

# EE460: Thai Economy

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Urbanization and  
environment

Bhanupong

Lecture 31

# Outline

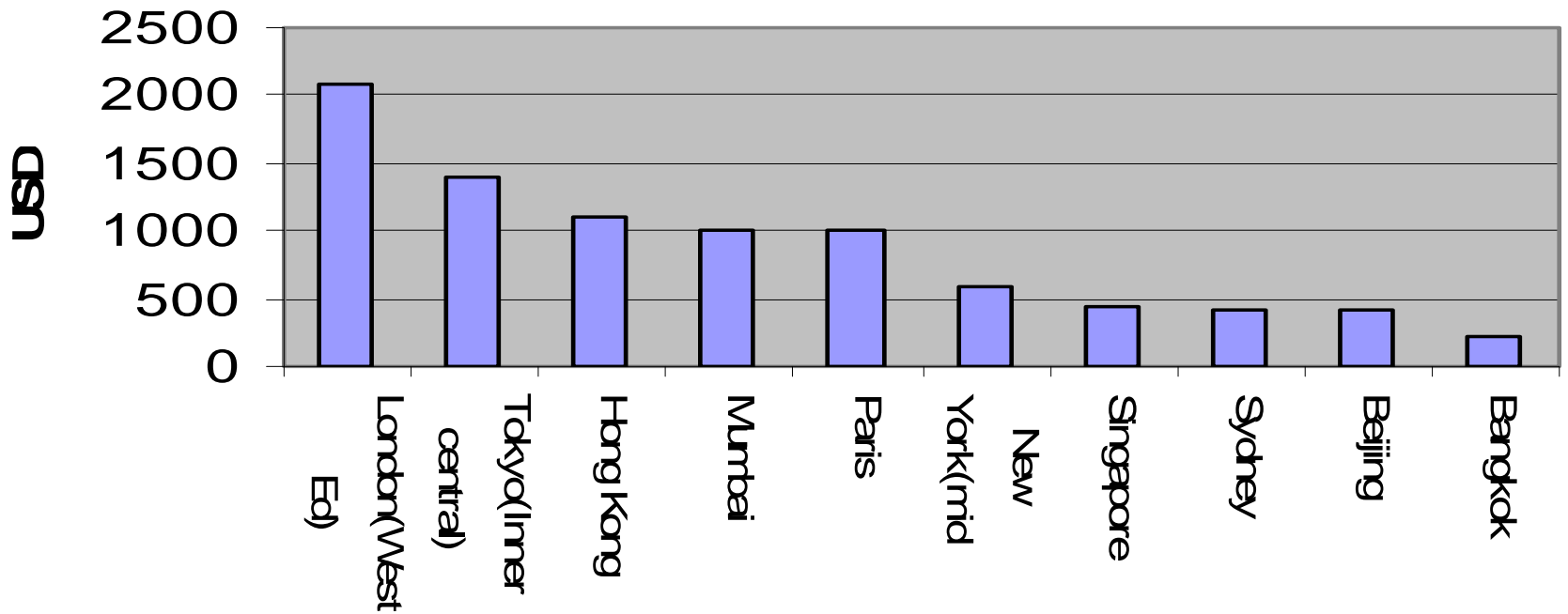
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- CBD and agglomeration economies
- Spillover effects and location of industry
- Urbanization in comparison
- Cost of excessive concentration

# The most expensive cities in the world to set up an office

## Office occupancy cost

Total annual rent, taxes, and operating expenses  
(May 2006)



# London West End tops global office rent league-data

May2010

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- London's West End, a preferred home for many hedge funds, media occupiers and government bodies, was named the world's most expensive office market in CB Richard Ellis's Global Office Rents survey, with annual rents of **\$182.94** per square foot.
- By comparison, occupiers in New York's Midtown -- North America's most costly office market -- pay average rents of **\$64.51** per square foot, according to CBRE.

