Tokyo, Japan 2004, Oct 15

Keynote Lecture

Direction of Japanese Regional Development Policy in Eastern Asia

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Contents of the Presentation

1. History of Infrastructure Development in Japan
2. Regional Disparity
3. Economic Activities in the Eastern Asia
4. Reform of Regional Structure in Japan
5. Missions of Transportation Experts

1. History of Infrastructure Development in Japan

Main Objectives in Japan after the World War II

① Respond to the Increasing Demand

② Prevent Disasters

③ Improve Economic Efficiency

④ Harmonize with Environment

⑤ Improve Regional Disparity

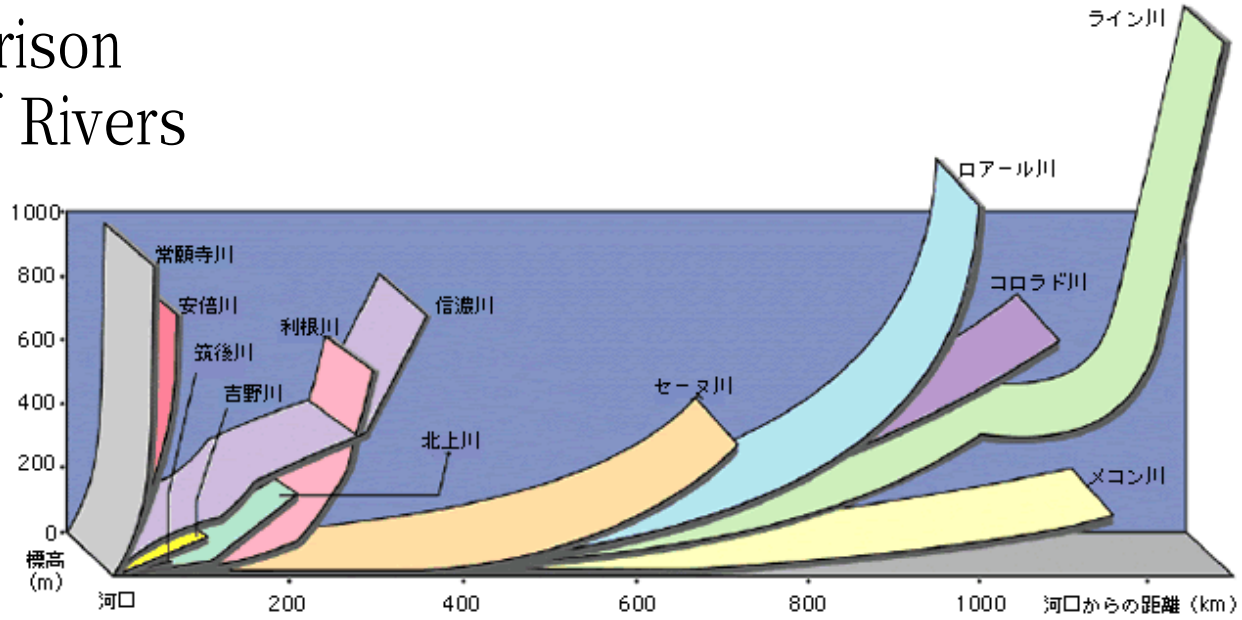
Road Conditions in Japan after the World War II

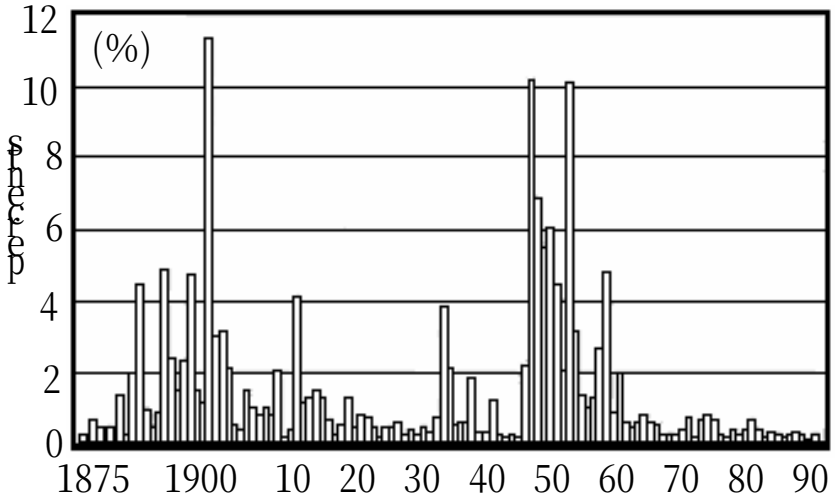
1950's

1960's

Rivers and Flood Damage in Japan

International Comparison between Gradient of Rivers





Flood Damage Cost / GDP

year

Post War Growth Scenario : First 20 years (1945 - 1965)

- Pprohibition of Port Improvement by GHQ
- Plan of Coastal Industrial Zone Projects
- Production Base on the Edge of the Fareast

Yokohama Port

16 m berth Plan
(Yokohama)

Osaka Port

From Mid-1960s to Mid-1980s

BOT（Build - Operate -Transfer） by Government

Infrastructure Development by Fiscal Investment and Loan etc.

Era of Changing Regional Structure through Infrastructure Development

Expanding Market of Agriculture and Fishery

Promoting Manufacturing and Tourism

Revolutionizing distribution logistics

After Plaza Accord (1985)

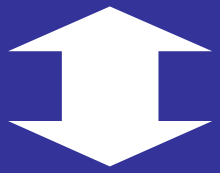
- Manufacturing Function Shifting toward Overseas
- Regional Economy depending on Public Investment

Exploring Appropriate Regional Development Scenario

(U.S., E.U. and Developing Countries)

・Various Scenarios with Risks

・Selection Considering Diverse Opinion/Discussion



Simple Scenario for Regional Development
(Japan)

