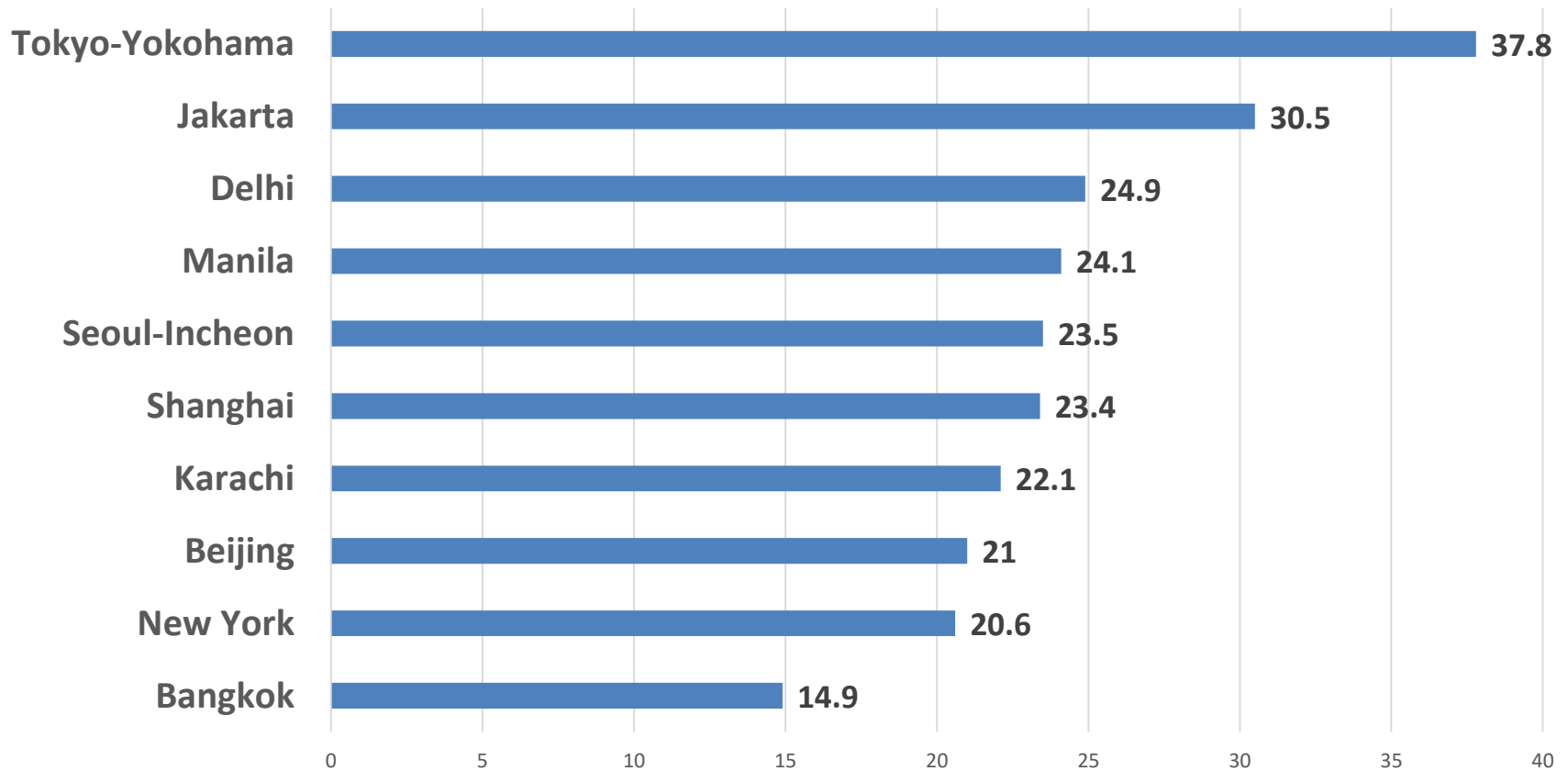


4. Urbanization around the world

- Back in 1950, less than one-in-three people lived in urban areas.
- The world had just **two** so-called "megacities" with populations in excess of 10 million: New York and Tokyo.

