Urbanization and Agglomeration Economics

Bhanupong

Lecture 28

News Analysis: Sputtering Exports

- The juggernaut used to strike fear in the hearts of competitors. Over the past year, Asian exports have mainly scared investors: double-digit declines in sales abroad have highlighted global economic weakness.
- But many think the worst is now over, as implied by sturdier stockmarkets from America to China.
- Is it? The data say not: they still point to sluggishness:


Merchandise exports, $ terms
January 2010=100
China
South Korea
Taiwan
Japan
200
150
100
50
2010
11
12
13
14
15
16
Source: Haver Analytics

News Analysis: Sputtering Exports

- The next evidence comes from Taiwan. Its foreign sales, a bellwether of global demand for electronics, have fallen for 14 months.
- Figures today will probably show that they slumped again in April. That would be consistent with gloomy export numbers from around the region, especially South Korea.
- China yesterday reported a dip last month. If there is any silver lining, it is that rates of decline have levelled off. China is faring best. But that’s largely because it has expanded its market share—something else for Asia’s other exporters to fret about.

When pigs fly: Chinese inflation

- As the authorities have pumped money into the economy to counter its slowdown, growth has stabilized—but one risk from the boost is a spike in inflation.
- Sure enough, data today are expected to show a 2.4% year-on-year rise in consumer prices in April, the fastest since early 2014.
- Investors worry this might force China to rein in its stimulus. But officials will desist for now because they see inflation as a porcine, not a monetary, phenomenon.


Went to market
China's consumer prices
% change on a year earlier
30
Pork
20
10
Overall
+
0
–
10
2014
15
16
Source: Haver Analytics

When pigs fly: Chinese inflation

- Pork prices, up by nearly 30% in the past year, have accounted for a quarter of inflation.
- China’s hog farms have not kept up with soaring demand. The government last week dipped into its strategic pork reserves to satiate its people.
- It has also given subsidies to farmers, though many now produce more profitable cash crops.
- So, pigs can fly after all. But can policymakers get them to land?

Outline

- CBD and agglomeration economies
- Spillover effects and industry location
  Urbanization in comparison
- Cost of excessive concentration

Central Business District (CBD)

- CBD refers to the commercial center of a large city
- CBDs are anything but static.
- Within the city, central office functions, since they require frequent contact between firms, will exert a mutual attraction.
- Firms will locate close together rather occupying scattered sites.

If firms can 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.
- Reilly’s law: The law of **retail gravitation** suggests that people are generally attracted to the largest shopping center in the area.
- Central Embassy vs M- Distric shopping areas