Changing Approach of Infrastructure Development

Era of Project-based Approach

Era of Sector-based Approach

Era of Regional Development-based Approach

2. Regional Disparity

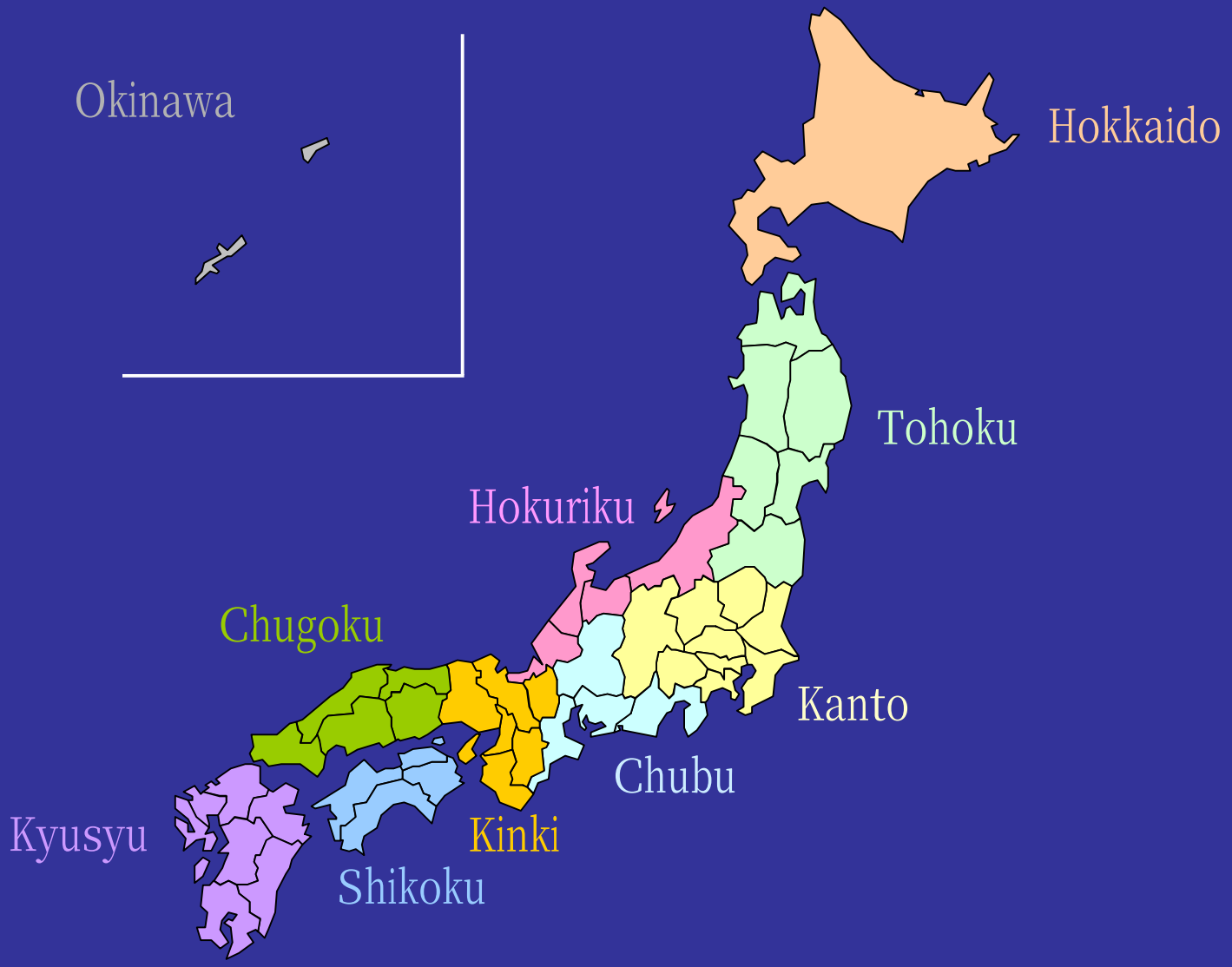
Depopulation Problems

Population Concentration to 3 Metropolitan Areas

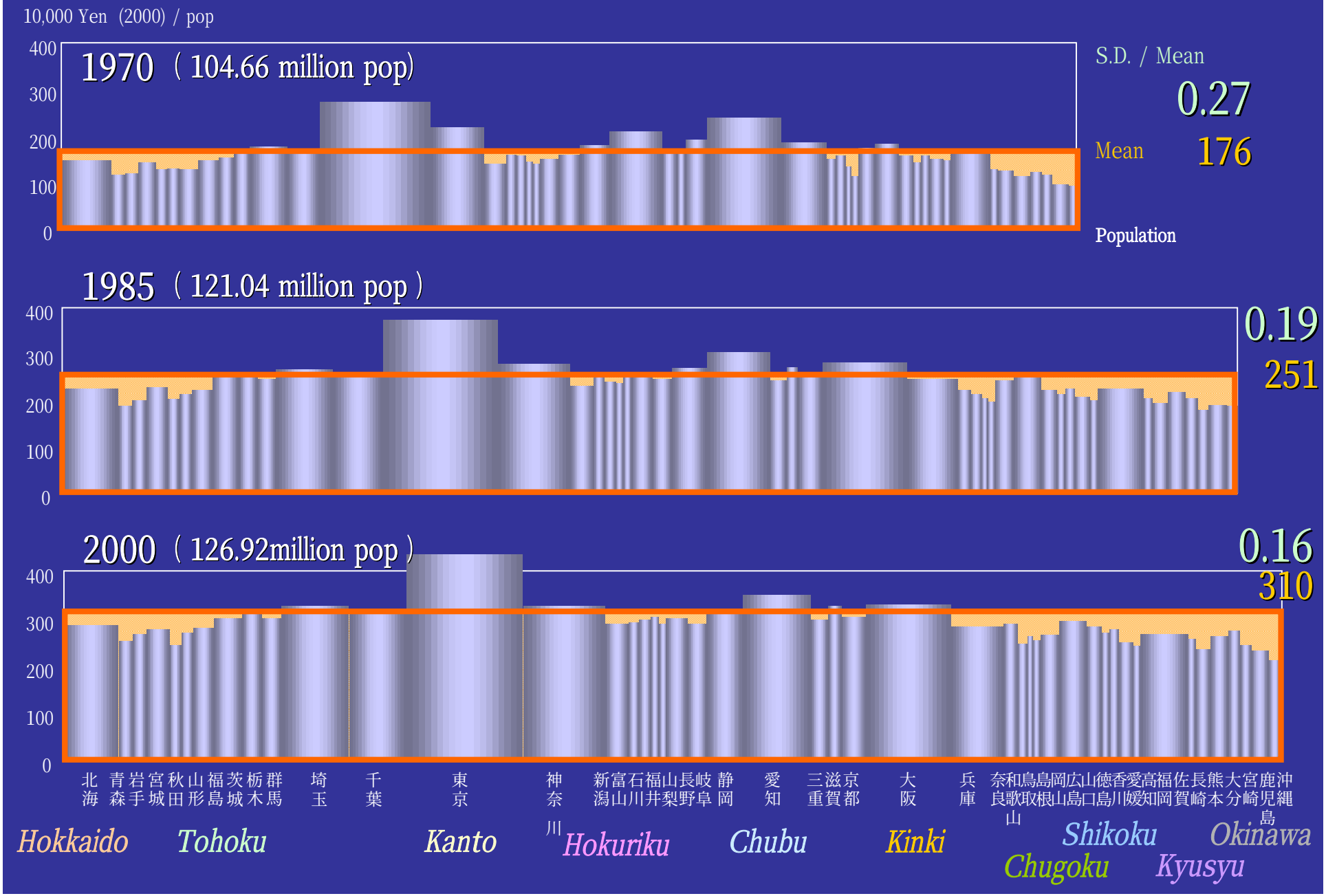
Regional Income Disparity

Infrastructure Development

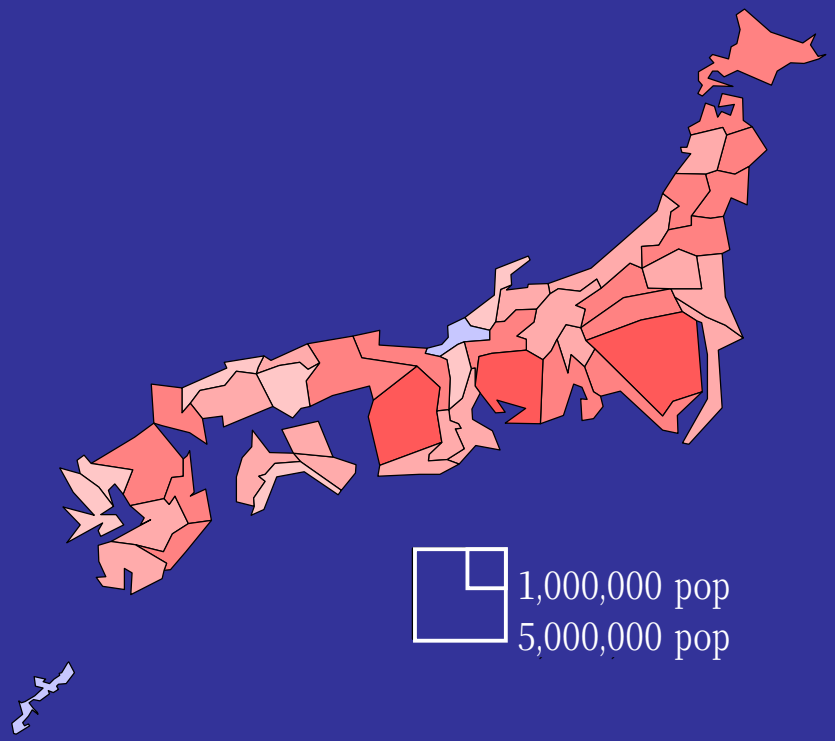
Regional Blocks



GRP per Capita of Municipalities



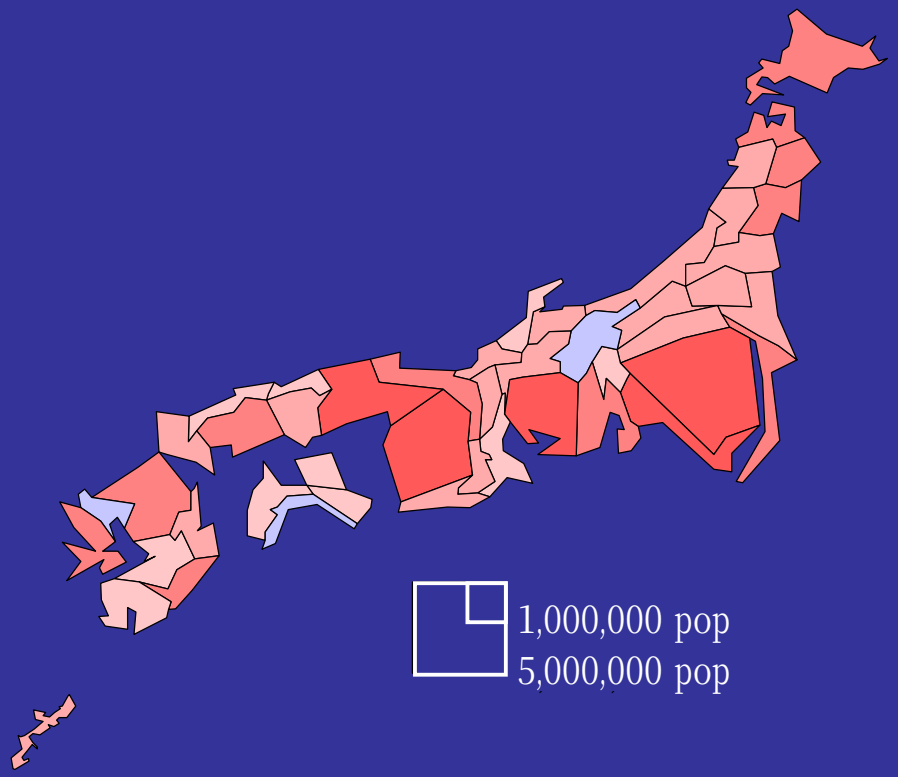
Population (1925)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
1.0 ~	2.0
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

Population (1935)



population growth rate (%/year)

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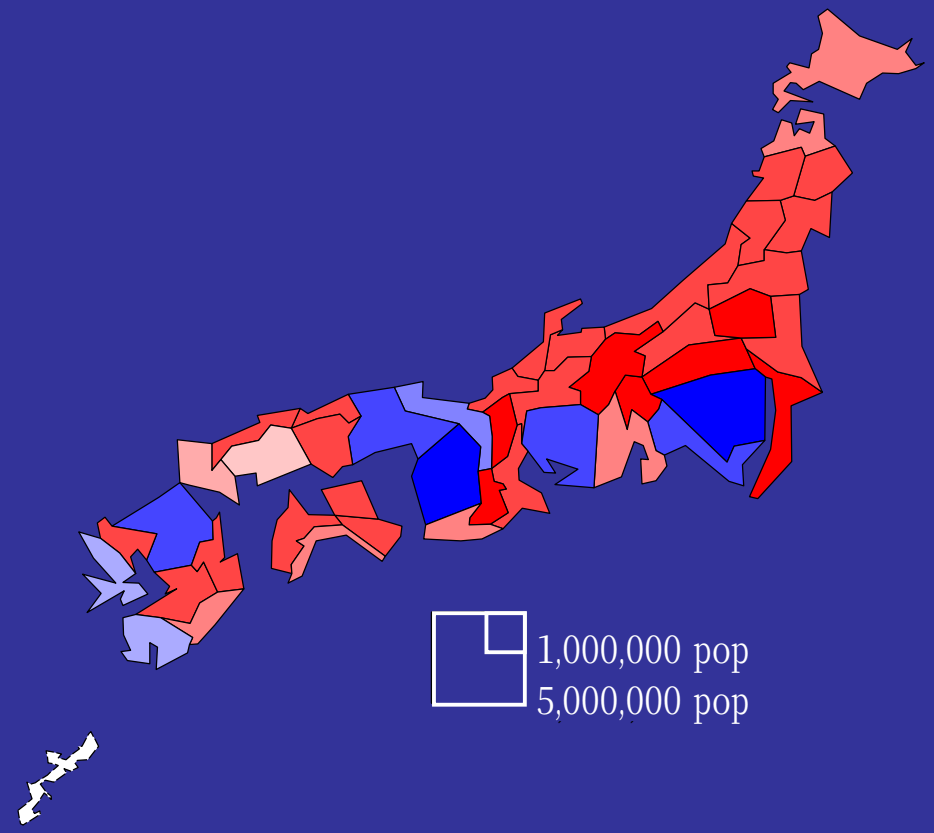
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

Population (1945)



population growth rate (%/year)

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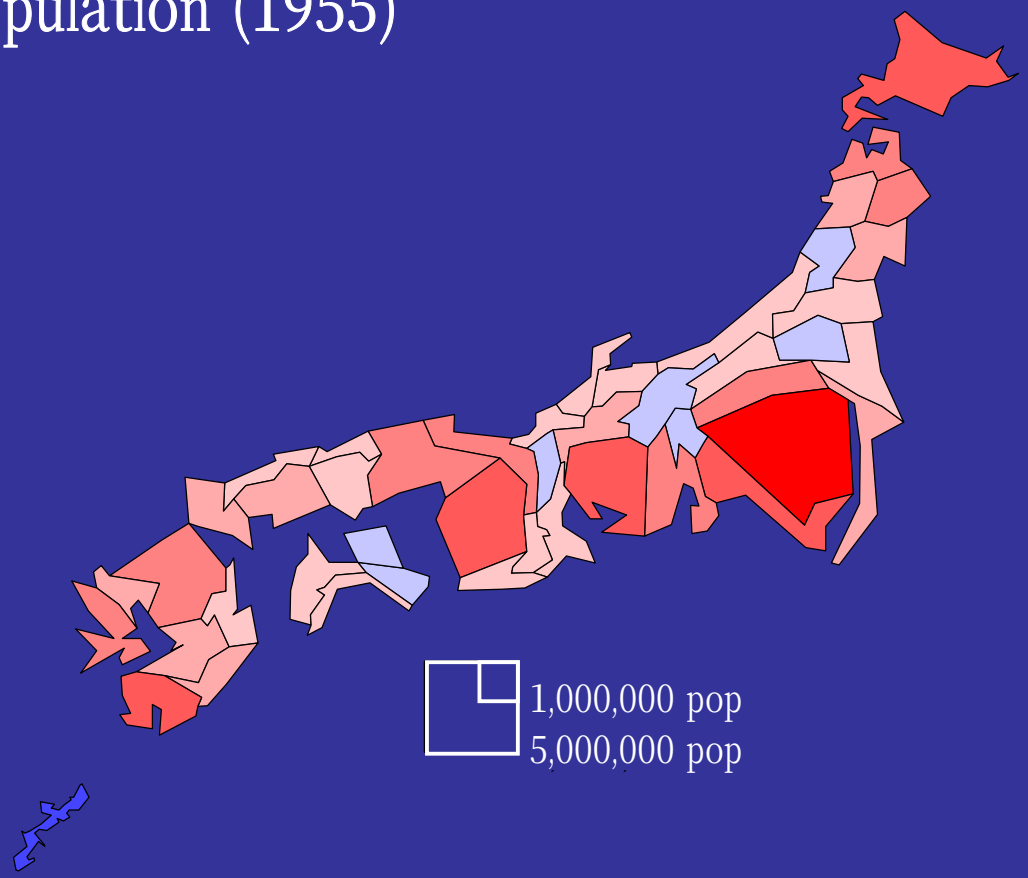
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

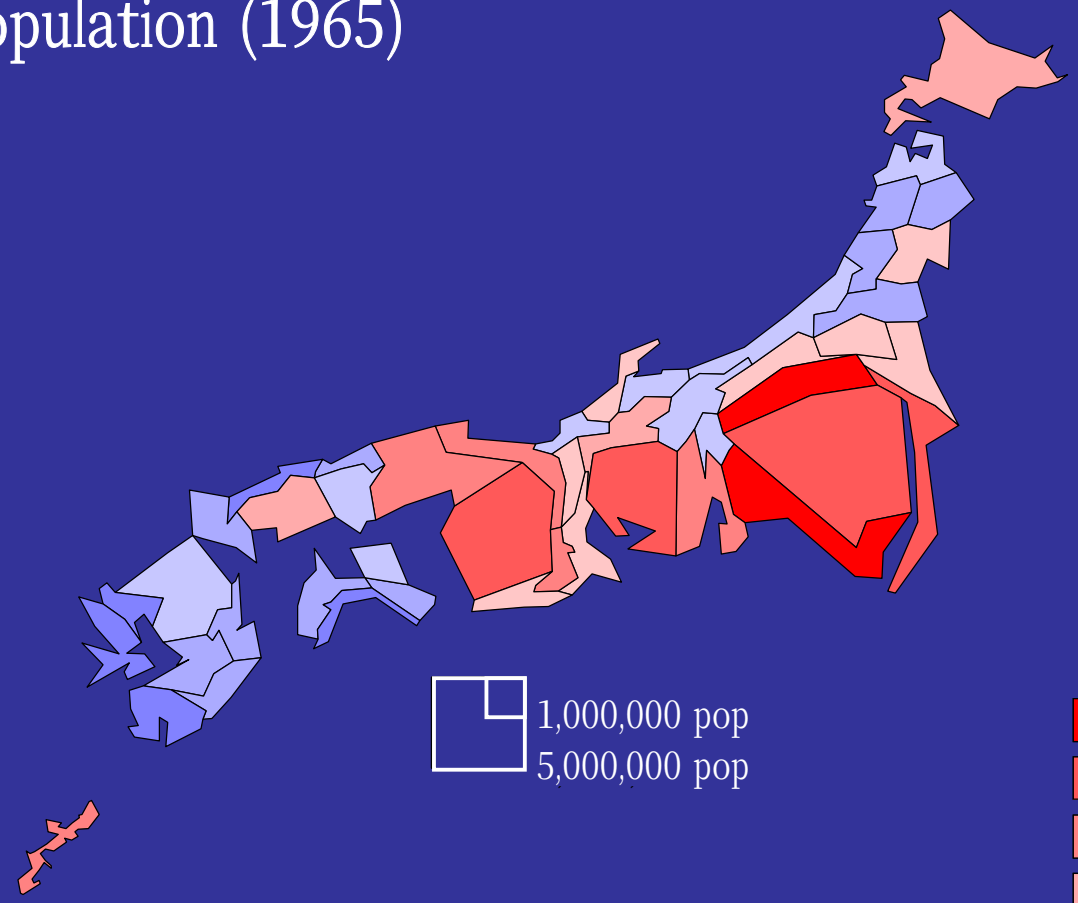
Population (1955)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
1.0 ~	2.0
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

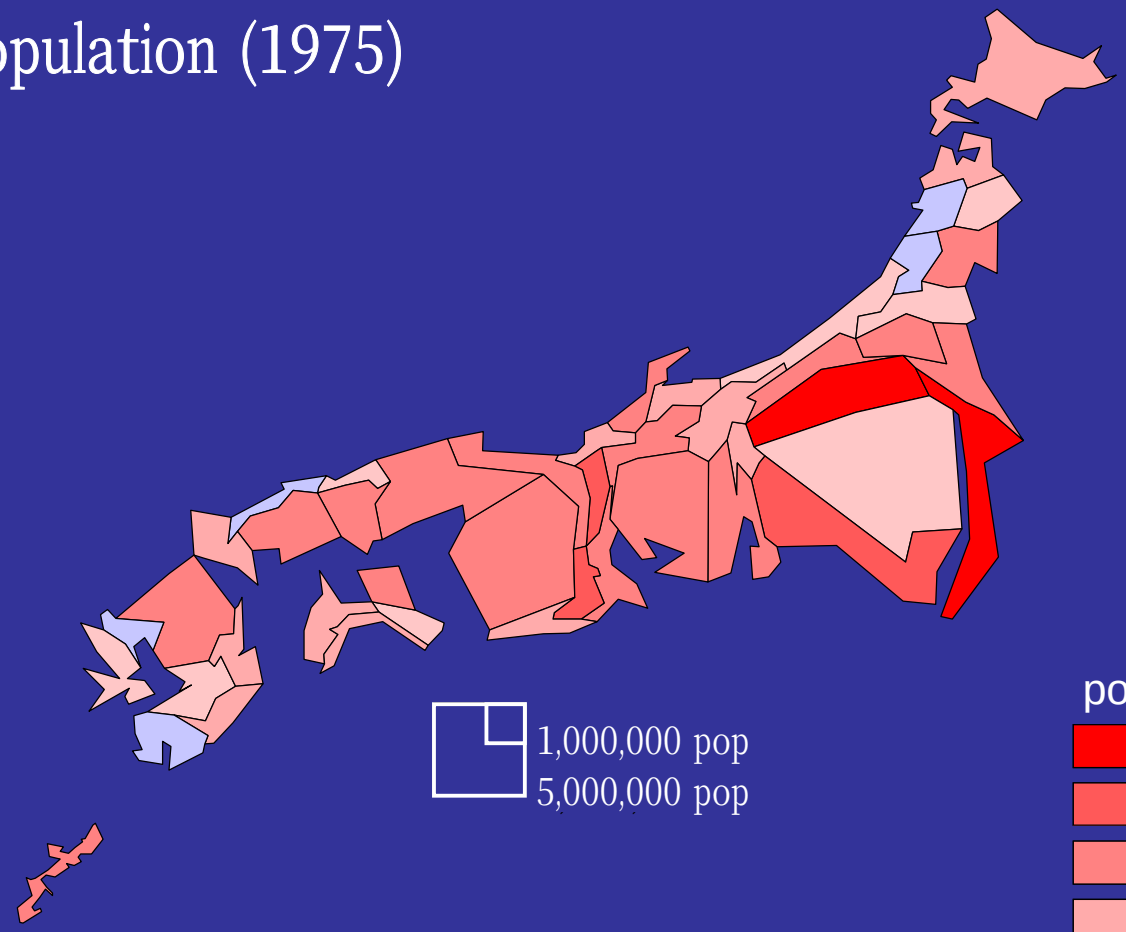
Population (1965)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
1.0 ~	2.0
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