# Central Business District (CBD)

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- 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,

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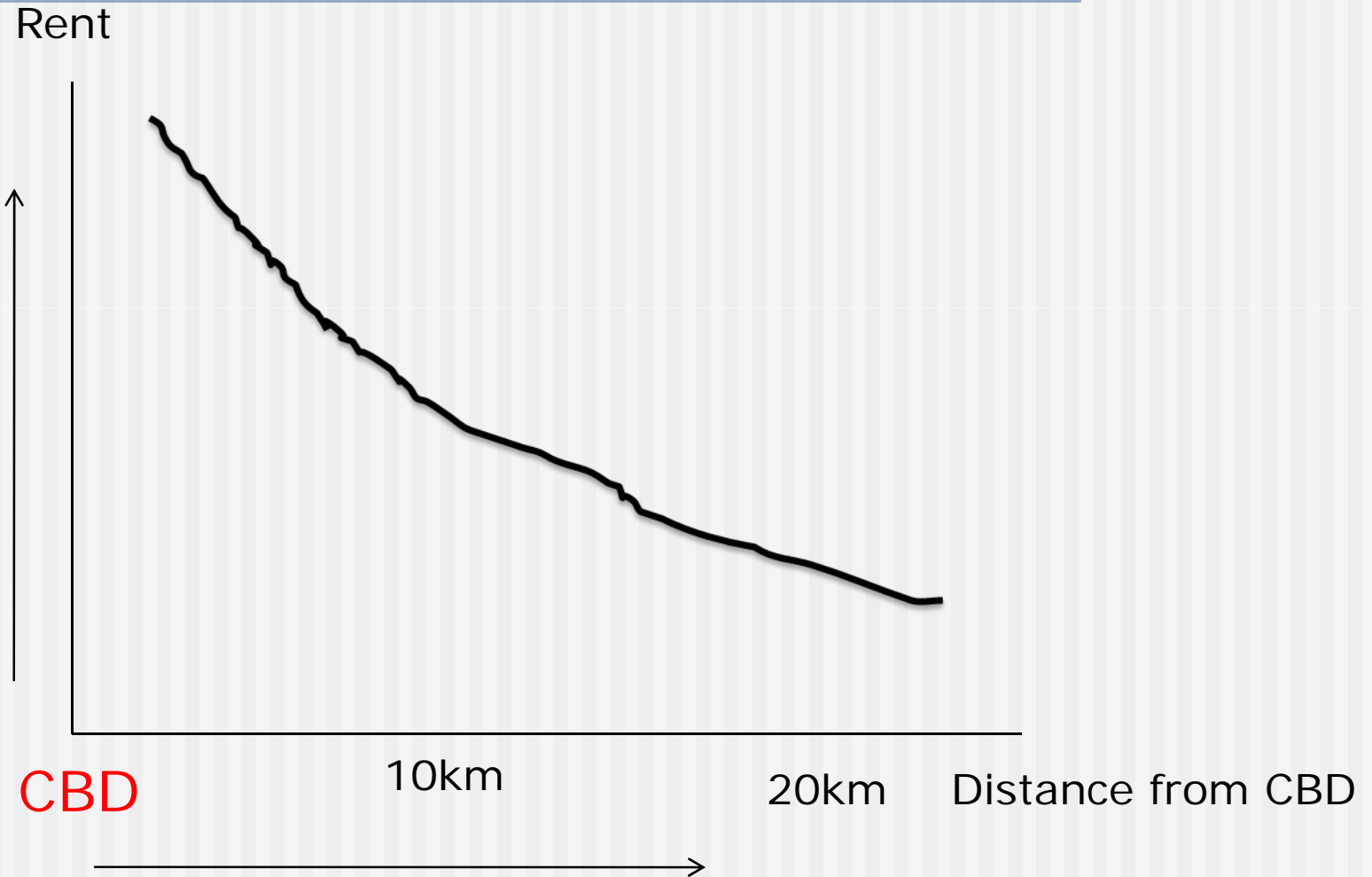
- The closer each firm to the CBD, the less costly to it in time and transportation cost in maintaining contact with each other.
- Thus a location near the CBD will reduce the firm's own costs and other costs of maintaining contact with that firm.
- Reilly's law: The law of **retail gravitation** suggests that people are generally attracted to the largest shopping center in the area.

Rent will increase with proximity to the center because:

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- (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

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- Inflation
- Transportation cost
- Traffic jam
- New infrastructure
- De-concentration

# A trade-off

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- 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

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

# Where do you live?

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- 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

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- 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.

# Economies of agglomeration

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- Firms obtain benefits when they locate near each other.
- Economies of scale and net work effects (network externality).

# Economies of agglomeration

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- 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.

# Diseconomies of agglomeration

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- 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.