Megacities in 2015

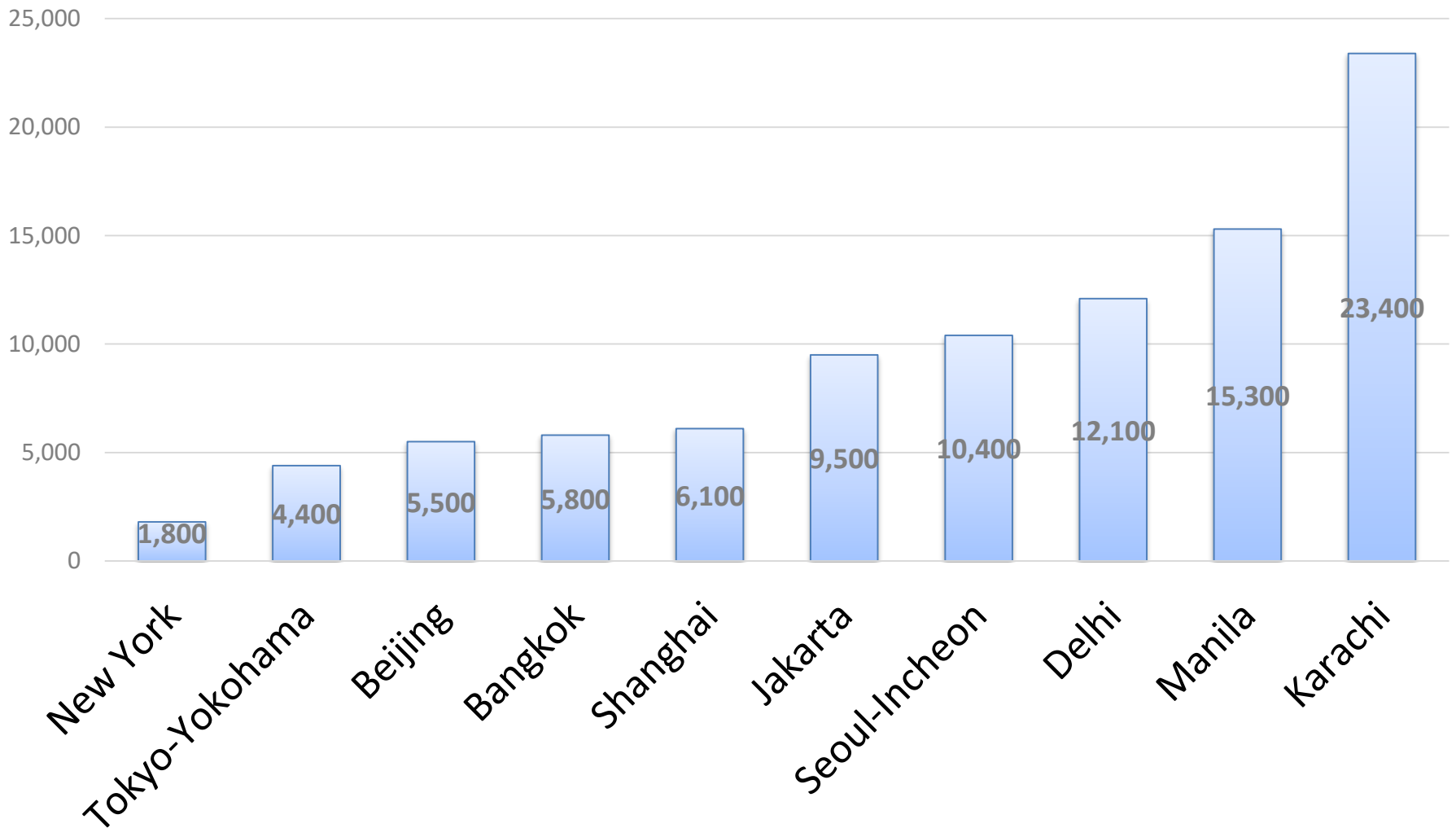
Population in Urban Area: 2015
(million people)