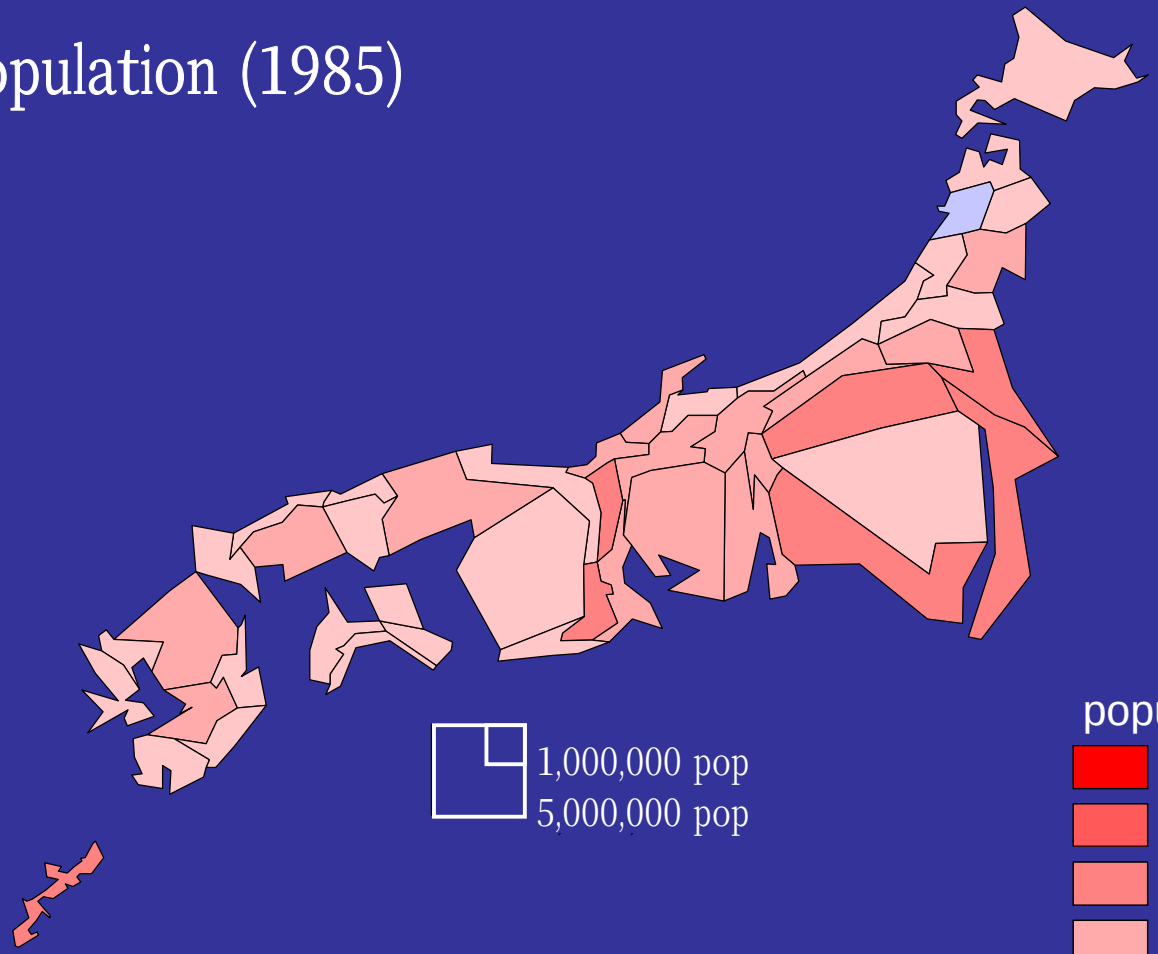
Population (1975)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
1.0 ~	2.0
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

Population (1985)



population growth rate (%/year)

4.0 ~	
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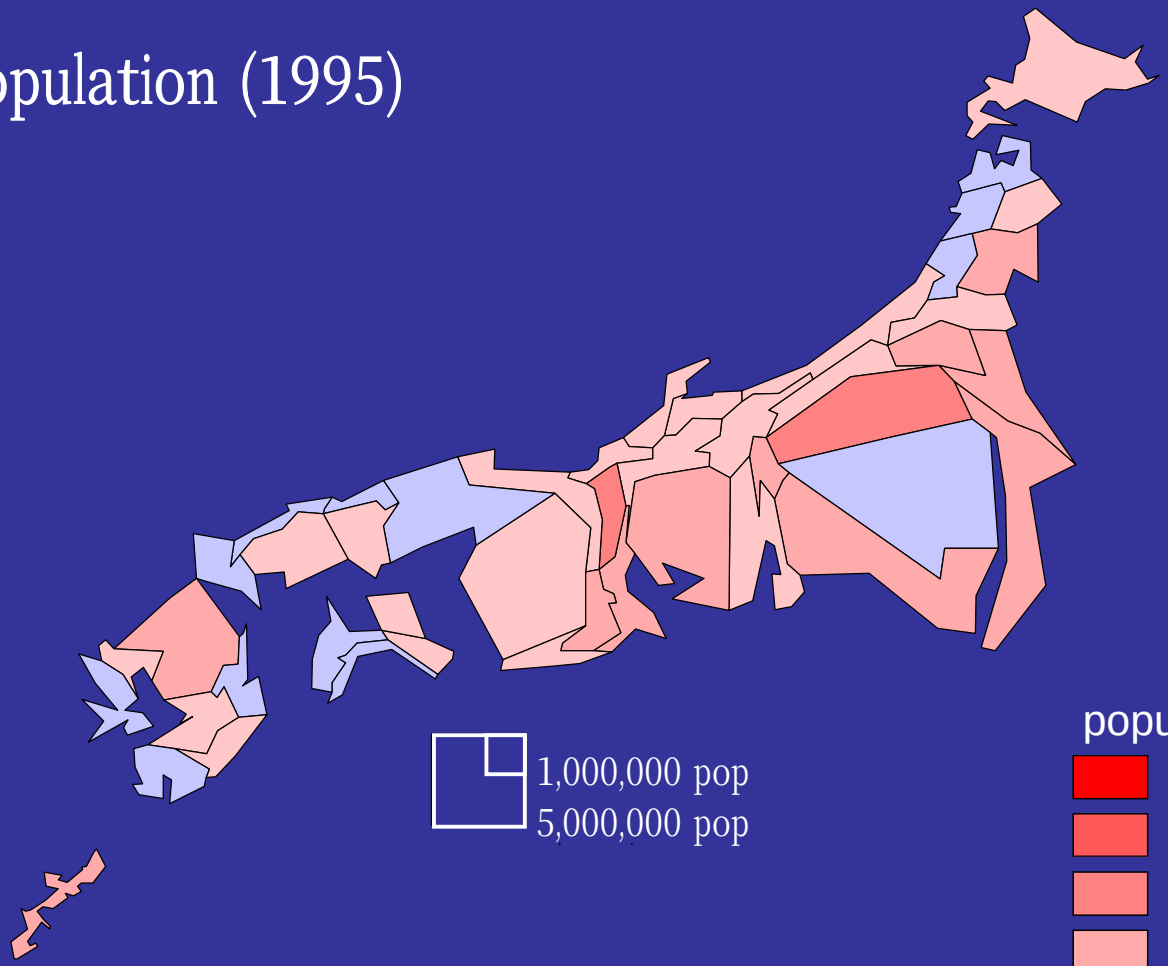
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

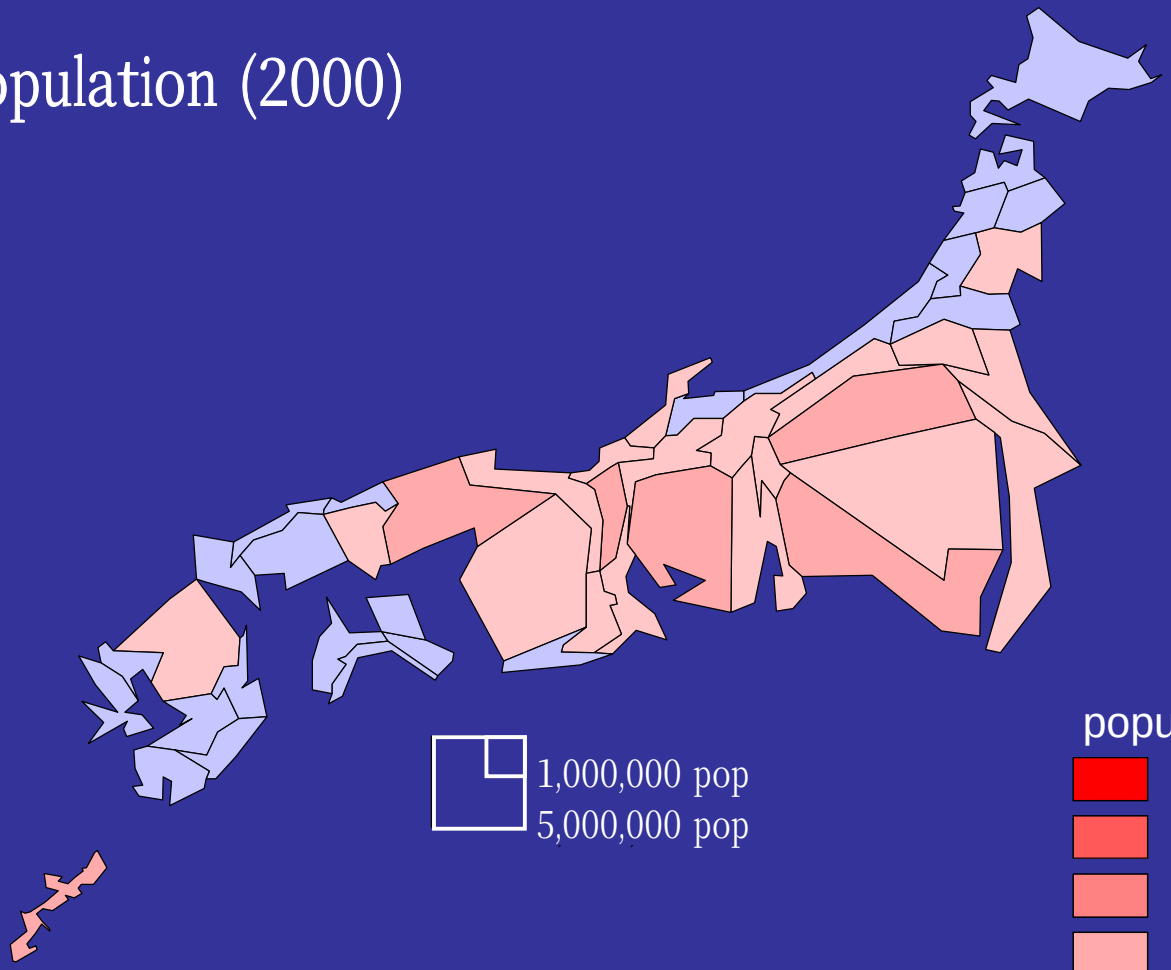
Population (1995)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
1.0 ~	2.0
0.5 ~	1.0
0.0 ~	0.5
-0.5 ~	0.0
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

Population (2000)



population growth rate (%/year)