# Spillover effects

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

# Who need a cluster of an industry?

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- 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

# Benefits of Spillover Effects

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- Increased diversity of local suppliers to local export 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.

# Where to locate your firm

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- 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

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- 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

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- Plants engaged in non-standardized products benefit from urbanization economies.
- The non-standardized production includes special-order machinery, **fashion apparel, entertainment services,** 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

# Causes of concentration in mega cities

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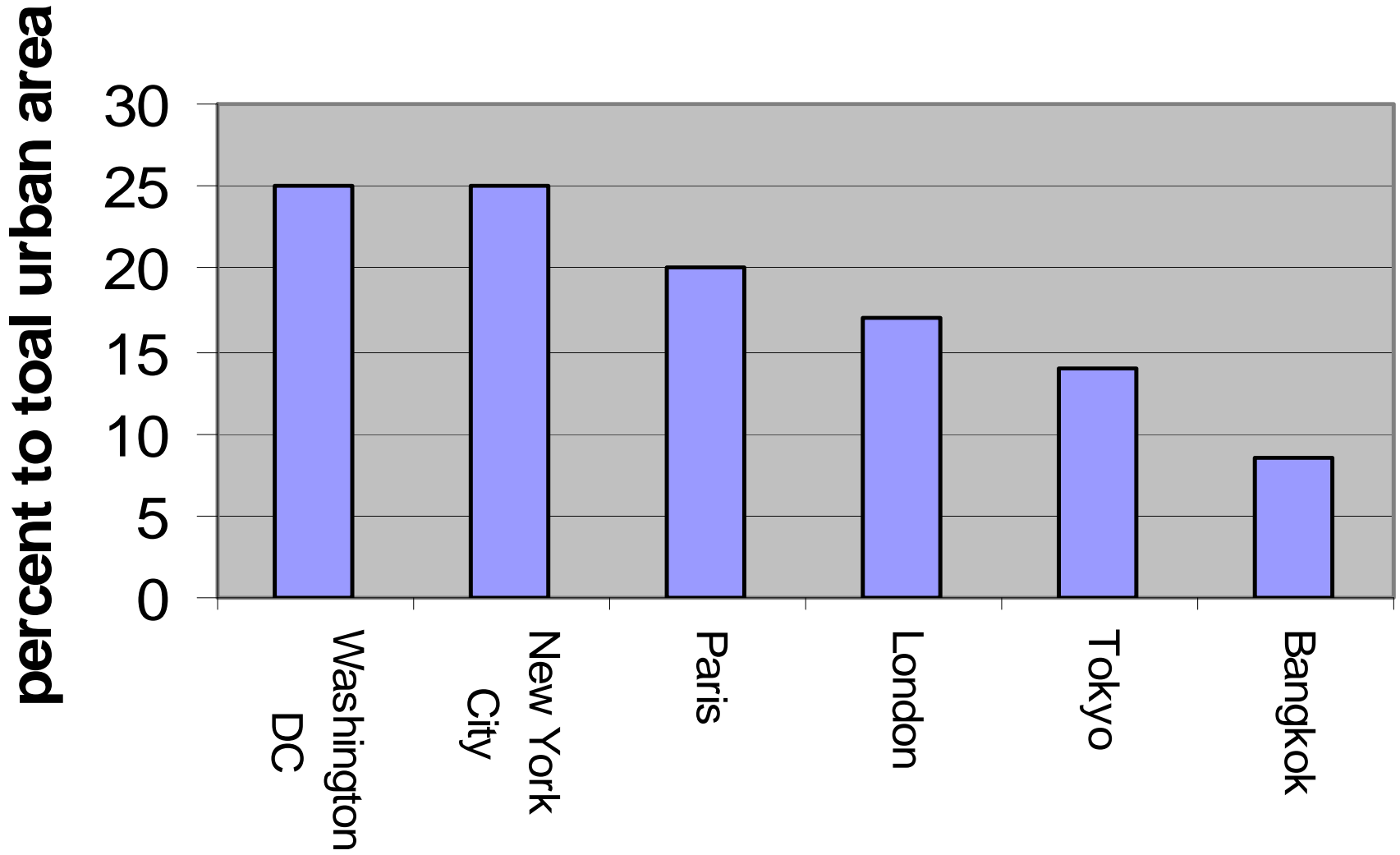
- Underdeveloped institutions for urban planning and management
- Inadequate human resources
- Externalities of congestion and pollution are relatively underpriced in megacities relative to small cities, encouraging overpopulation in larger cities.