Retail therapy for mall rats

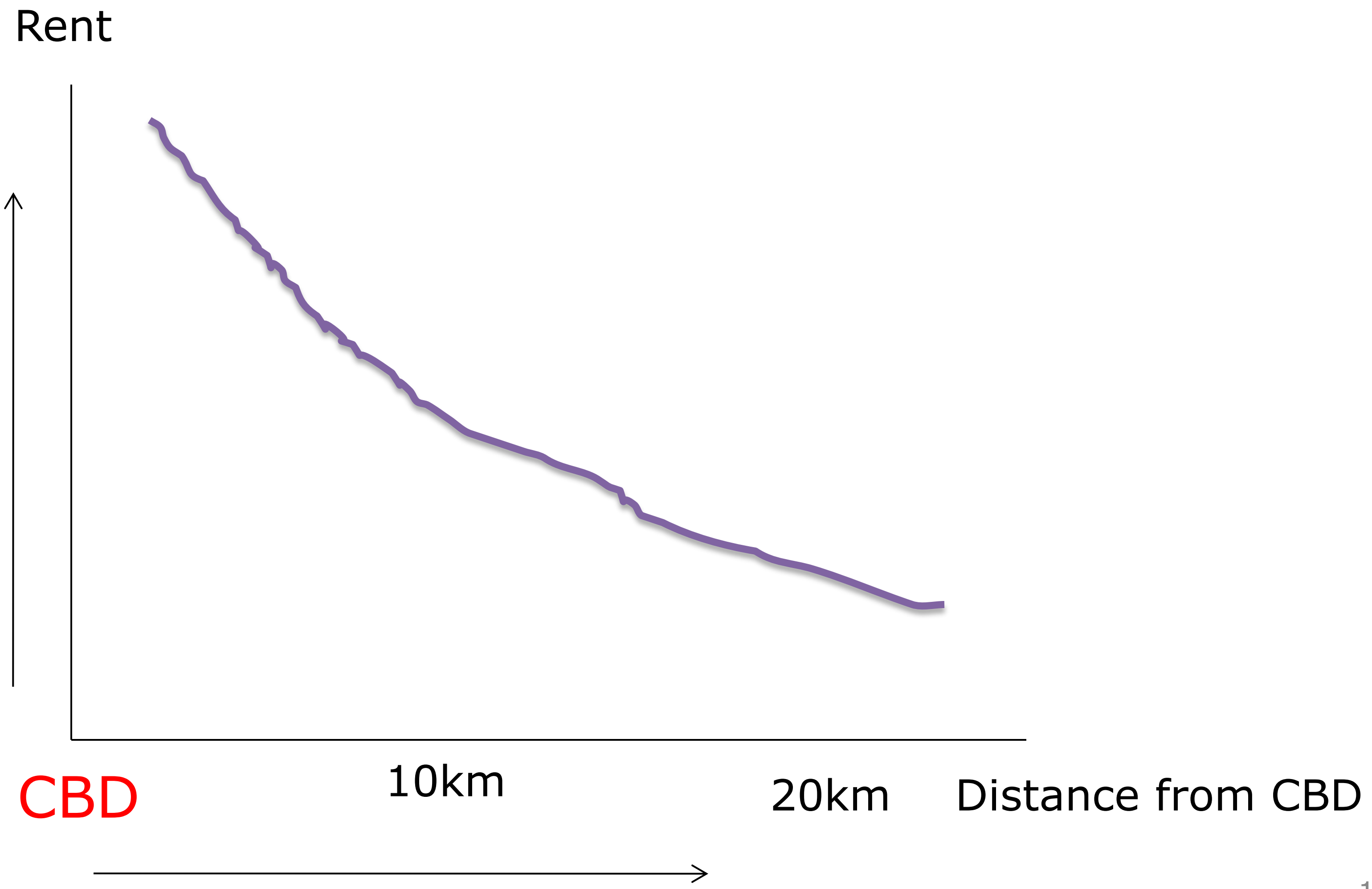
- Non-traded sector
- Private health care services and hospital stock prices
- Shopping malls and the service sector
- Employment-generating sector

Rent will increase with proximity to the center because:

(1) Transportation and communication costs will be decreasing and

(2) Sales will be increasing as distance from the center diminishes.

Rent Gradient



Changing rent gradients: slope and intercept shifts

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

A trade-off

- Land prices are required to decline with distance to compensate for higher transportation costs, as individual moves away from the CBD.
- The individual can acquire a larger piece of land in compensation for less convenient access to the CBD.
- This is a trade-off relationship between access to CBD and space.

The rich and the poor

- The cost of commuting depends on distance.
- Wealthy families settle on large plots of relative cheap land toward the city's edge.
- Poor families tend to occupy very small portions of higher priced land near the center.
- i.e. 25 sqm condominium in Asoke
- In developing countries, there are a large number of slums in capital cities.

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 can bid higher prices than the poor for land at distance locations.