4.0 ~	
2.0 ~	4.0
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0.5 ~	1.0
0.0 ~	0.5
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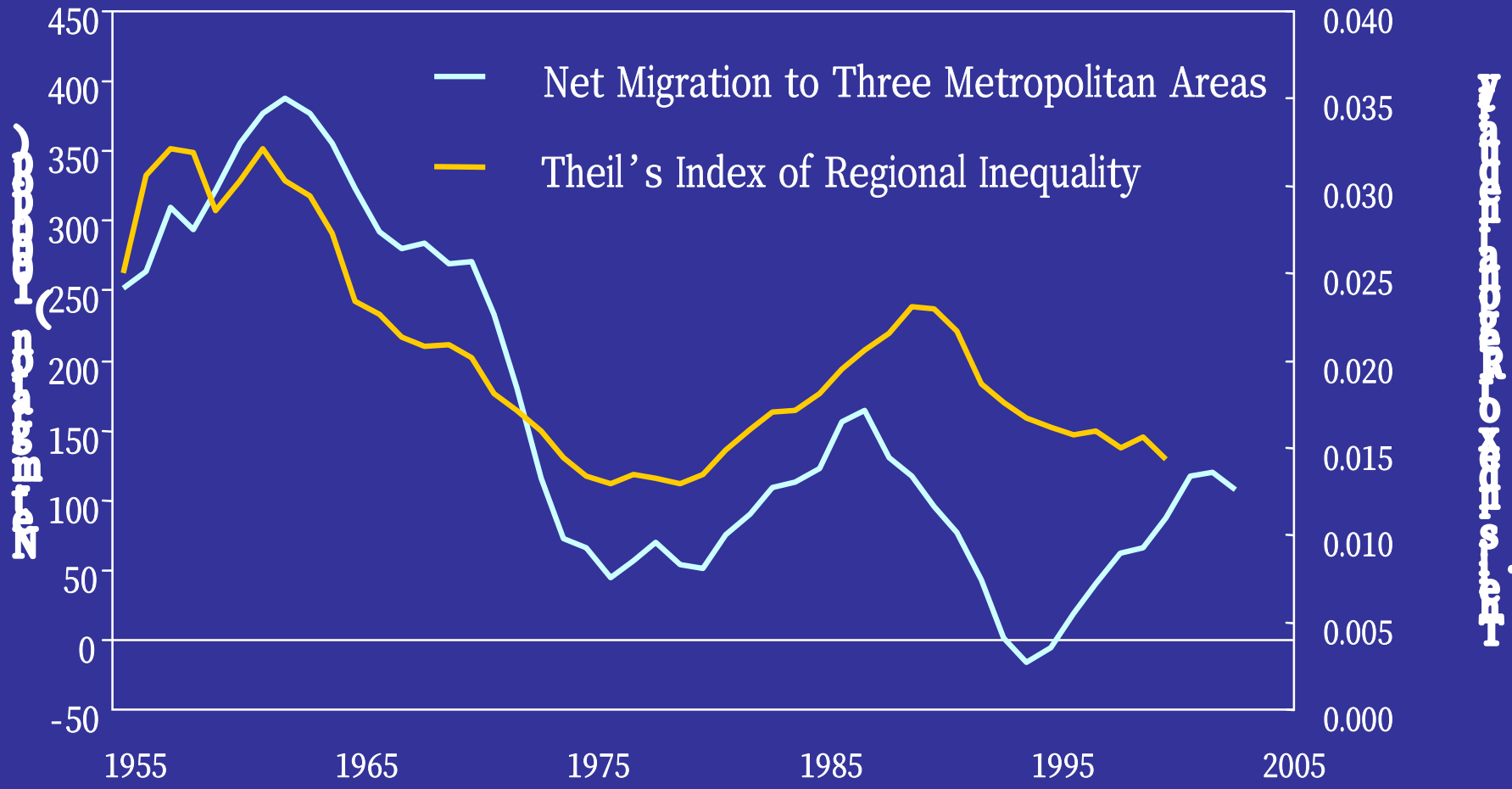
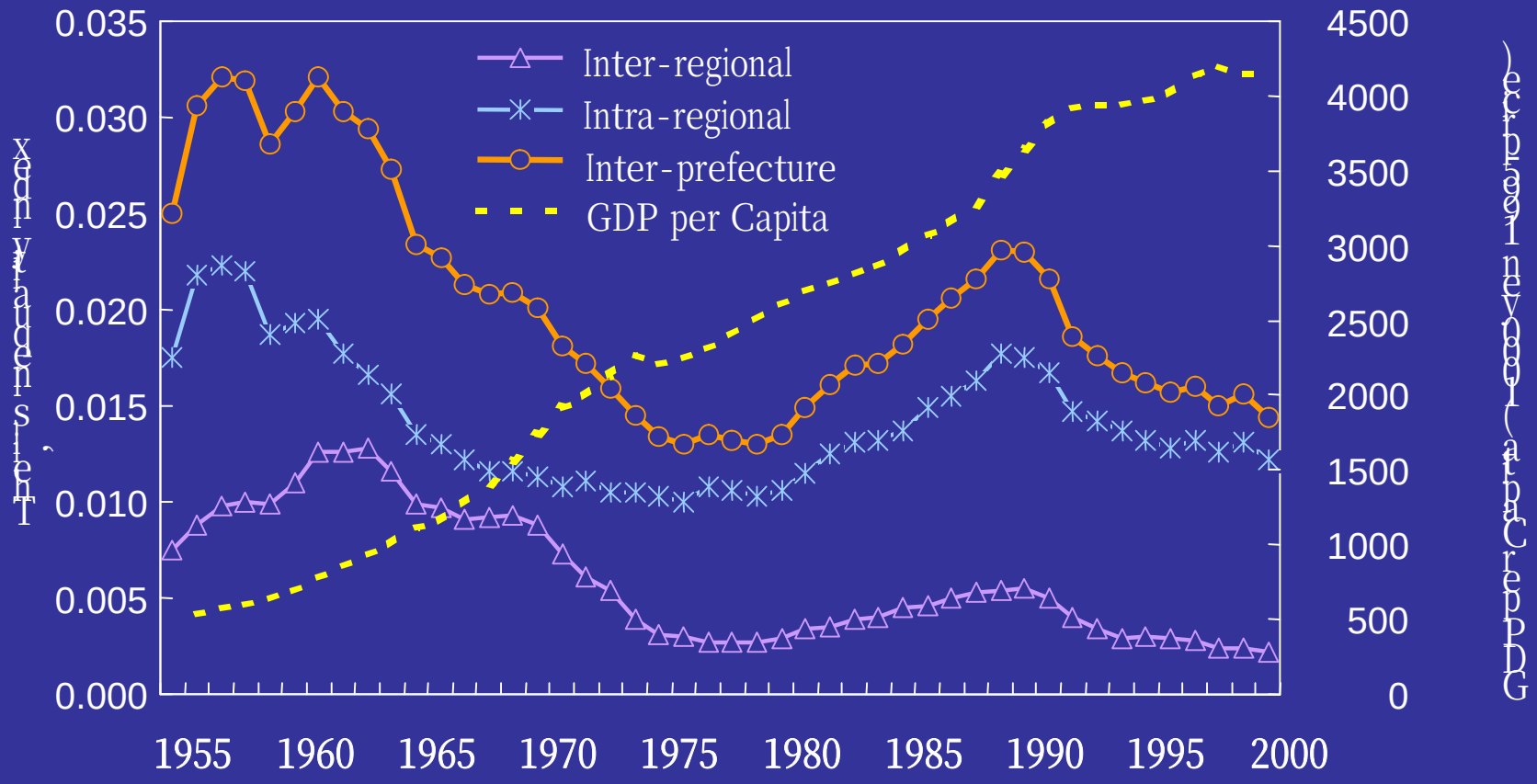
-1.0 ~	-0.5
-2.0 ~	-1.0
-4.0 ~	-2.0
~	-4.0

Regional Income Disparity and Net Migration to Three Metropolitan Areas

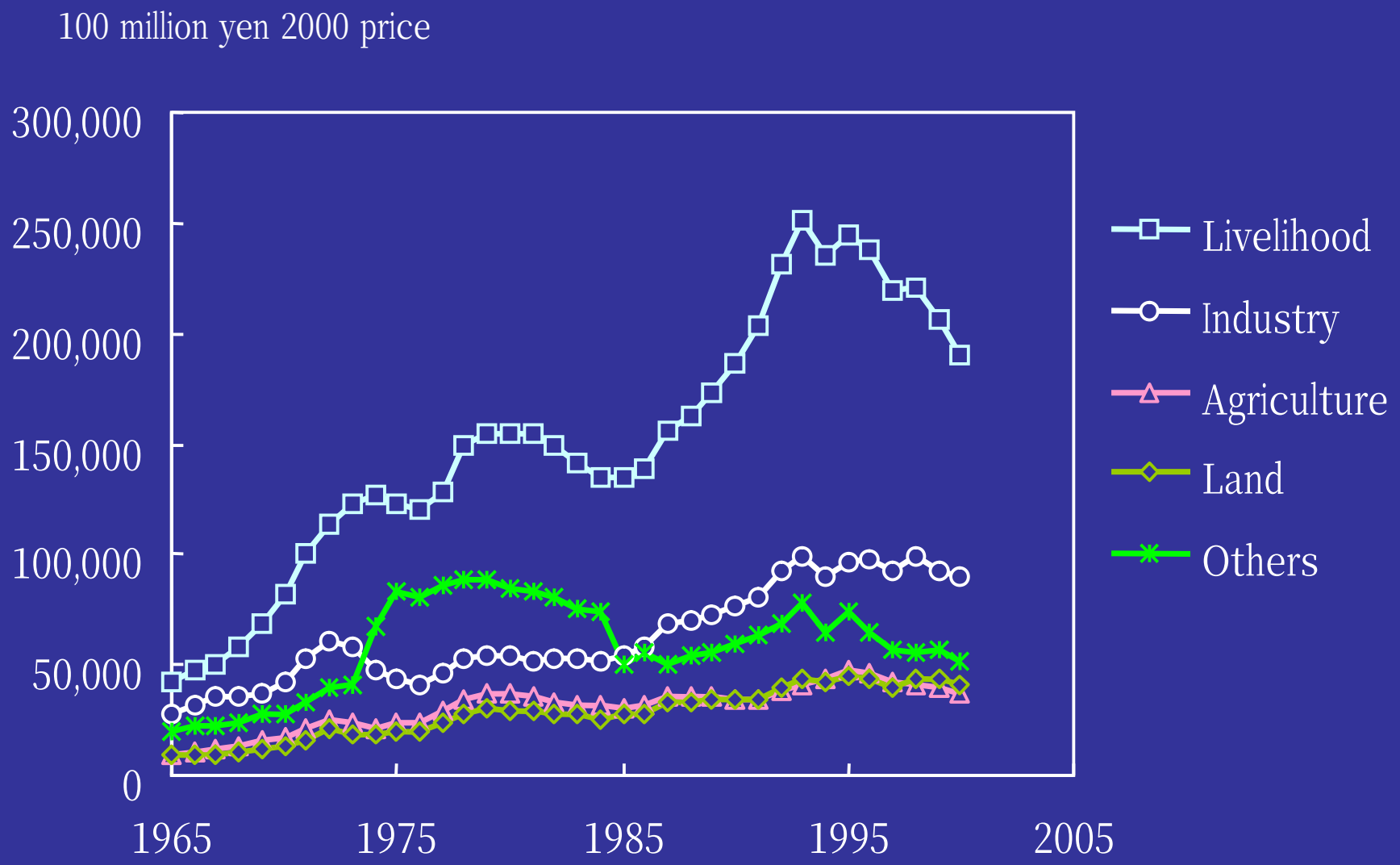


Regional Income Disparity and GDP per Capita



$$\text{Theil's Inequality Index} = \underbrace{\sum_{n=1}^{46} y_n \log \frac{y_n}{p_n}}_{\text{Inter-prefecture}} = \underbrace{\sum_{g=1}^{G} y_g^R \sum_{i \in R} y_i^s \log \frac{y_i^s}{p_i^s}}_{\text{Intra-regional}} + \underbrace{\sum_{g=1}^{G} y_g^R \log \frac{y_g^R}{p_g^R}}_{\text{Inter-regional}}$$