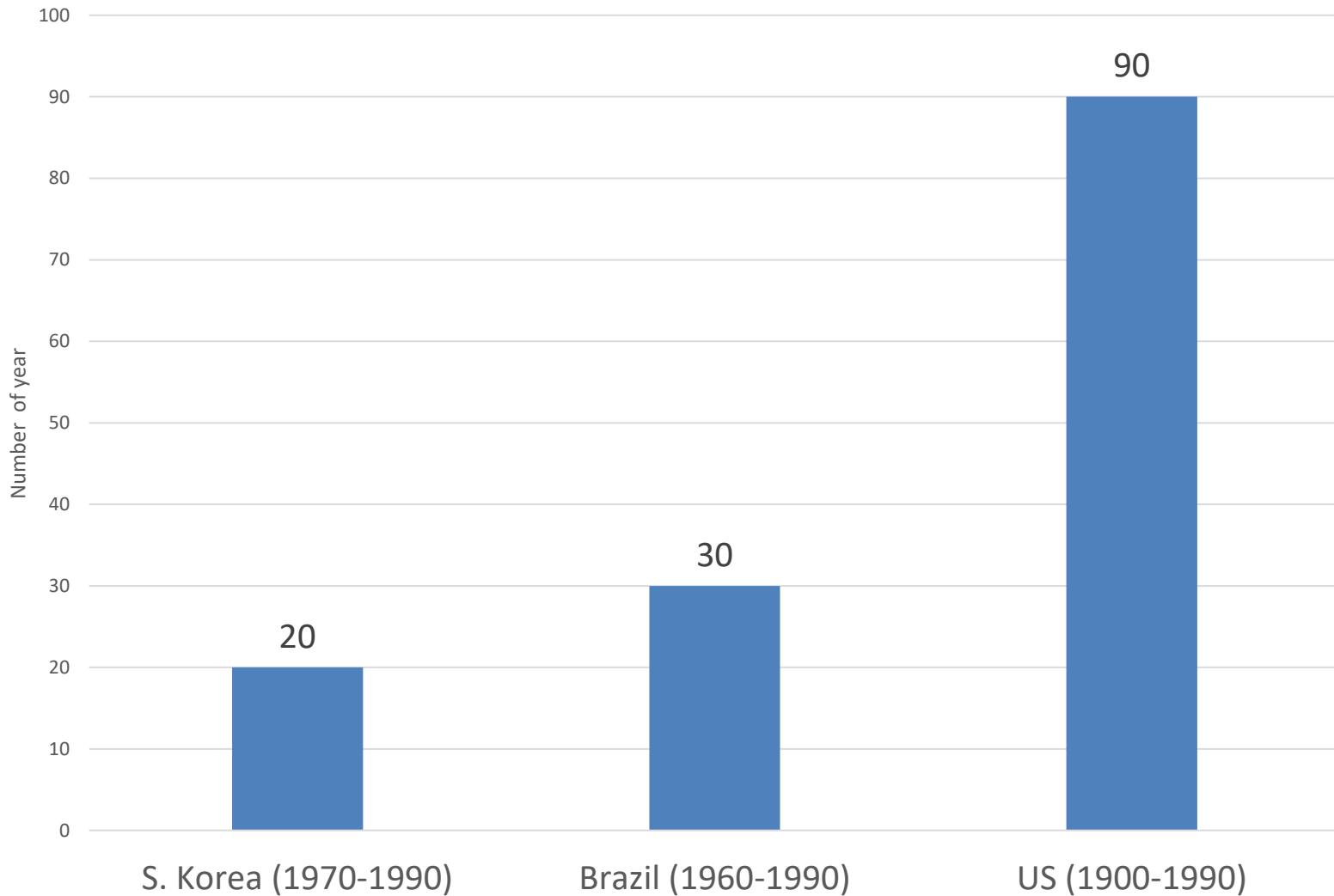
Stylized fact

- The world is fast approaching the point where the *majority* of the human population will be found in urban areas.
- The United Nations estimates that about 180,000 people are being added to the urban population every day.
- The world's **urban infrastructure** has to absorb the equivalent of the population of two Toykos each year.

Population Density in mega cities (people per square kilometer)



Number of years required to raise urbanization from 45% to 70%



Urbanization in rich countries

- In the *traditional model* of urbanization, which North America and Europe experienced during the Victorian era, people were **pushed** away from the countryside by the **mechanization of agriculture**, and **pulled** towards urban areas by the offer of jobs and wages.
- North America and Europe's urban areas already account for about 70-80% of the regions' populations, and these are expected to **stabilize** at these levels.