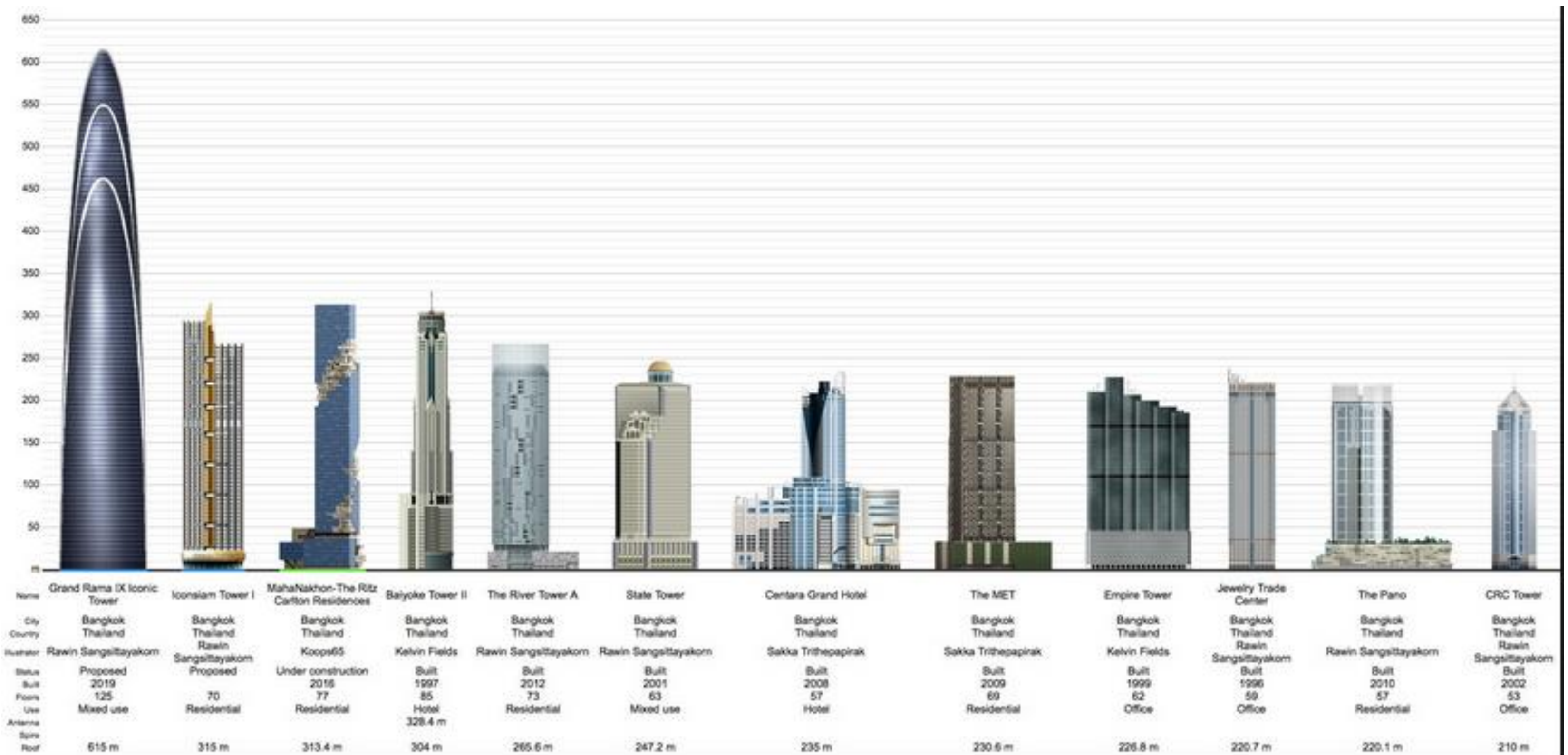
Other factors affecting land prices

- 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.