Public Investment



3. Economic Activities in the Eastern Asia

3.1 Population

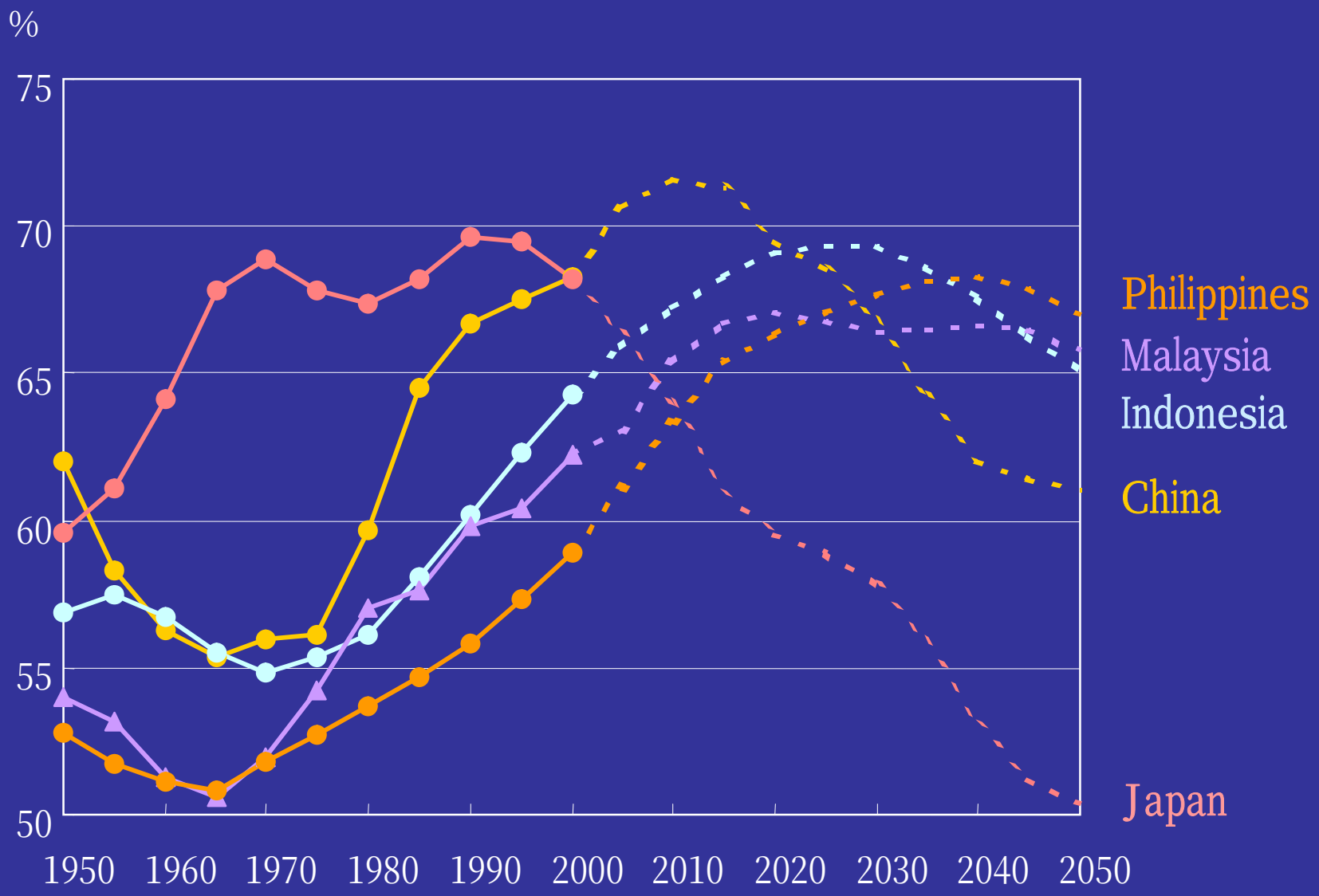
Ageing Society

- Decreasing Working Age Population Ratio and Total Population

Decreasing Saving Ratio

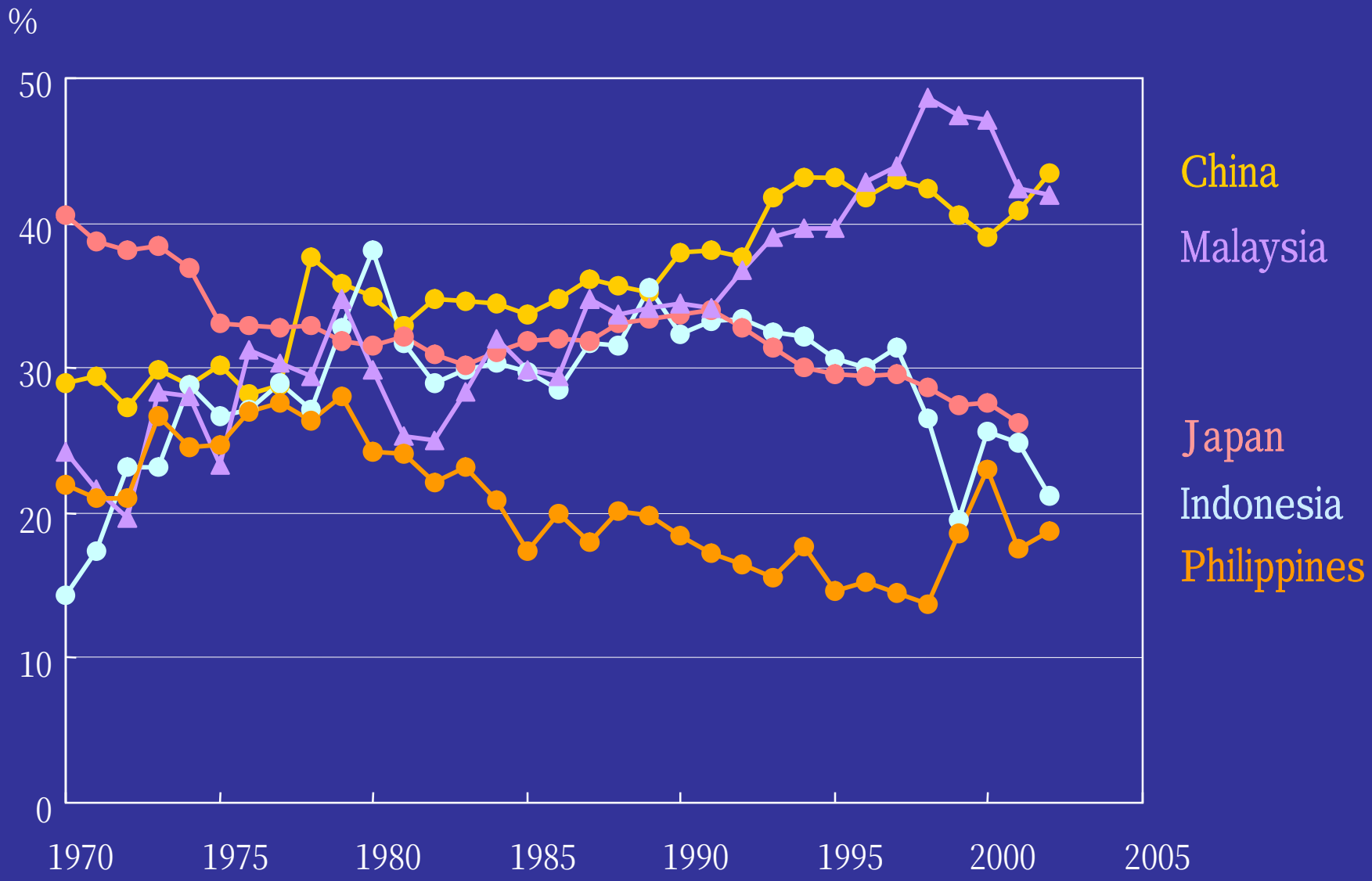
Decreasing Investment Ratio

Working Age Population Ratio in Eastern Asia Countries



Data Source : Population Division of the Dept. of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects

Saving Ratio in Asian Countries



Data Source : World Bank (2004) World Department Indicators

3.2 Horizontal Sharing of Production Process

"Flying Geese" Model

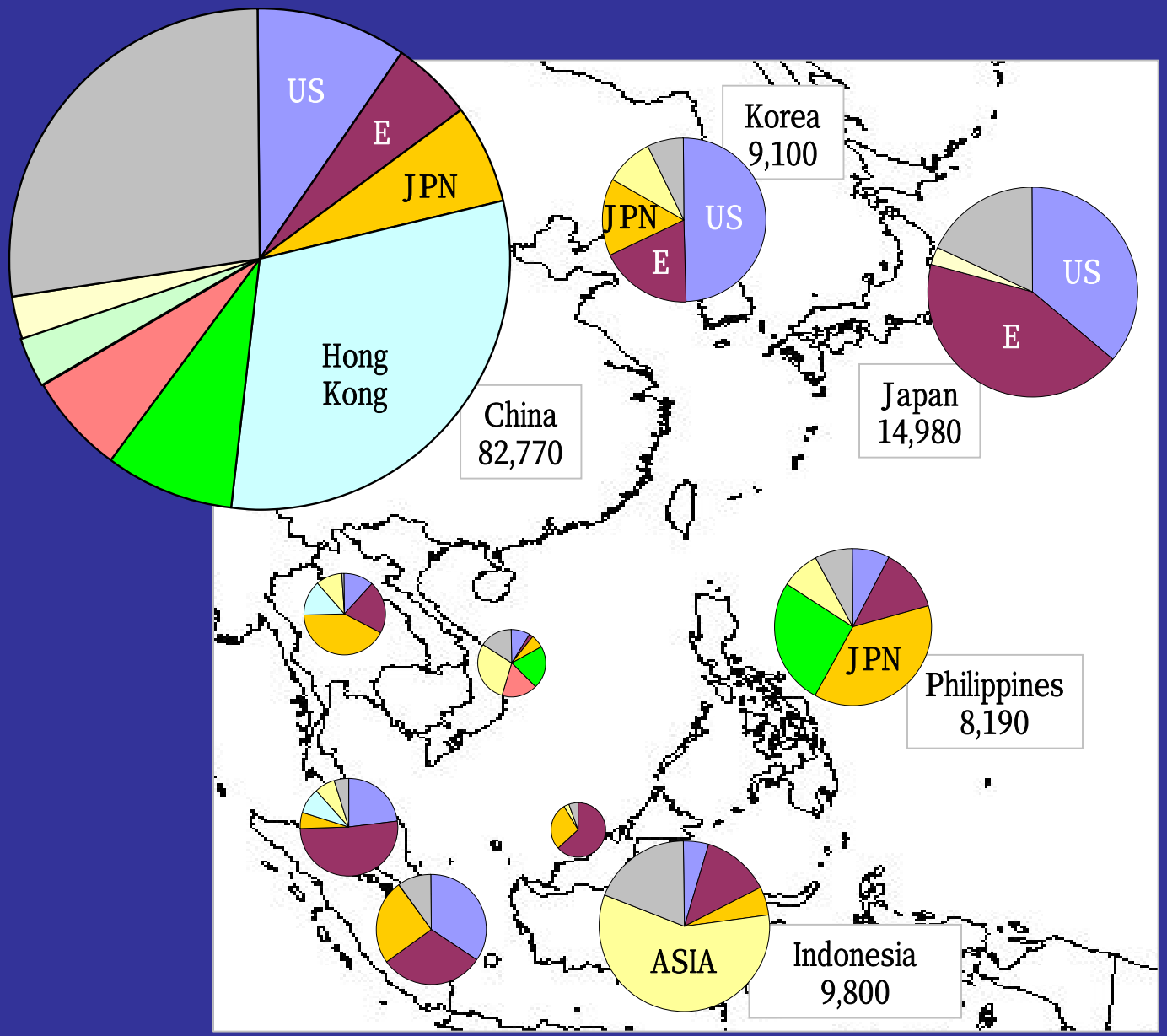
Low Technical Level and Low Added Value Industries
Sequential Shifting toward Oversea

Horizontal Sharing of Production Process

Manufacturing Function Shifting toward Oversea

Foreign Direct Investment from U.S and E.U. Companies

F. D. I. for Eastern Asian Countries (2002)

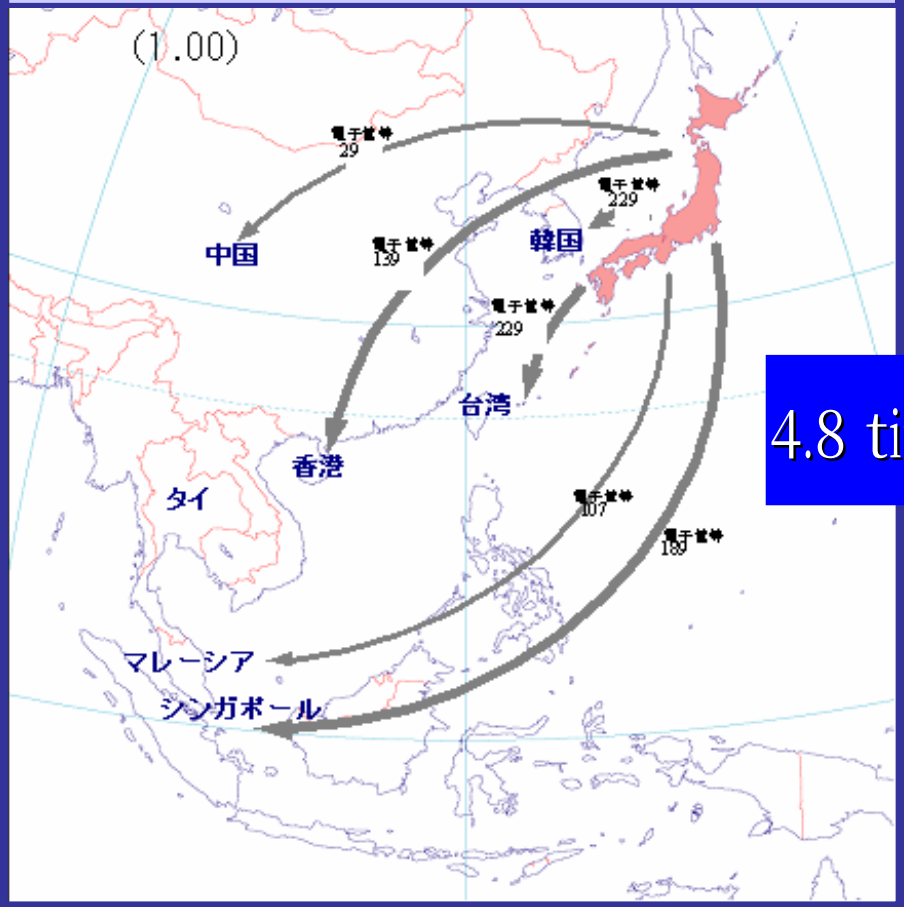


- USA
- Europe
- Japan
- Korea
- Hong Kong
- Taiwan
- Singapore
- Asia
- Others

2002 US million $

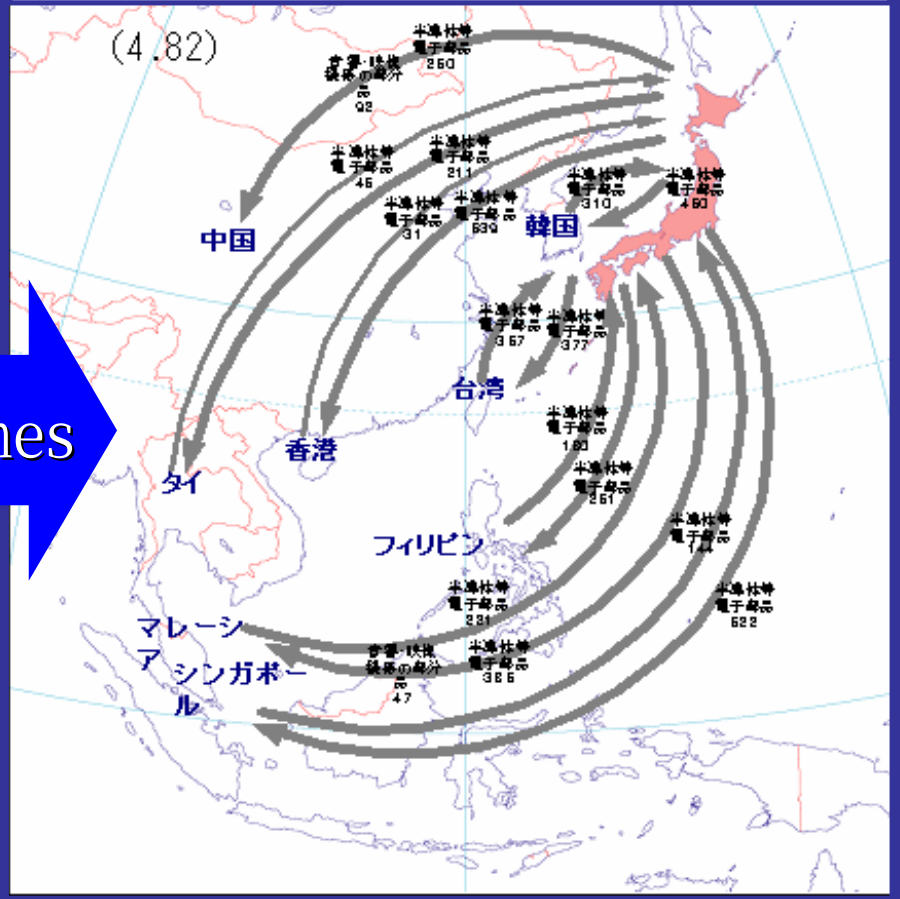
Trade-flows in Electronic Components between Japan and Eastern Asia

1990 922 billion yen



4.8 times

2000 Total 4,442 billion yen



Source : Committee on Integrated Transport (2004)