Urbanization drivers in rich countries



Urbanization in poor countries: Only the pull factor

- Sub-Saharan Africa, which has the world's **highest rate of urban migration**, is **not** following the traditional western pattern.
- Developing nations are struggling to cope with the huge influx of people into urban areas.
- Some cities' populations are 40 times larger than what they were in 1950, resulting high unemployment in urban areas (Harris-Todaro Model)

Gradual vs. rapid urbanization

- The gradual pace, combined with relatively high GDP and education per capita, **allowed time for the development of political and economic institutions** and market instruments essential for an efficient form of urbanization and a reasonable quality of urban life (USA and other European cities).
- Rapidly urbanizing developing countries require adaptation of rural institutions and governance to urban society.

Gradual vs. rapid urbanization

- Poor countries have little room for timely experimentation and adjustments.
- So rapid that there is no time to put electrical and phone lines underground: trees must be trimmed regularly to protect electrical lines.
- No time for establishing and planning efficient means of mass transportation (BTS and MRT in Bangkok)

Bangkok population increased from 1.36m (1950) to 9.6 m (in 2017)

- In 1950, Bangkok population was only 1.36 million.
- UN World Urbanization Prospects estimated that Bangkok' population in 2017 is at 9,617,000.
- This estimate represents the **urban agglomeration** of Bangkok, which typically includes Bangkok's population, in addition to adjacent suburban areas.

5. The rural-urban divide

- **Megacities** and large cities are the richest and have far better access to basic public services;
- Smaller towns, secondary cities, and areas on the *perimeter* of urban centers are less rich.
- **Rural areas** are the poorest, but this does not mean unfettered urbanization is a cure-all.
- **The urban poor** in many places urgently need better services as well as infrastructure that will keep them connected to schools, jobs and decent health care.

Richard Mille RM 11-02 GMT Rose Gold Titanium Rubber Automatic Watch

US \$195,000 (THB6.2 million baht)