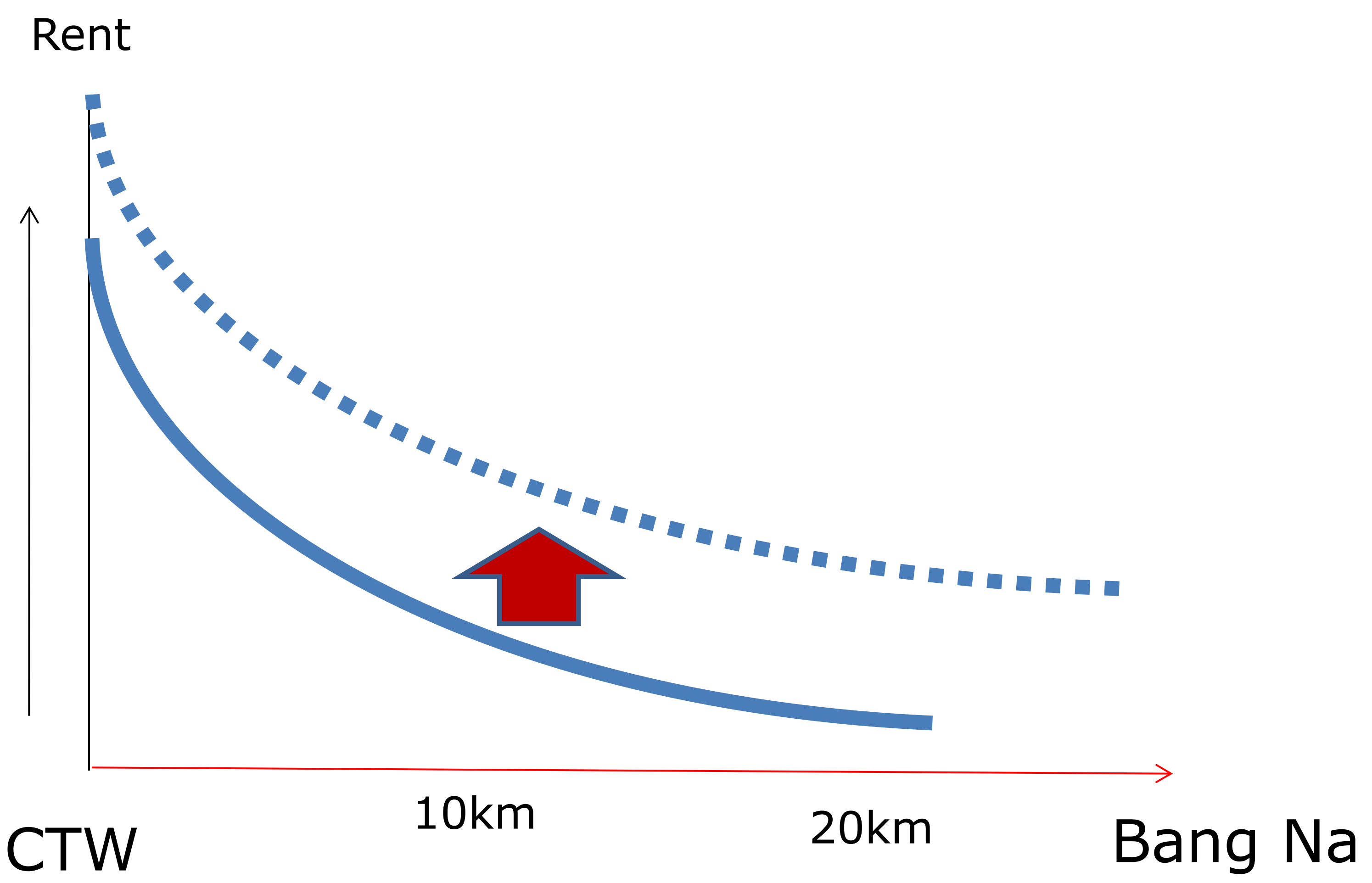
Go vertically and smaller

- As the cost of communing to CBD keeps on rising, land prices in CBD continue rising exorbitantly.
- To increase areas in CBD, buildings became taller and taller.
- Price per square meter of housing unit has increased dramatically.
- To seemingly maintain the unit price, the average size of condominium in the city has been declining, in some cases below 20 sqm.

Thailand’s sky scrapers



Changes in factor affecting land rent slope and intercept shifts



The purple Line and land price

- The prices of land along the Purple mass transit line is going up with the areas near its terminal at Tao Pun topping the rise.
- The Agency for Real Estate Affairs (AREA), a research and consultancy firm, said in its latest report that the Purple Line from Tao Pun to Bang Yai had pushed up land prices along the 23km route by almost 10% on average last year.
- The area around Tao Pun station saw the most expensive price tag with the market price of 250,000 baht per square wah last year, a 15% jump from 2014.