4. Reform of Regional Structure in Japan

4.1 Economic Blocks

Population : 600 million ～ over 1,000 million people

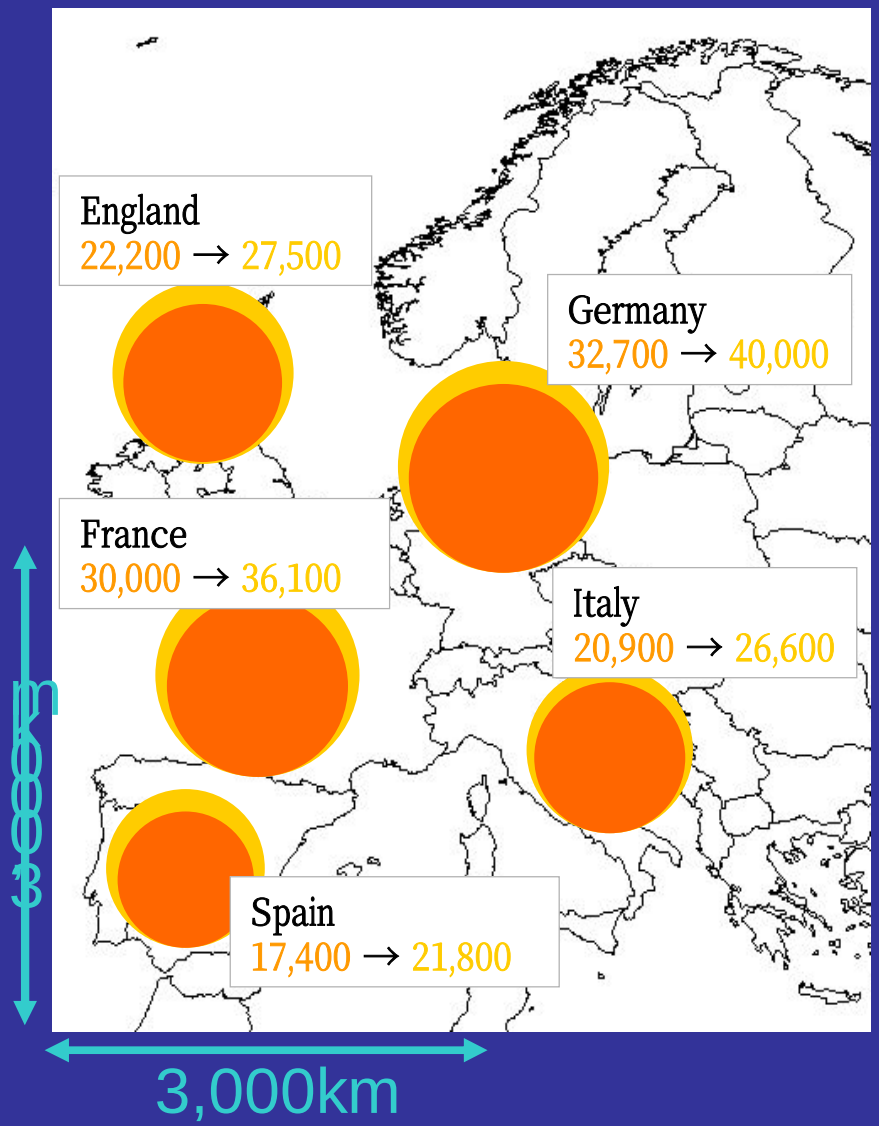
(Half-day-trip Area)

Equivalent to the Scale of some European Nation

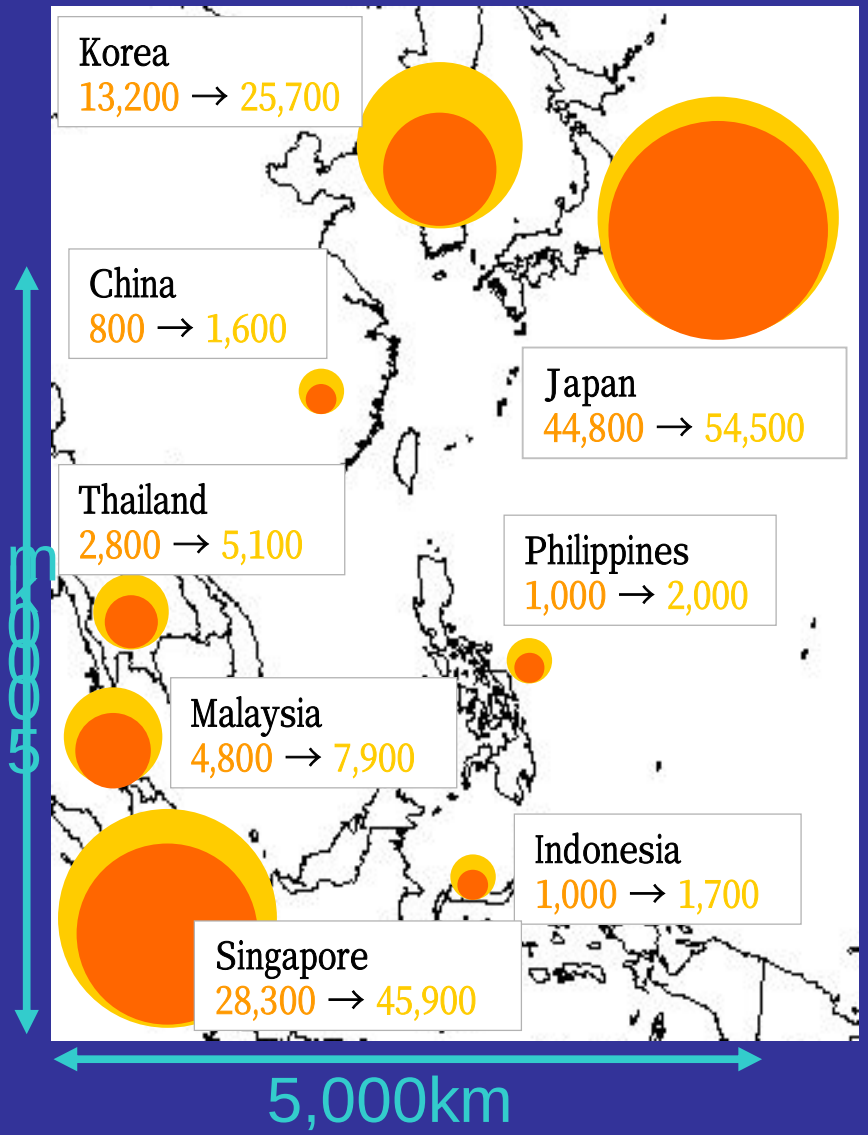
4.2 Regional Areas for Livelihood Activities

4.3 Low Residential Population Area

GDP per Capita of EU Countries
(2000, 2010 1995 US $)



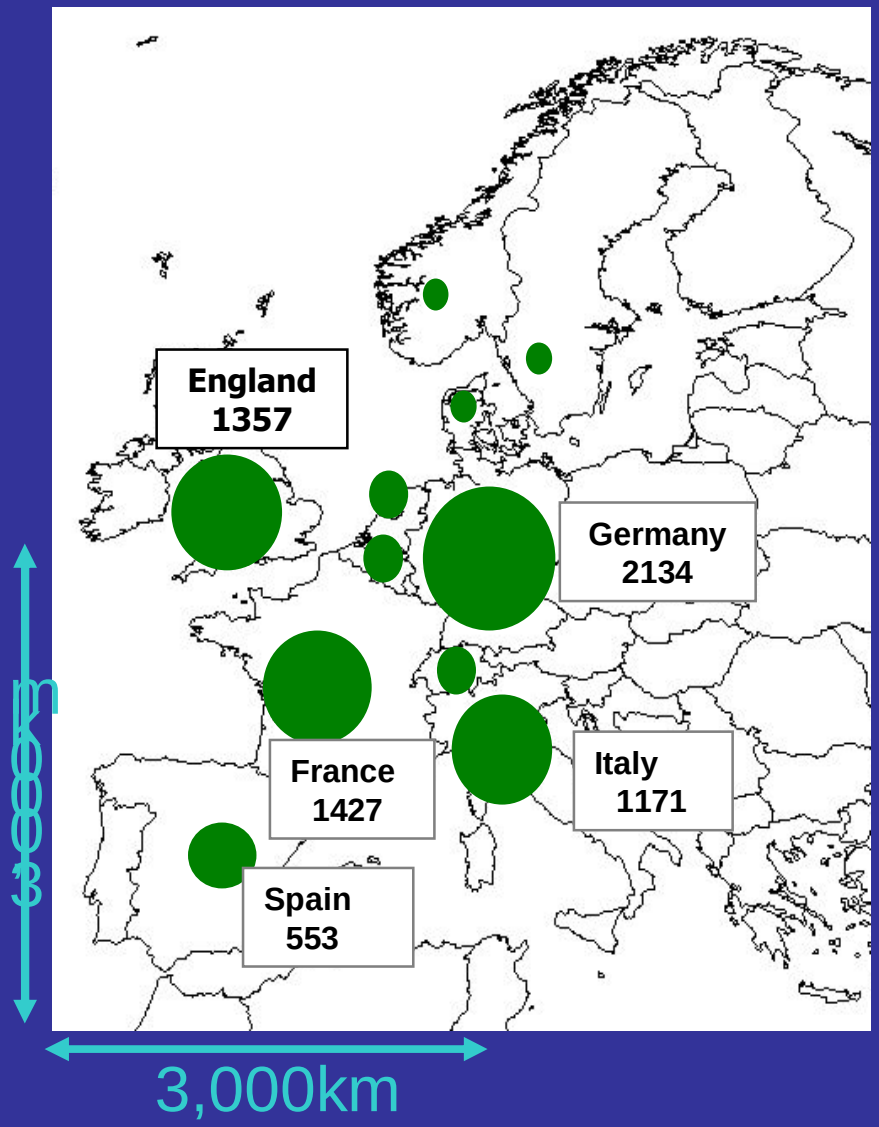
GDP per Capita of Eastern Asia Countries
(2000 , 2010 1995 US $)



Data Source : World Bank (2004) World Department Indicators

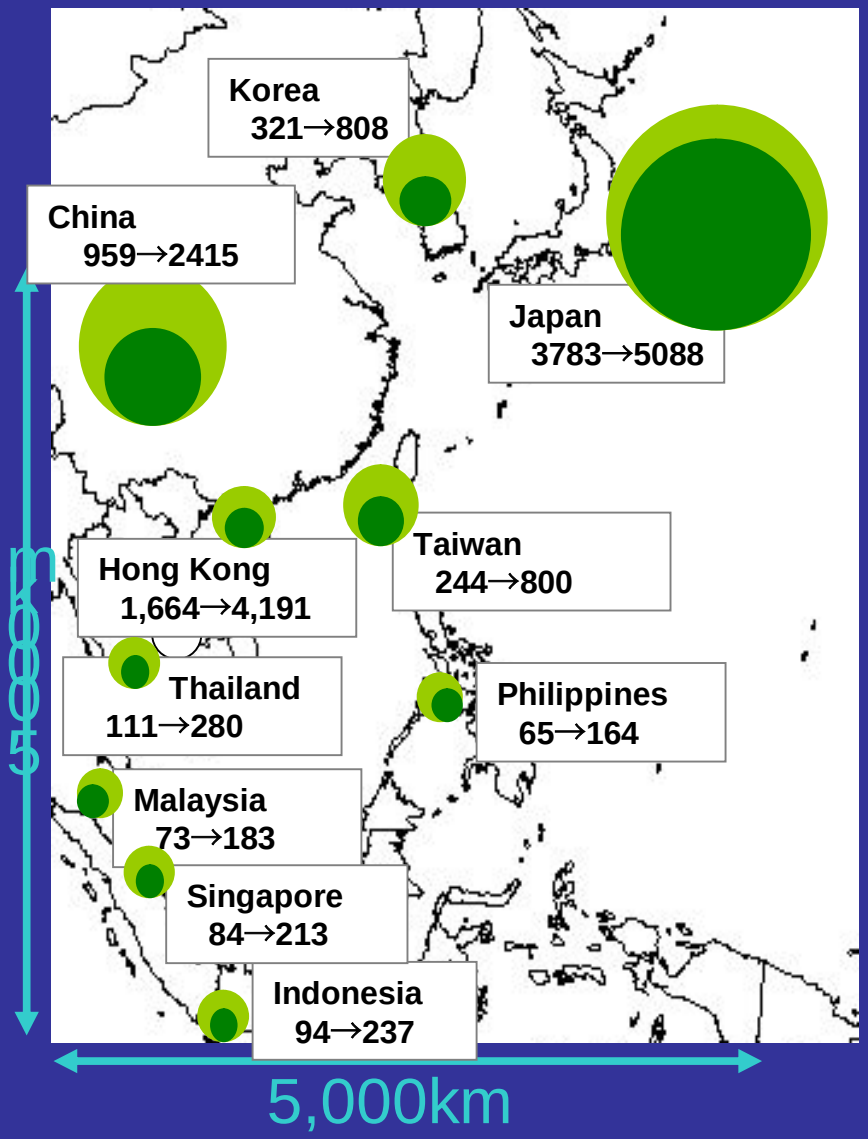
GDP of EU Countries

(1998　1998 US billon $)



GDP of Eastern Asia Countries

(1998 , 2010　1998 US billon $)



Data Source : World Bank (2004) World Department Indicators

Necessary Conditions for Functional Economic Block

① Clustering of International Functions

② Diverse Attractions of the Region

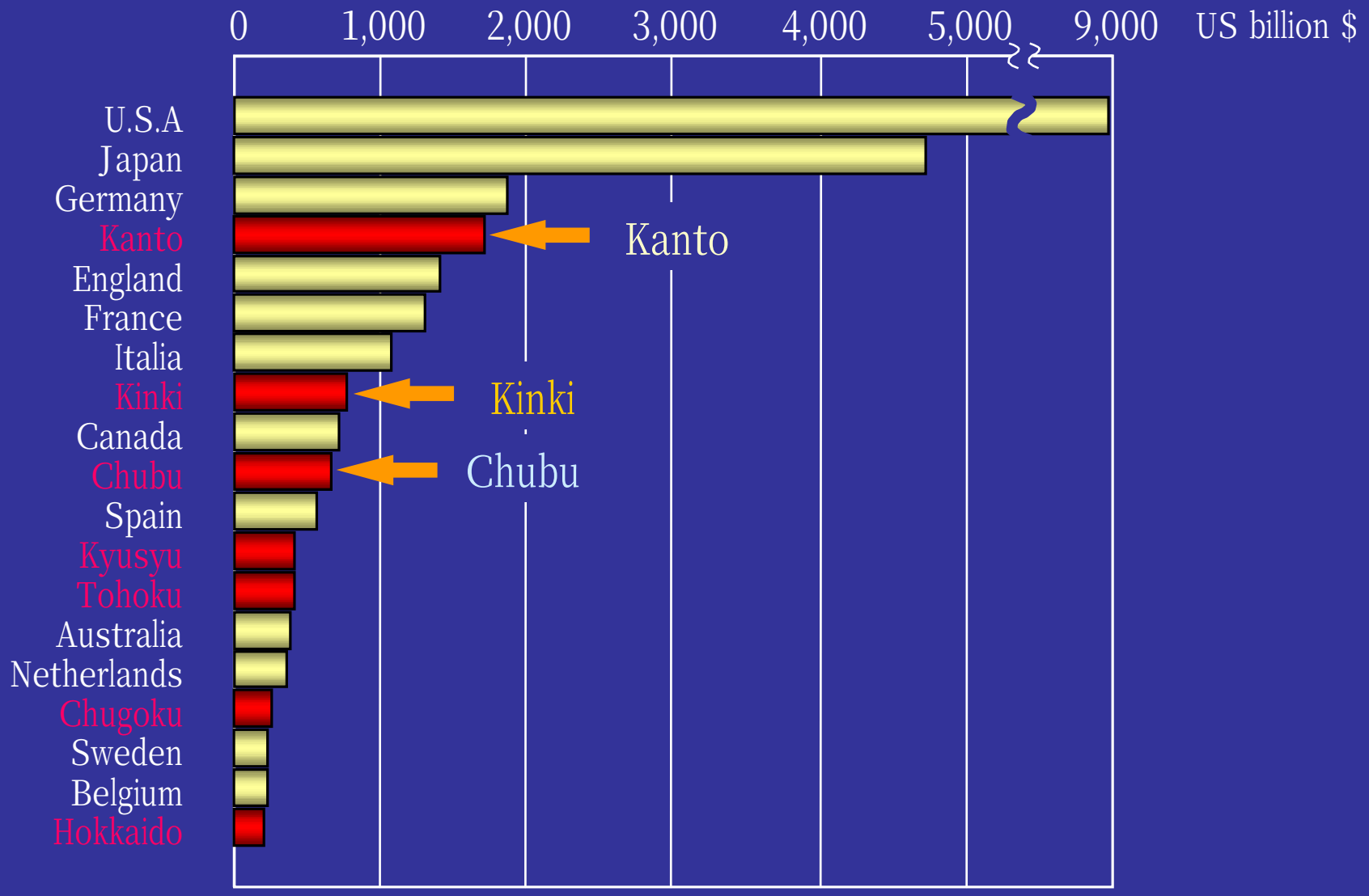
③ Diverse Industry and Market Scale
as an Independent Economic Block