# Cost of concentration

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- Excessive concentration significantly **reduces** economic growth.
- **Growth losses** in countries with excessive primacy may be as great as those resulting from significantly deficient human and physical capital investment.
- Wage, 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



# Consequences of traffic congestion

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- Huge economic cost
- Alarming levels of CO, black smoke, Hydrocarbon, noise level and SPM.
- Road traffic is responsible for **70%** of the dust.
- The main sources of dust are diesel and motor cycle exhaust and construction sites.

# Undertaken measures

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- The reduction of the lead concentration in gasoline from 0.84 to 0.45 g/l in 1984, 0.15 g/l in 1996.
- 1993: New cars must be installed with catalytic converters which can only be used with unleaded gasoline.
- Premium unleaded gasoline was introduced in 1991 and absolutely unleaded gasoline in 1996.
- January 2007: large vehicles with diesel engines must meet European Emission Standards on CO(4.5), HC(1.1), NOx(8) and PM(0.3)

# Policy outcome

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- After the move from leaded to unleaded gasoline, and the introduction of premium unleaded gasoline, ***ambient lead*** levels in 2001 were more than 20 times lower than 1991 levels.
- A new law in 2004 requires lower sulfur content in gasoline.
- Tax incentives are given to lower-sulfur diesel (ULSD) for 150-ppm sulfur fuels as a first step toward ultra-low 50-ppm sulfur ULSD, in line with European emission control levels.

# Cleaner air

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- 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

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- 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 to long commutes

# Dusty Attack

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- Areas with the highest levels of dust particles, (PM10), measured on March 25, 2008
  - Mae Hong Son 134
  - Phuping Palance, Chiang Mai 119.6
  - Chiang Rai 102
  - Saraburi 98
  - Yupparat school, Chiang Mai 86.2
- Maximum permissible: 120ug/cu m.

# What are they and where from?

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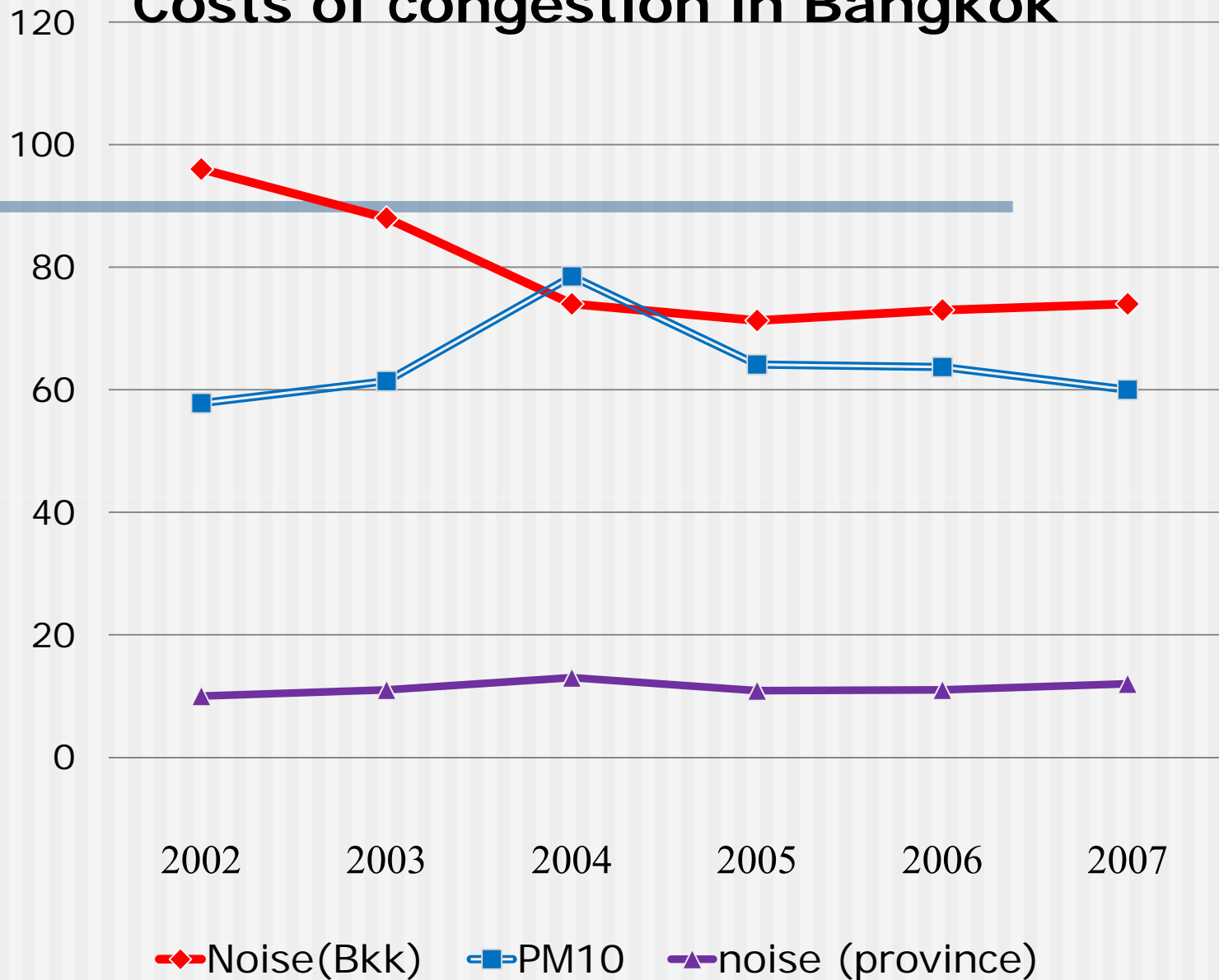
- Smaller than 10 microns or 1/7 of the thickness of a human hair.
- PM10 come from motor vehicles, slash-and-burn farming, waste burning, forest fires, heavy industries, and dust from construction sites
- PM 10 is among the most harmful of air pollutants, When inhaled, these particles lodge deep in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