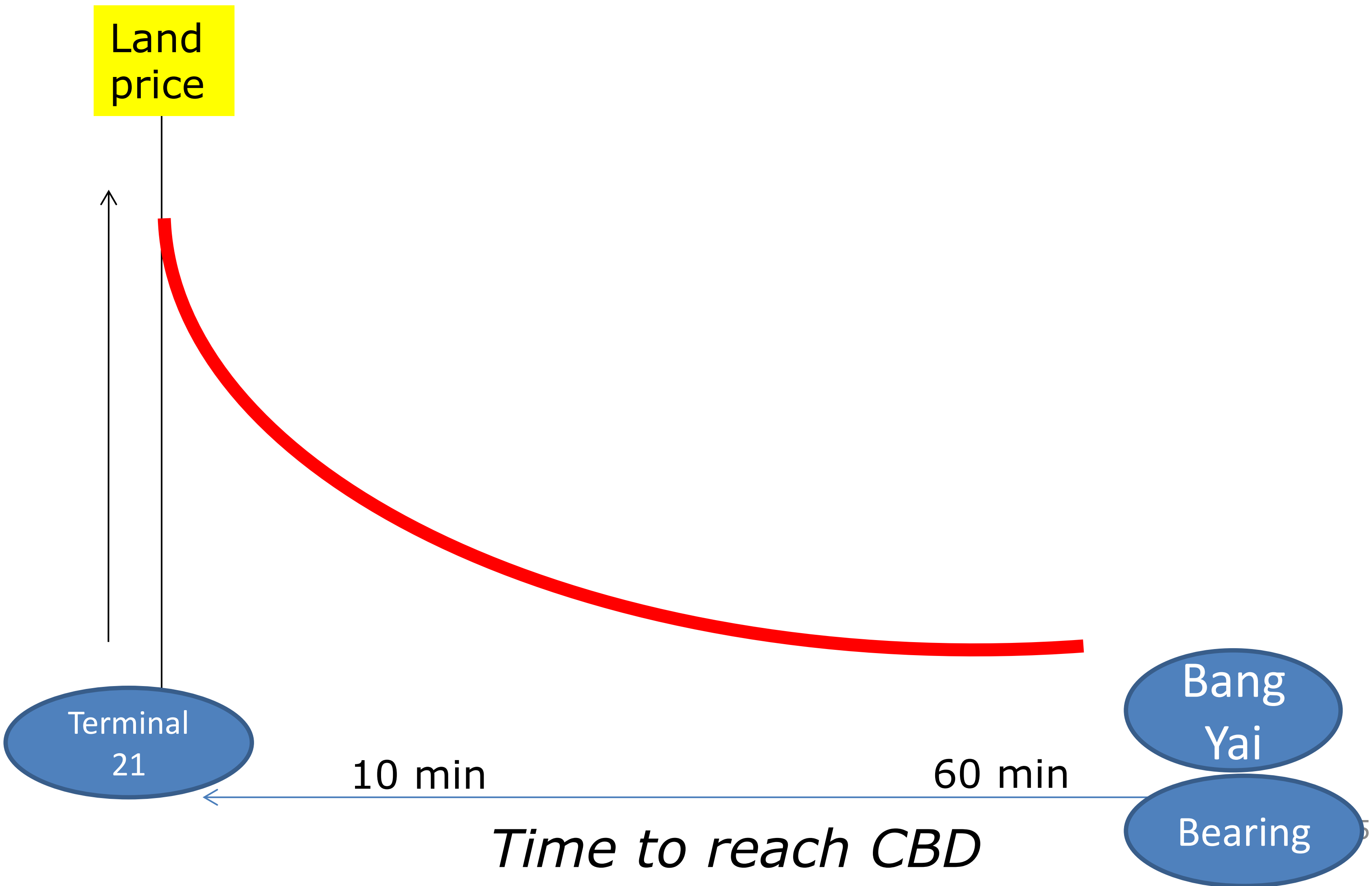
The purple Line and land price

- The cheapest plots were at the end of the line near Khlong Bang Phai station in Bang Yai district in Nonthaburi, with the average price per sq w at 85,000 baht last year, still increasing almost 10% from a year ago.
- Land prices near Bang Rak Yai station saw the smallest increase, by 8.5% to 99,000 baht per sq w.
- Property developers are building estates and condominiums on expectations that the Purple Line will lure new buyers to the areas where the train passes.

It costs 70 baht from Bang Yai to Hua Lumphong

- The Purple Line, owned by the Mass Rapid Transit Authority of Thailand (MRTA), will officially launch its service on Aug 12 this year to celebrate the birthday of Her Majesty the Queen.
- It will directly connect the underground train to Hua Lamphong if the rail link between Bang Sue of the underground train and Tao Pun of the Purple Line completes.
- Ticket prices for the Purline Line start from 14 to 42 baht.
- The MRTA will charge 70 baht for riders who go all the way from Bang Yai to Hua Lamphong.
- Buyers of condominiums along the Purple Line to should be cautious because the high commuting cost and a long distance to central Bangkok could make the locations less attractive.

Travel time to the city center



Spillover effects

- 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.***

Benefits of Spillover Effects

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

Economies of agglomeration

- Firms obtain benefits when they locate near each other.
- Economies of scale and net work effects (network externality).
- IT centers, Panthip plaza, MBK mall
- Pratunam, Platinum mall, Bo Bae tower
- K Village and J village

Economies of agglomeration

- 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.
- Even when multiple firms are in the ***same*** (competitors) cluster, there may be advantages because that cluster ***attracts*** more suppliers and customers than a single firm could alone.
- Cities form and grow 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 attract problems of crowding and congestion.
- It is this tension between economies and diseconomies that allows cities to grow, but keeps them from becoming too large.

Who need a cluster of an industry?

- Industrialization occurs *disproportionately* in urban areas because of opportunities to exploit scale economies of local agglomeration.
- In the cluster, there are scopes for local **intra-industry specialization** of plants in specific activities

Where to locate your firm

- 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.

Standardized products

- 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*.
- Urbanization economies are derived from the overall local scale of a metropolitan area.