④ Historically and Culturally Unified Region

⑤ Worldwide Recognized Region

⑥ Extend-ability toward Pacific / Japan Sea

Comparing Economic Scale of Japanese Regional Areas with World Economies



Data Source : Committee on Integrated Transport (2004)

Broader International Transport Network

(One-day Round Trip Area)

Europe

East Asia

Business Jet

(CRJ-700 (Bombardier, Canada) , ERJ-145 (Embraer, Brazil))

Passenger Capacity: 30-100 peoples

Cruising distance: 1,500-3,500 km

Cruising speed: 800-900 km/h

Propeller (DHC8)

Passenger Capacity: 10-70 peoples
Cruising distance: 1,500 km
Cruising speed: 600 km/h

Jumbo Jet (B747-400)

Passenger Capacity: 500-570 peoples
Cruising distance: 12,300 km
Cruising speed: 910 km/h

4.2 Regional Areas for Livelihood Activities

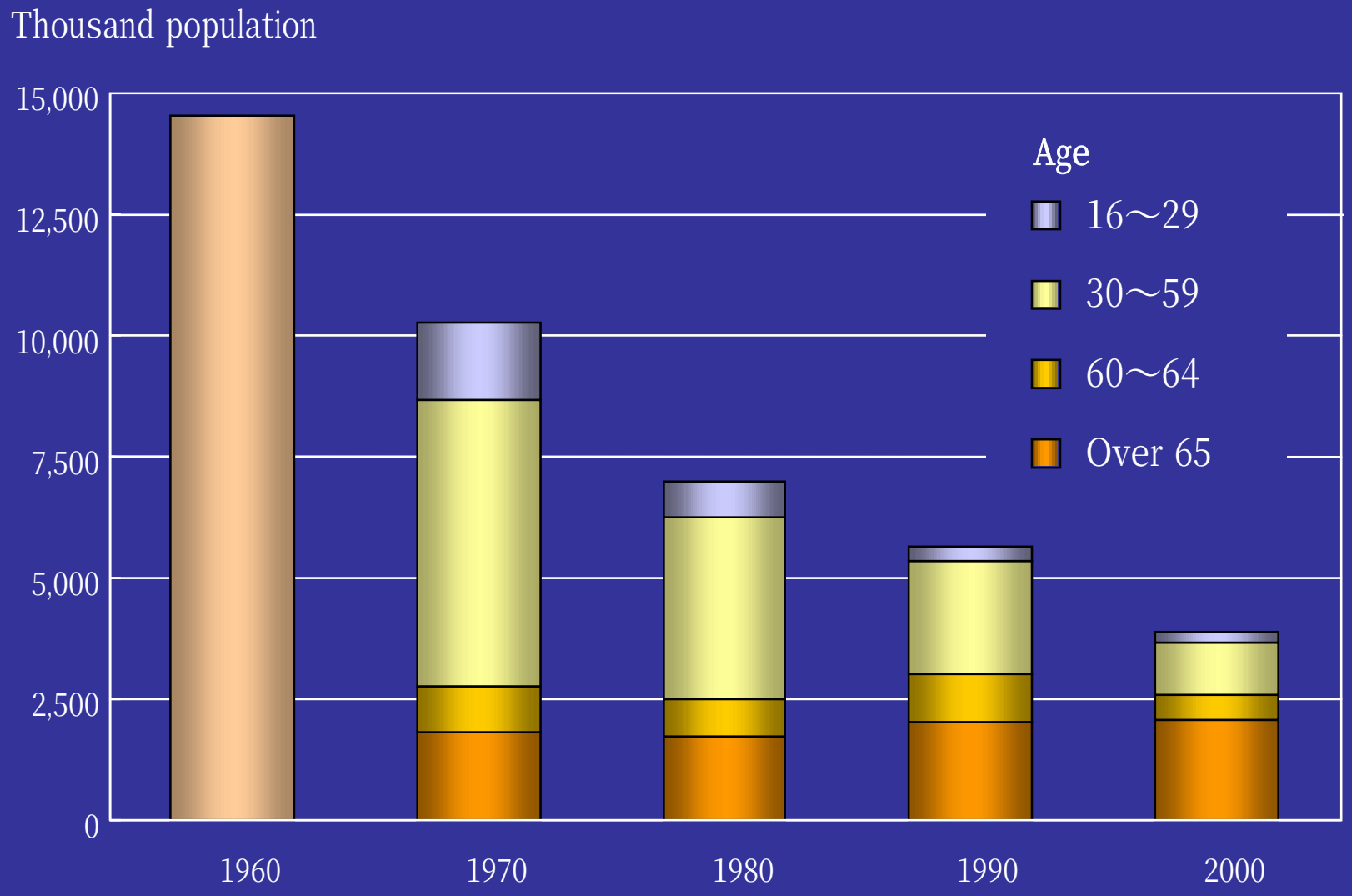
Minimum Population 300～500 Thousands

(One-hour-trip Area)

Municipalities Merge Themselves to Get Roughly 300 Thousand Population

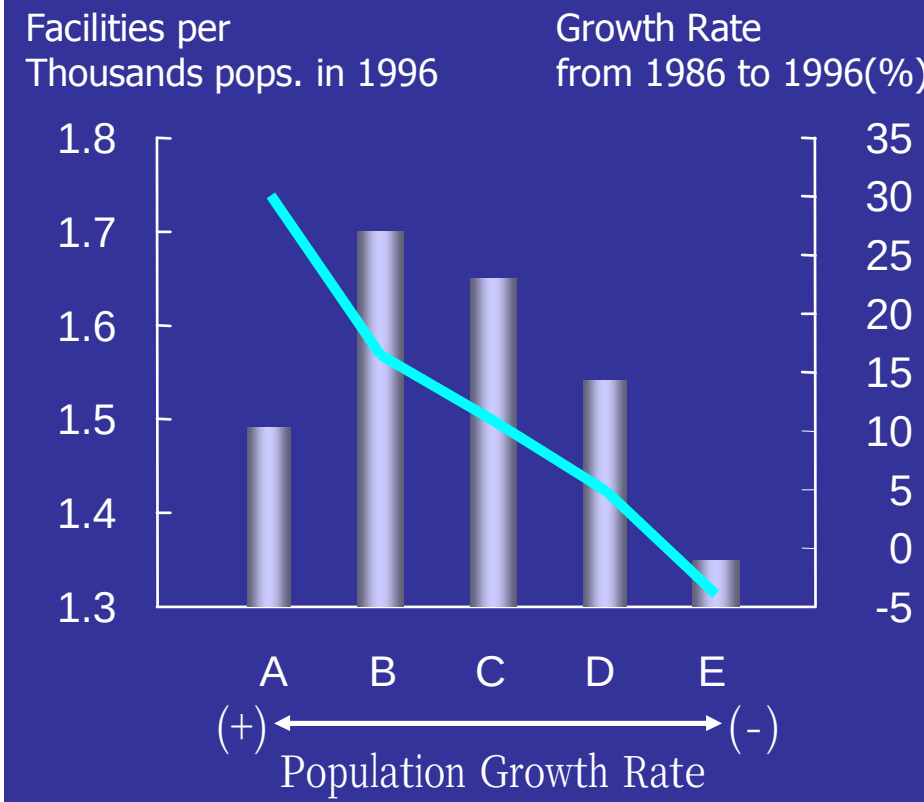
300 Thousand Population and One-hour-trip Area	Population Coverage 88%
250 Thousand Population and One-hour-trip Area	Population Coverage 95%

Agricultural Population

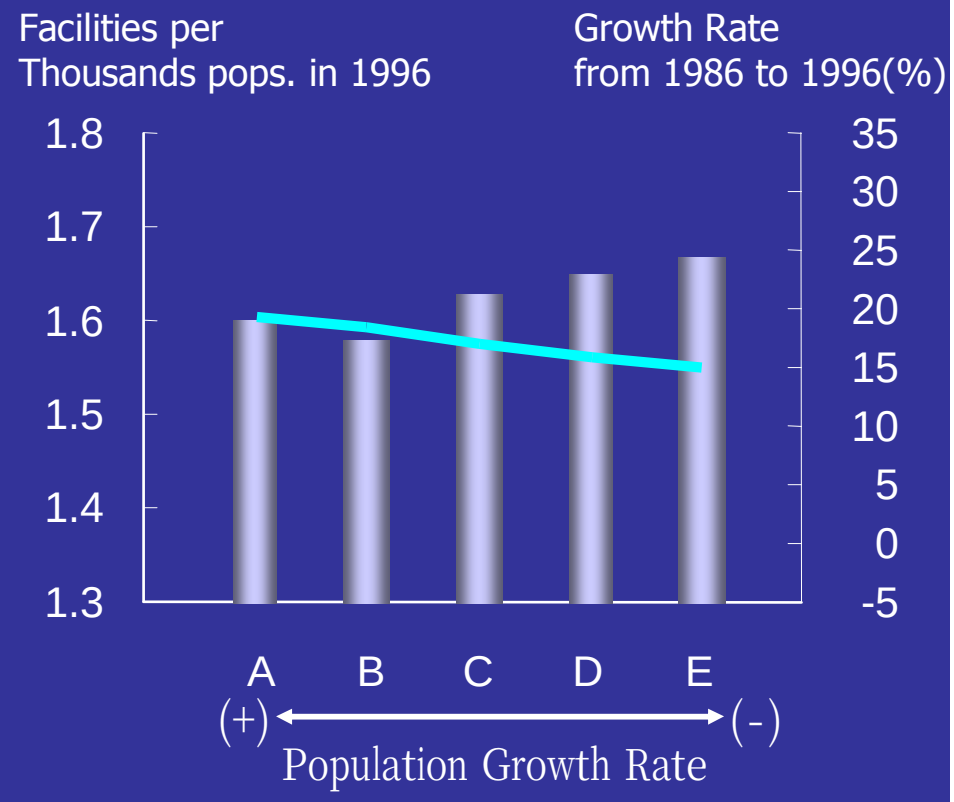


Growth rate and distribution of Medical Facilities in Local Area

Existing Municipality Area



Livelihood Activity Local Area
(one-hour-trip area)



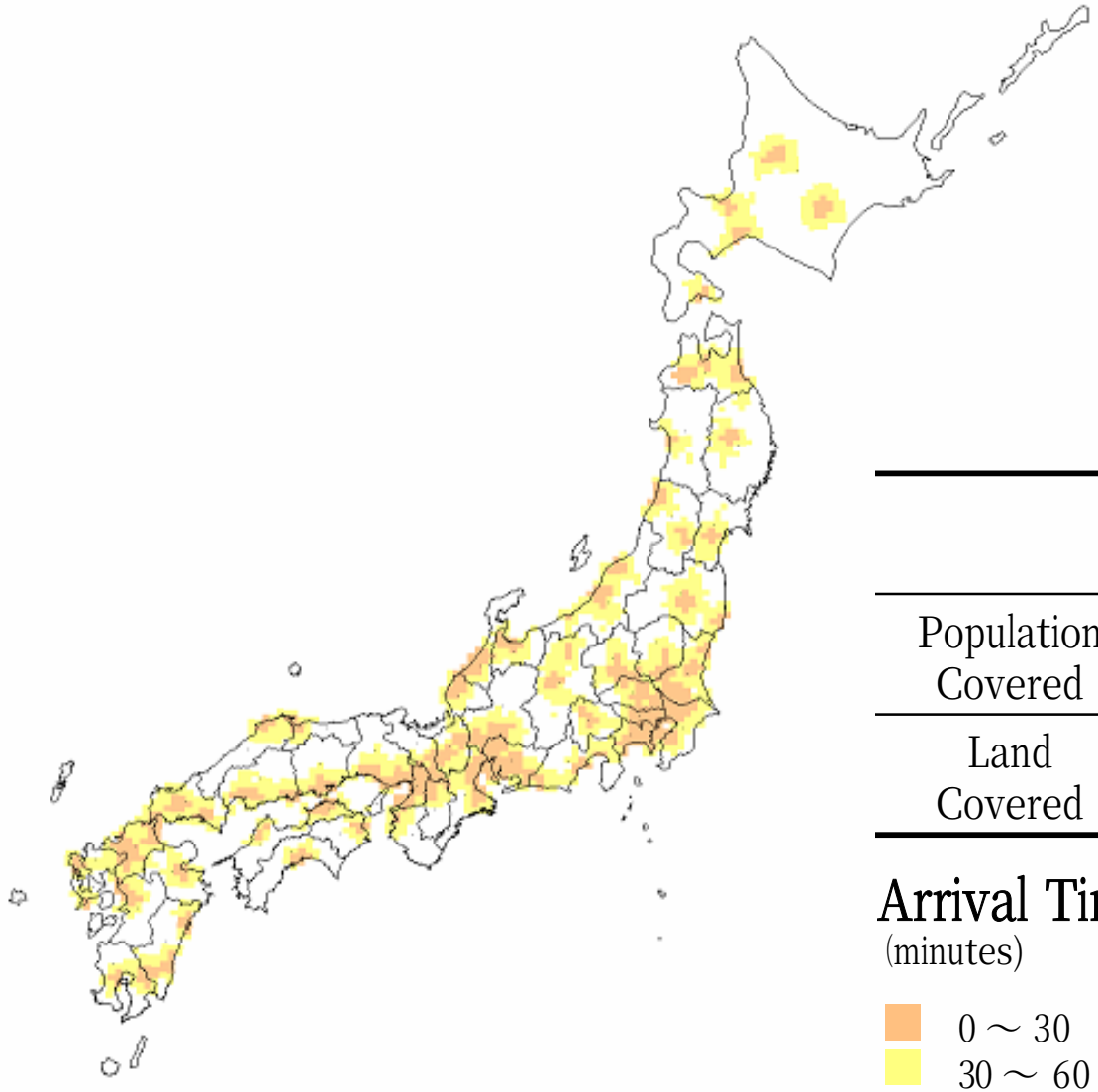
Note: Rate of increase of population (Average number of pops in 1995)