High-end brands: A Status Symbol

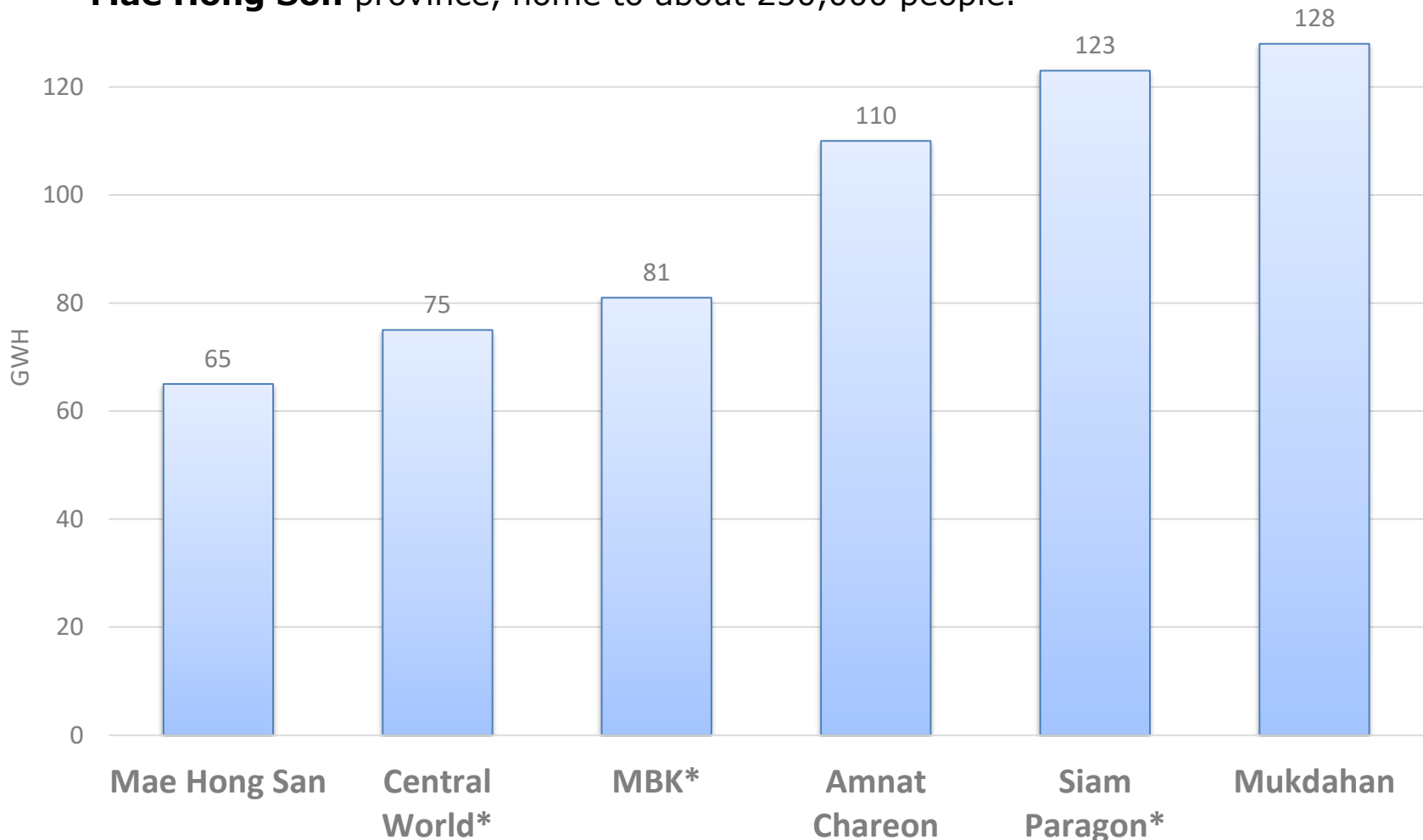
Bangkok's high-end mall, MQuartier, opened March 27, 2015, featuring high-end brands including Louis Vuitton, Chanel, Dior, Prada, Cartier, Dolce & Gabbana, Tiffany, Fendi, and Balenciaga. Then came IconSiam together with Takashimaya

Because of the city's intense climate—it is one of the hottest big cities in the world—Bangkok malls and their massive air conditioning systems consume immense amounts of electricity.

The rural-urban divide: Electricity usage (GWh) Bangkok Shopping Malls (*) and Rural Provinces

The Siam Paragon mall consumes nearly **twice** as much power annually as all of underdeveloped

Mae Hong Son province, home to about 250,000 people.



6. Urbanization speeds up poverty reduction

- Agglomeration, or the *clustering of people and economic activity*, is an important driver of development and evidence suggests that it can have high pay offs, particularly for countries on the lower rungs of development.
- In order to harness the economic and social benefits of urbanization, policy-makers must plan for *efficient land-use, match population densities with the required needs for transport, housing and other infrastructure*, and arrange the financing needed for such urban development programs.