Non-standardized products

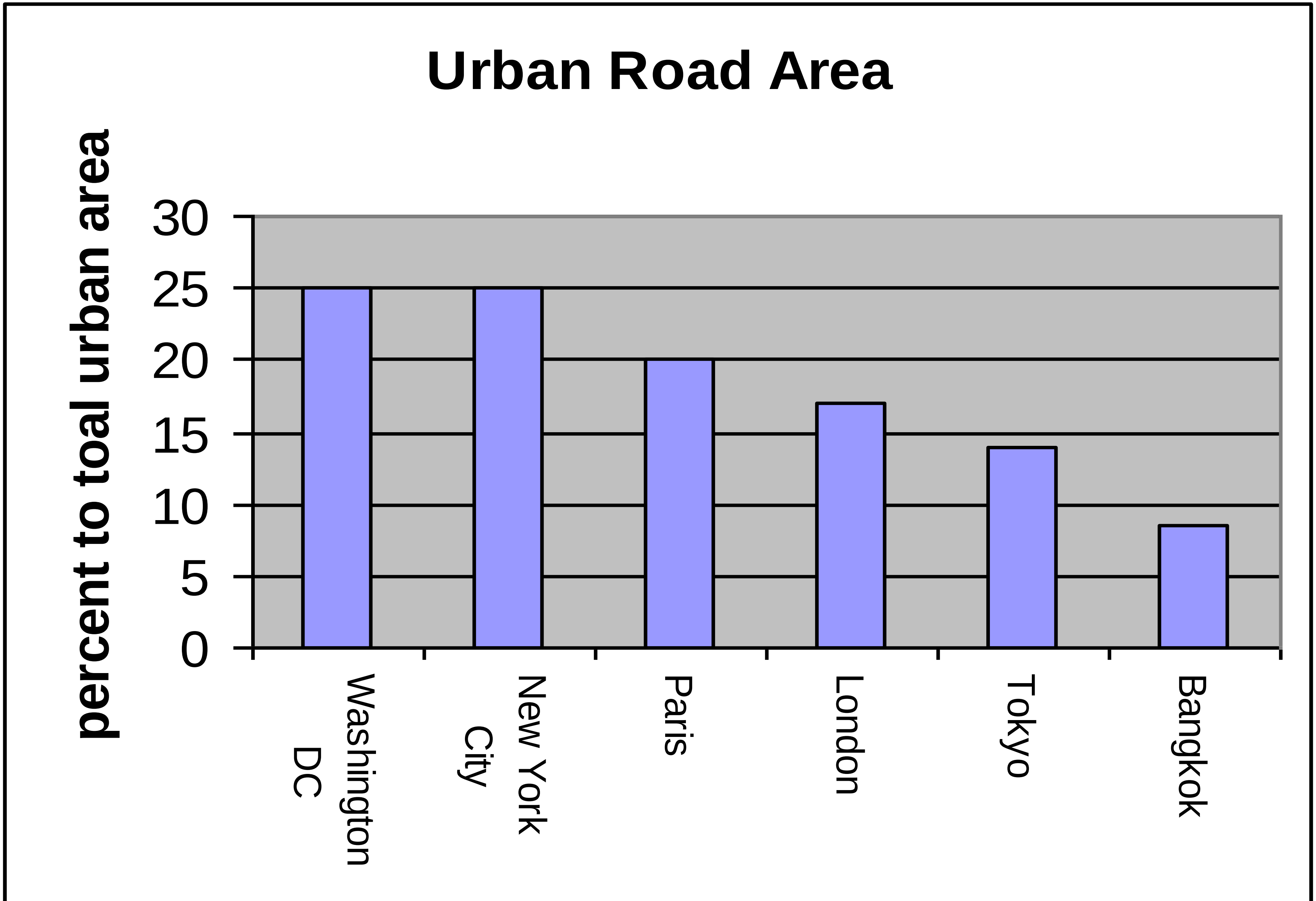
- Firms engaged in non-standardized products benefit from urbanization economies.
- The non-standardized production includes special-order machinery, **fashion apparel, entertainment services**, and publishing.
- Plants for non-standardized products need to obtain specialized services beyond their own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

Why too much concentration in mega cities

- Underdeveloped institutions for urban planning and management
- Inadequate human resources
- Externalities of congestion and pollution are relatively ***underpriced*** in megacities, relative to small cities, encouraging overpopulation in larger cities.

Consequences of heavy concentration

- Excessive concentration significantly **reduces** economic growth.
- **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.


Urban Road Area
percent to toal urban area
30
25
20
15
10
5
0
Washington DC
New York City
Paris
London
Tokyo
Bangkok

Consequences of traffic congestion

- Huge economic cost in terms of time lost and energy consumption and cost of health treatment
- Alarming levels of CO, black smoke, Hydrocarbon, noise level and particulate matter (PM) .
- Road traffic is responsible for 70% of the dust.
- The main sources of dust are diesel and motor cycle exhaust and construction sites.