# How to alleviate urban concentration

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- 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.

# Costs of congestion in Bangkok



# Noise pollution: not more than 70db

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- **Maximum permissible** level of noise was at **70 decibel**.
- The average noise level along the streets in Bangkok in 2002 on the average of 24 hours was in the range **65 to 84 decibel**.
- At the 22 July Circle, 99 % of the data collected exceeded the maximum 70 decibel.

# Irrevocable damages

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- When exposing yourself to noise, think of three things: How loud, how long, and how close?
- A normal conversation is about 60db. 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.
- Children become **aggressive** as their parents shut 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.

# A modern plague

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- 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.
- WHO survey in Bangkok 10 years ago indicates:
- 21.4 % of Bangkok's population who lived along side the roads suffered from sensory neural hearing loss
- 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.
- [www.geocities.com/quietbangkok](http://www.geocities.com/quietbangkok)
- [www.nonoise.org](http://www.nonoise.org)

# Summary

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- 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

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- 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.

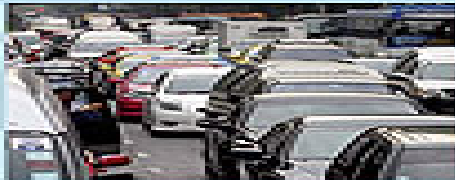
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- Judging from the benzene levels, the quality of air in Bangkok is no different from that of Map Ta Phut industrial estate," Pollution Control Department (PCD)

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- Medical studies have tied long-term benzene exposure to the onset of cancer and anaemia.
  - Benzene exposure is most dangerous when it occurs over a long period of time or when the concentrations are very high.

# 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](http://www.benzenefyi.com)

POSTgraphics



State whether you agree or disagree with the following statement.

Provide brief reasons

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1. Despite high rent, 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

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4. Wider interest spreads of small commercial banks in Thailand indicate that they are less efficient and tend to have lower profits than larger banks.
5. The 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 the export sector.
6. Other things equal, political violence in 2010 would reduce a long-term output path of Thailand.
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

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8. The sharp rebound of manufactured exports in the first quarter of 2010 underscores the increasing competitiveness of Thailand's manufacturing sector.
9. As the oil price tends to go up in 2010 due to world economy recovery, it is likely that income inequality in Thailand would be worsened.
10. Both Baumal-Bowen cost disease and the Dutch disease had dissimilar impacts on the Thailand's international competitiveness.