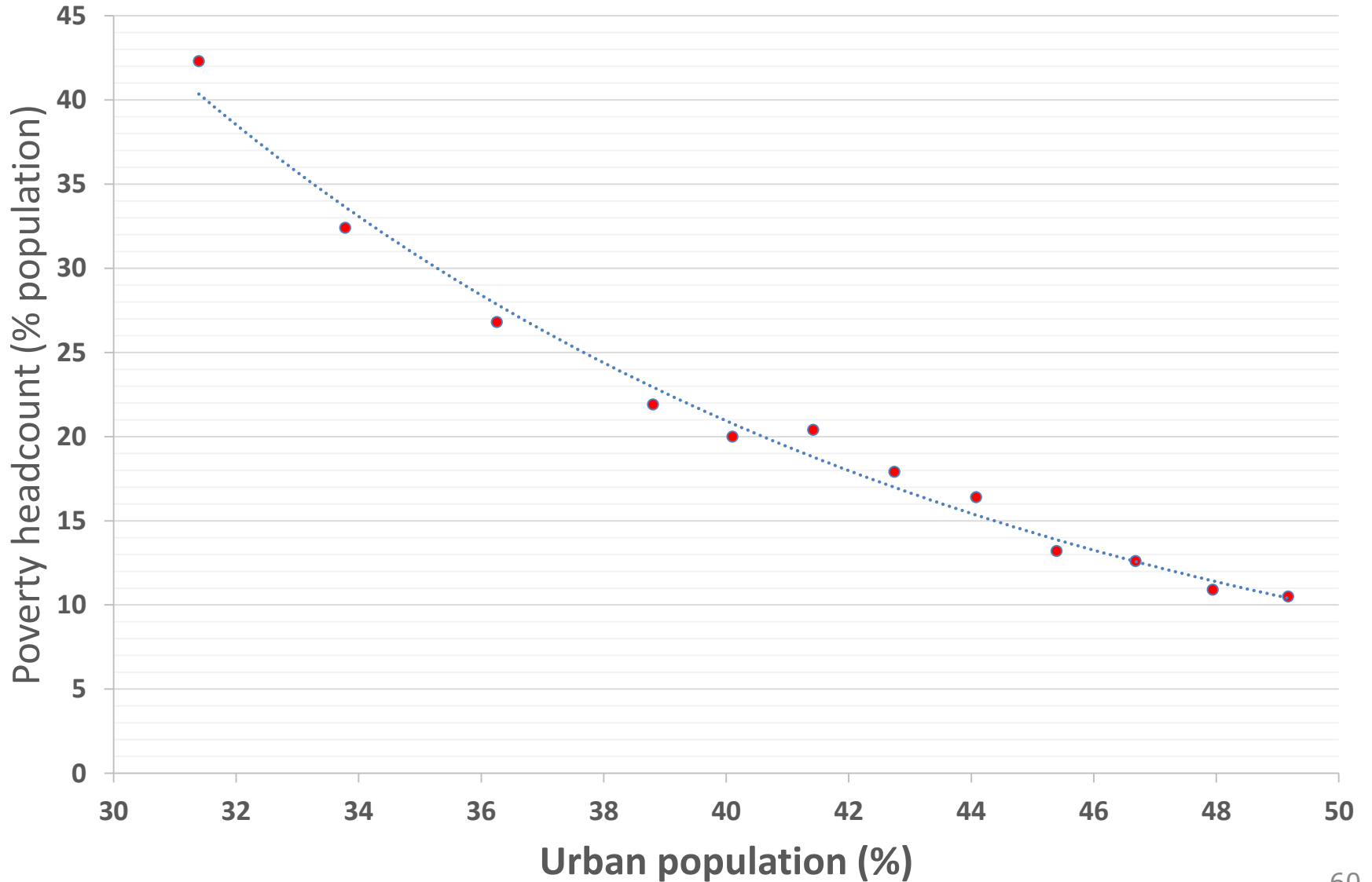
Fighting extreme poverty in urban and rural areas

- Though **extreme poverty** has declined rapidly in many countries
- Therefore, continued concerted efforts to get extreme poverty as close to zero as possible are needed.
- The challenge of fighting poverty and improving the living conditions of the poor lies in both **urban** and **rural areas**.

Urbanization reduces poverty

- With a fifth of the world's population, 600 urban centers account for some 60% of worldwide GDP.
- All the new entrants will be from emerging markets, a shift that will have profound social consequences.
- Urbanization is **lifting** more people **out of poverty** than any movement in history.

Poverty and urbanization in Thailand 2000-2015



Declining urban poverty, thanks to the economic boom

- The strength of the economy before the AFC between 1988 and 1996 had cut the urban poverty from **12.6** percent in 1988 to a mere **3.1** percent in just 8 years.
- When the Thai economy was hit by the financial crisis, the **rise** in poverty incident in 1999 went up to only 3.8 percent.
- The rural people had to bear the brunt of the economic meltdown **more than** the city people who created the economic crisis.

7. Urban Primacy

- The rapid urbanization in developing countries is also reflected in urban primacy—the *share of population* in *the largest city* in national urban population.
- A high degree of concentration is reflected in the share of large population of metropolitan areas in total urban population.