Cleaner air

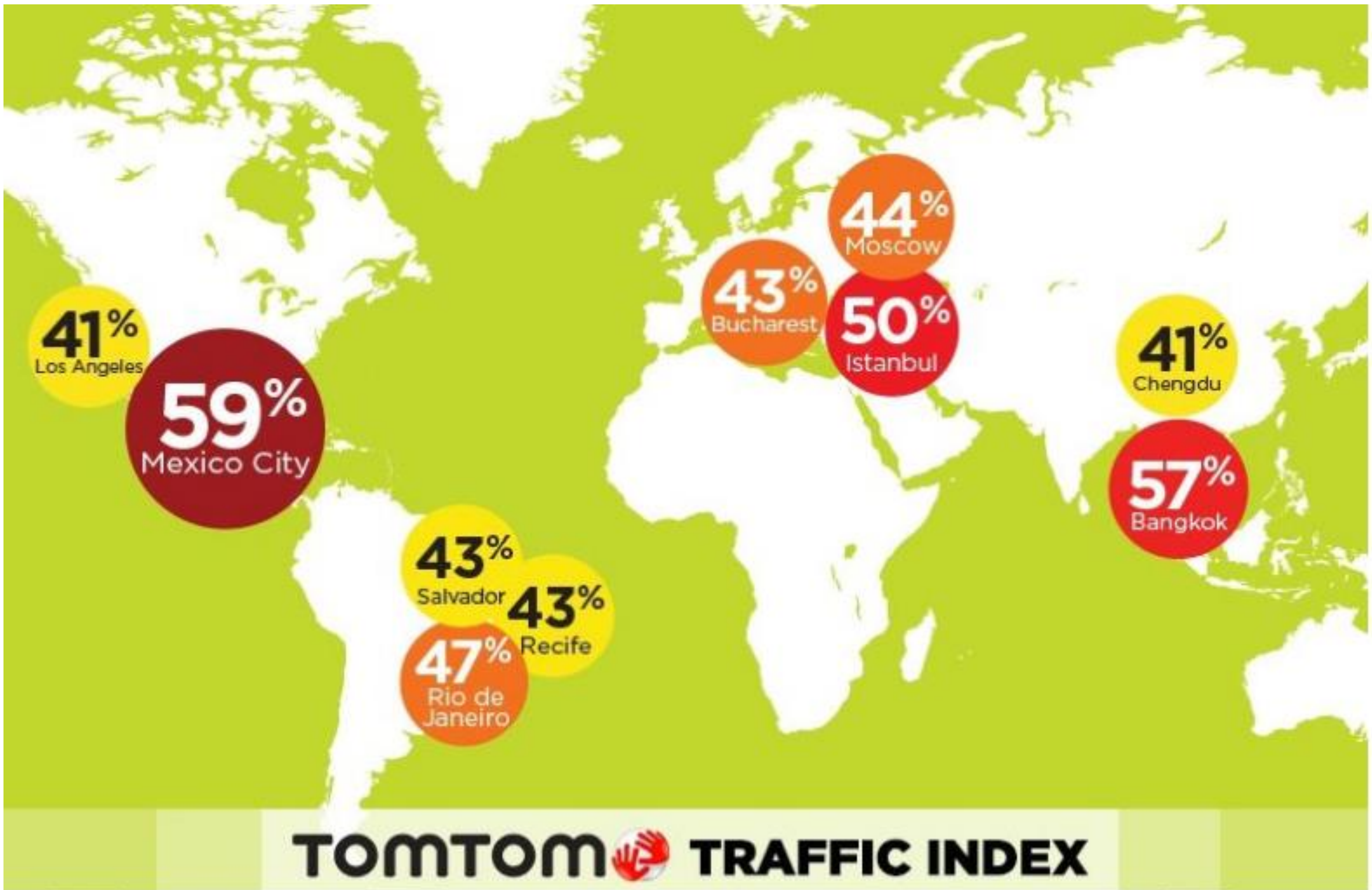
- Air quality in Thailand has improved significantly in the past decade.
- Bangkok's air quality is rated ahead of Beijing, Jakarta, New Delhi and Manila, according to World Bank Environment Monitor (73 air monitoring stations across Thailand).
- Bangkok still trails Hong Kong, Singapore Taipei and Tokyo.
- Lead, dust and carbon monoxide in Bangkok and urban areas had decreased to an acceptable level.