The primate city

- In 1939, **Mark Jefferson**, a renowned geographer, put forward the concept of primate cities.
- According to his definition, a primate city has to be ***twice as large*** in size as ***the next biggest city***.
- It must also be twice as important, socially and economically.
- Moreover, a primate city needs to be on **top in most aspects, including politics, universities, media and culture.**

The law of primate city

- “The **primate city** *dominates* the country in influence and are the **national focal-point**”. (i.e., Sydney rather than Canberra)
- Their sheer size and activity becomes a strong pull factor, bringing additional residents to the city and causing the primate city to become even larger and more disproportional to smaller cities in the country.
- Bangkok is the primate city of Thailand.
- It has the **highest density** of population and **highest number of functions**.

Imbalance Development

- The presence of a primate city in a country may indicate an imbalance in development – usually a progressive core, and a lagging periphery, on which the city depends for labor and other resources.
- The urban structure and the primate city look modern while the country has high level of backwardness and low level of institutional development and scientific and logical thinking.

Examples of primate cities:

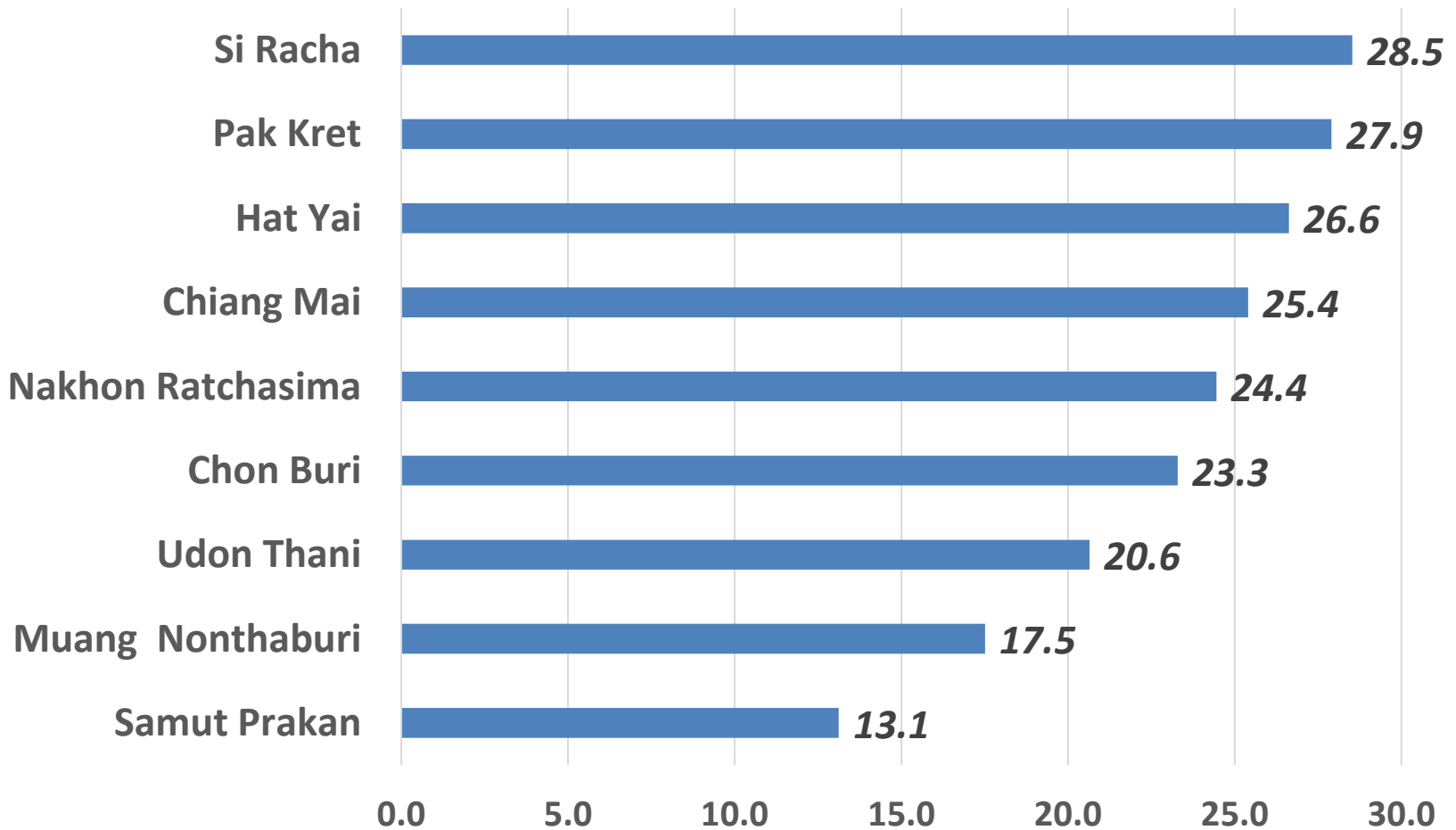
*Twice as large in size as the **next** biggest city*