Further costs of excessive concentration

- Traffic accidents
- Health costs from exposure to high level of air and water pollution
- Contamination of ground water
- Gastrointestinal and infectious diseases
- Poor air quality
- Time lost due to long commutes

The Dutch navigation firm measured traffic congestion in 295 cities across 38 countries in the world to compile the rankings

(Extra travel time)



TomTom Traffic Index 2016

From 85% in the morning to 114 % in the evening

- Drivers in Bangkok spend on average 57 per cent extra travel time stuck in traffic at any time of the day, according to the TTTI 2016, which takes data from last year.
- It gets worse in the mornings, when Bangkok drivers spend up to 85 per cent extra time in traffic, while in the evening peak period that slows even further to 114 per cent.
- Bangkok was pipped to the top spot by the Mexican capital, where drivers spend 59 per cent extra travel time in traffic. Next was Istanbul (50 per cent), followed by Rio de Janeiro (47 per cent) and Moscow (44 per cent).

What are PM10 and where from?

- particulate matter (PM): Smaller than 10 microns or 1/7 of the thickness of a human hair.
- PM10 come from motor vehicles, slash-and-burn farming, waste burning, forest fires, heavy industries, and dust from construction sites
- PM 10 is among the most harmful of air pollutants, When inhaled, these particles lodge deep in the longs and can cause many kinds of repertory illness

Source: Pollution Control Department

PM 2.5

- The effects of inhaling particulate matter that have been widely studied in humans and animals include asthma, lung cancer, cardiovascular disease, respiratory diseases, premature delivery, birth defects, and premature death.
- The World Health Organization (WHO) estimated in 2005 that "Fine particulate air pollution (PM2.5), causes about 3% of mortality from cardiopulmonary disease, about 5% of mortality from cancer of the trachea, bronchus, and lung, and about 1% of mortality from acute respiratory infections in children under 5 years, worldwide
- Short-term exposure at elevated concentrations can significantly contribute to heart disease. A 2011 study concluded that traffic exhaust is the single most serious preventable cause of heart attack in the general public, the cause of 7.4% of all attacks

BANGKOK DANGEROUS

Areas with excessive levels of pollution.

Benzene*

- Chulalongkorn Hospital
- Chokechai Si Road
- Din Daeng community
- Bansomdejchaopraya Rajabhat University, Thon Buri district

Small dust particles

- Rama IV, Rama VI, Phahon Yothin roads
- Din Daeng area

Noise level:

- Lat Phrao Road
- Tri Phet Road

***Note:** Benzene is a chemical used in manufacturing. It is also present in petrol and tobacco smoke. Contact with low to moderate levels of benzene over a short time can cause headaches, vomiting, disorientation, shakiness, elevated heart rate and loss of consciousness.

Source: Department of Pollution Control and www.benzenefyi.com

POSTgraphics

How to alleviate urban concentration

- Investment in interregional transport and telecommunications to facilitate de-concentration of industry.
- The government creates investment promotional zoning to attract investors to rural areas.
- Fiscal de-concentration: small cities can raise fiscal resources and provide services need to compete with primate cities for industry and population.

Noise pollution (even in the BTS)

- Maximum permissible level of noise was at 70 decibel.
- When exposing yourself to noise, think of three things: How loud, how long, and how close?
- A normal conversation is about 60db.
- Noise that is Louder than 85db may damage your ears.
- Repeated exposure to noise-emitting machines and engines such as motorcycles can erode hearing more slowly but result in irrecoverable damaged ears.

As much as possible, avoid loud people

- Children become **aggressive** as their parents shout at one another.
- It inadvertently breeds a society full of aggressive people who cannot communicate with one another.
- Some even become suicidal, having suffered from persistent ringing in their ears.
- 21.4 % of Bangkok's population who lived along side the roads suffered from sensory neural hearing loss

Avoid loud people

- In 1990, 13.6% of the Thai population had some form of hearing disability,3.9% of students in Bangkok, 6.1% of students in rural areas had hearing problem.
- Environmental noise pollution is a threat to health and well being. More severe and wider spread because of population growth, urbanization, and the use of increasingly powerful and highly mobile sources of noise: A modern Plague

Summary

- Business cycles are related to booms and bust 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.

Summary

- 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. The inflation rate in April 2010 was contained at 3 % (year-on-year); inflation targeting strategy is effective in Thailand.

State whether you agree or disagree with the following statement.
Provide brief reasons

4. Wider interest spreads of small commercial banks in Thailand indicate that they were less efficient and experienced lower profits than larger banks.

5. An proper exchange rate policy should aim at maintaining the stability of the bath-dollar exchange rate to avoid excessive foreign exchange risk 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.

State whether you agree or disagree with the following statement.
Provide brief reasons

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 Thai land’s international competitiveness.