- **Paris** (9.6 million) is definitely the focus of France while Marseilles has a population of 1.3 million.
- The United Kingdom has **London** as its primate city (7 million) while the second largest city, Birmingham, is home to a mere one million people.
- **Mexico City** (8.6 million) outshines Guadalajara (1.6 million).
- Bangkok has been called "the most *primate* city on Earth", being many times larger than Thailand's second-largest city.

How big is Bangkok?

Multiple of Bangkok Population: 2019

Source: Base on World Population Review



Positive effects created by primate cities

- An agglomeration of economic activity through various industries and services. It provides a large market for goods and services. The ability to offer higher-end goods and services (including education) because of a ***larger threshold population***.
- The enhanced flow of information and ideas in large population and a centralized transportation and communication network also create advantages in the primate city.
- ***A country can compete on a global scale and attract foreign investment*** (global trade opportunities)

Primate cities attract tourists

- Increased tourism in primate cities create economic benefits to the nation's economy
- Tourist arrivals to Thailand increased 20% in the latter half of November 2018 in response to visa-on-arrival (VOA) fee waivers.
- Visitors from China and India are bouncing back.

Negative Effects of primate cities: *Inequality*

- The distribution of investments is unequal and deters national economic development
- Economic and resource development is unequal.
- The distribution of wealth and power is unbalanced.
- Transportation networks may prevent equal accessibility to all regions.

Primate cities: Political cohesion and brain drain

- ***Centrifugal forces*** and other difficulties associated with political cohesion on economic development are created.
- ***The migration and unequal distribution of education, entrepreneurship, and other opportunities for individual progress: "brain drain"***
- Rapid urban growth and slum districts may create ***unsustainable environmental impacts***;
- Creates ***a burden on national economy*** to cope with problems related to sustainability

Summary

- Business cycles are related to booms and busts in housing markets because there are lags in supply adjustment to price changes.
- This is a trade-off relationship between access to CBD and space, which explains choice of residential location among the rich and the poor in the city.
- Agglomeration economies explains choice of firms and business location as firms receive benefit network externality and spillover effects of being close together.
- Urbanization in developing countries is so rapid that they cannot prepare for the smooth transformation from rural to urban structure.
- Cost of excessive concentration prevails in mega cities.

State whether you **agree or disagree** with the following statement:

Provide brief reasons

1. Many poor people choose to live in slums in Bangkok, because of large wage differentials between urban and rural areas.
2. Since defense spending is public goods, the optimal level of military expenditure depends more on the level of threat by enemies rather than tax revenues.
3. Thailand 's inflation rate in April 2010 was contained at 3 % (year-on-year); inflation targeting strategy is effective.
4. Wider interest spreads of small commercial banks in Thailand indicate that they were less efficient and experienced lower profits than larger banks.
5. A proper exchange rate policy should aim at maintaining the stability of the bath-dollar rate to avoid excessive exchange risks that could lower international competitiveness of Thailand's export sector.

State whether you agree or disagree with the following statement:

Provide brief reasons

6. Other things equal, political violence in 2014 reduced Thailand's long-term growth path.
7. The gravity model suggests that Thailand should engage in free trade agreements with neighboring countries rather than countries in other parts of the world.
8. The sharp rebound of manufactured exports in the first quarter of 2010 underscored the increasing competitiveness of Thailand's manufacturing sector.
9. In 2010, as oil prices increased due to the recovery of the world economy it was likely that income inequality in Thailand would be worsened.
10. Both Baumal-Bowen cost disease and the Dutch disease have similar impacts on the Thailand's international competitiveness.