A: 7.0% + (74,0000) B: 0.7% to 7.0% (58,000)

C: -5.5% to 0.7% (36,000) D: -10.5% to -5.5% (16,000)

E: -10.5% below (9,000)

Accessibility Coverage Shopping Center over 30 Thousand Square Meter Gross Floor Area within an Hour

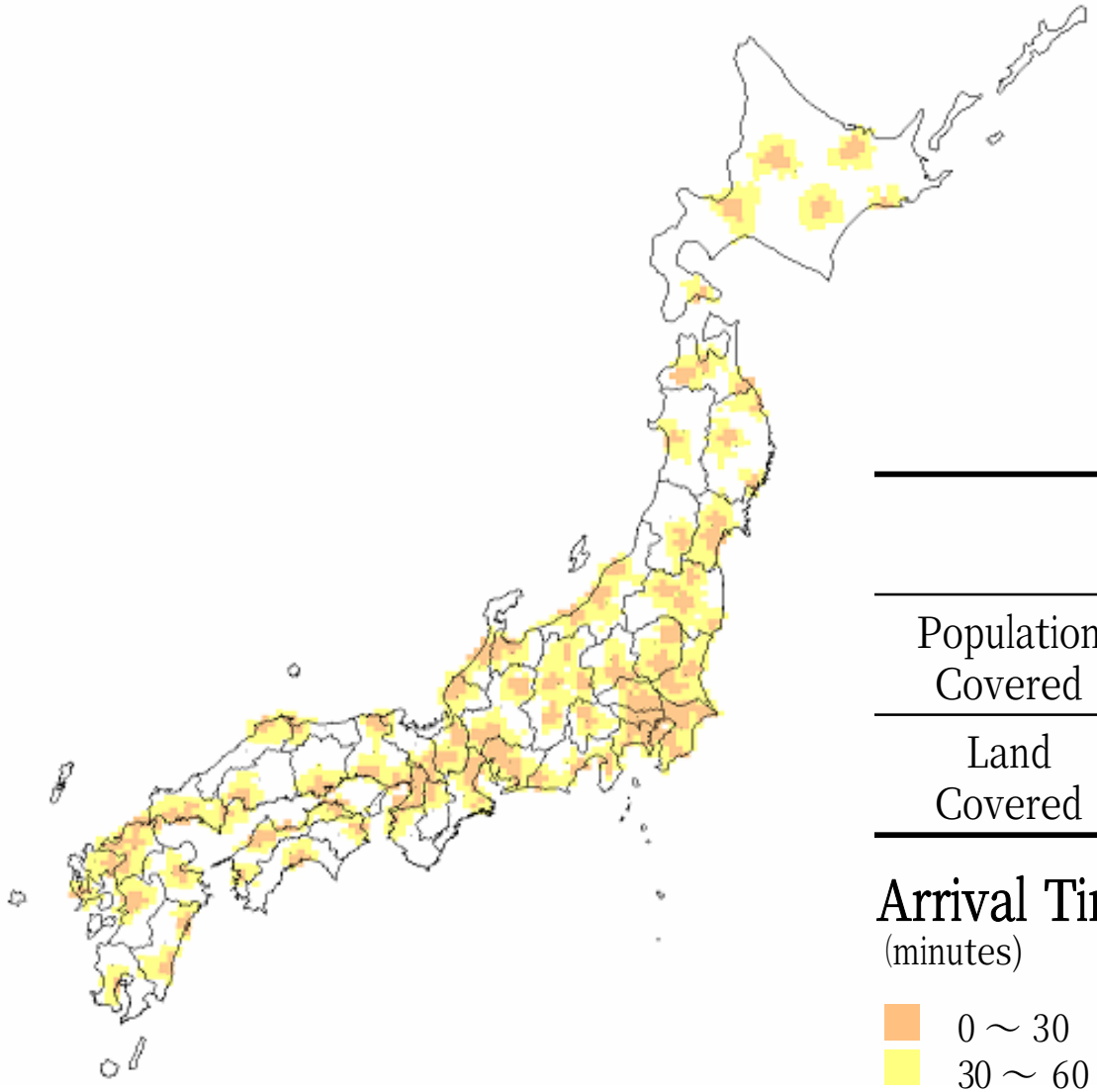


	Half-hour-trip Area	One-hour-trip Area
Population Covered	71.8%	87.9%
Land Covered	14.1%	38.3%

Arrival Time
(minutes)

- 0 ～ 30
- 30 ～ 60

Accessibility Coverage for Advanced Medical Care Facility within an Hour

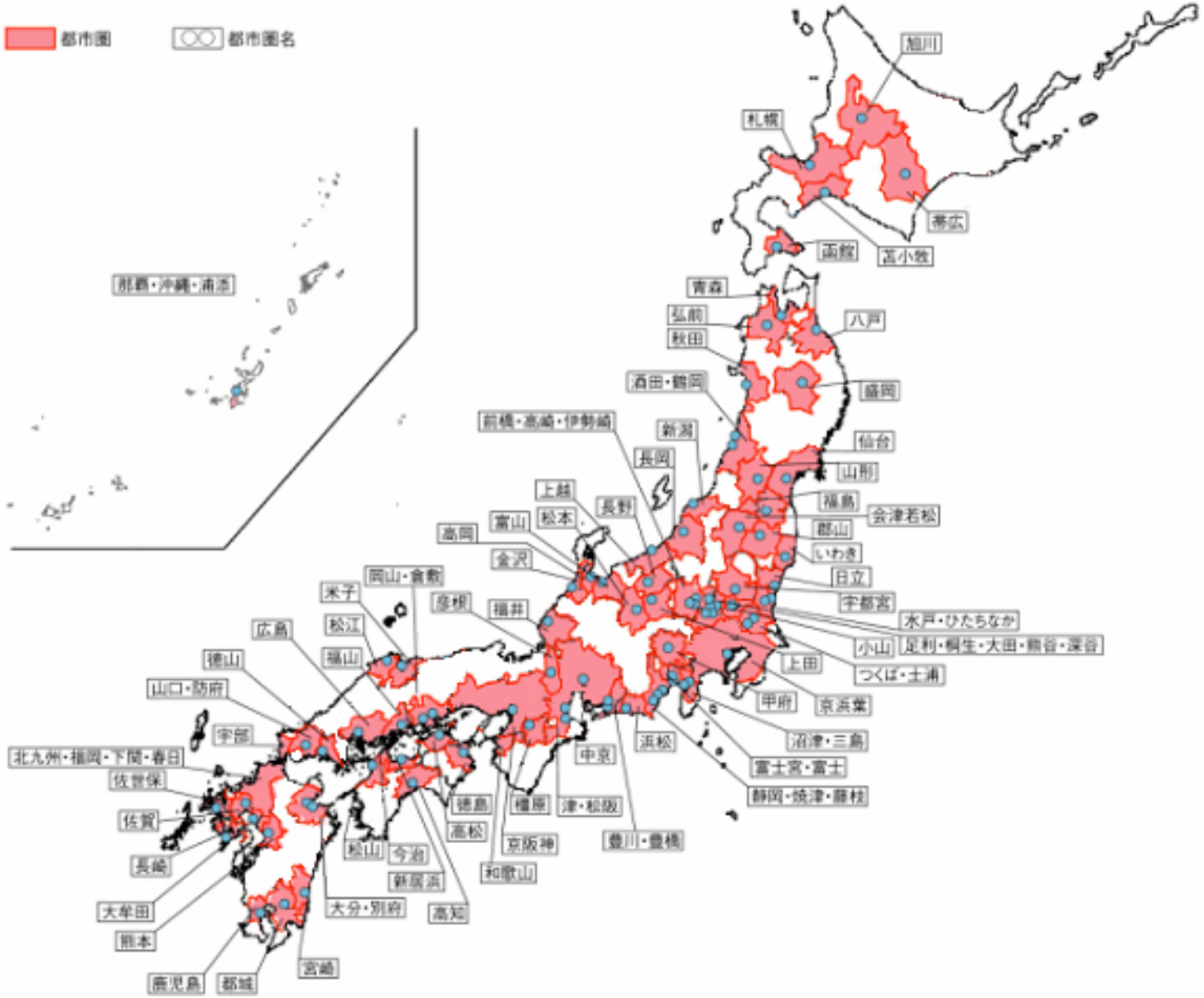


	Half-hour-trip Area	One-hour-trip Area
Population Covered	68.0%	89.9%
Land Covered	14.4%	42.5%

Arrival Time
(minutes)

- 0 ～ 30
- 30 ～ 60

Accessibility Coverage for Livelihood Activities in Local Areas (One-hour-trip area with more than 300 thousand population)

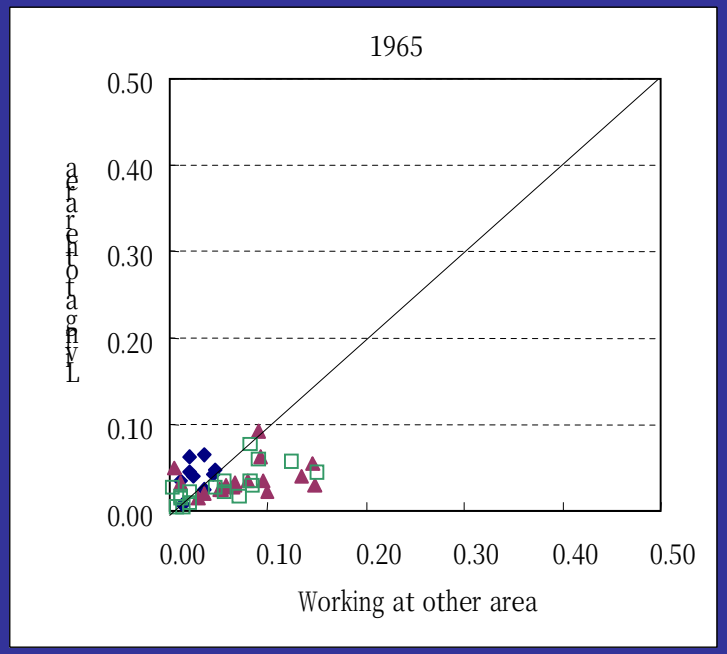


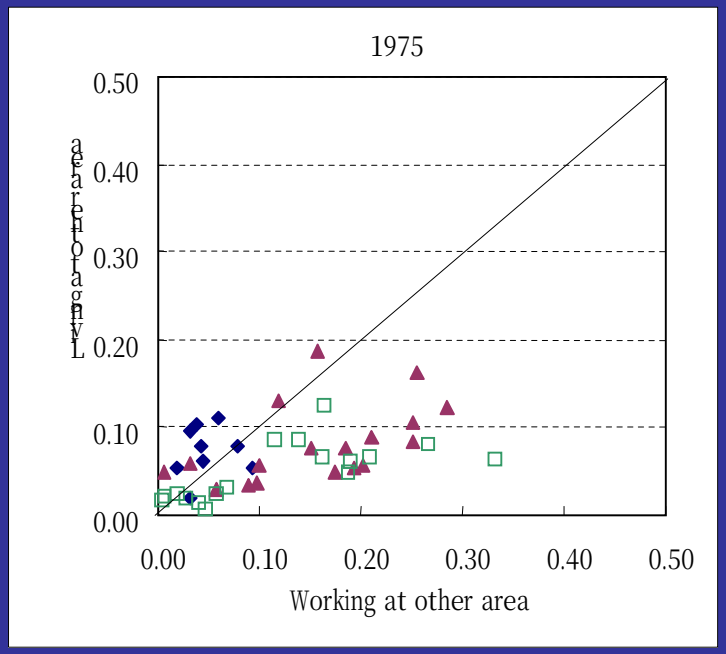
4.3 Low Residential Population Area

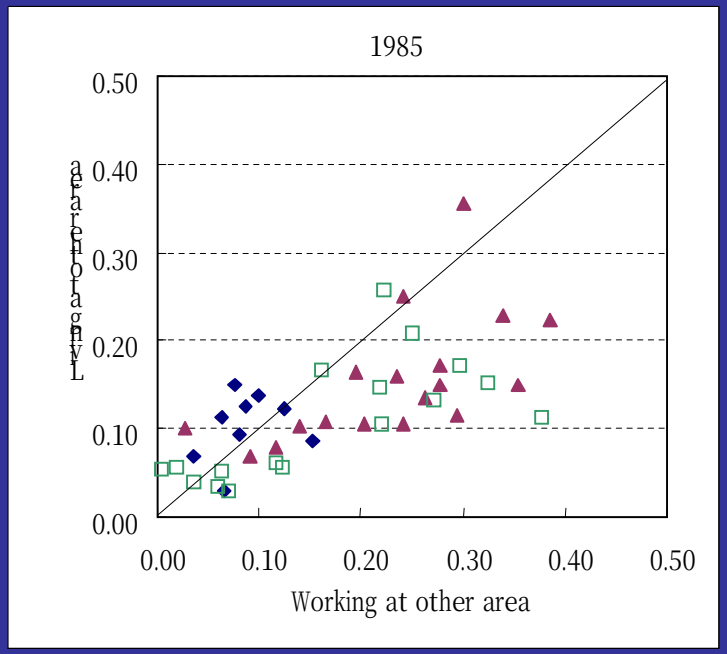
Outside of 300 Thousand Population and One-hour-trip Area	12 % of the Population 59 % of the National Land
Outside of 250 Thousand Population and One-hour-trip Area	5 % of the Population 49 % of the National Land

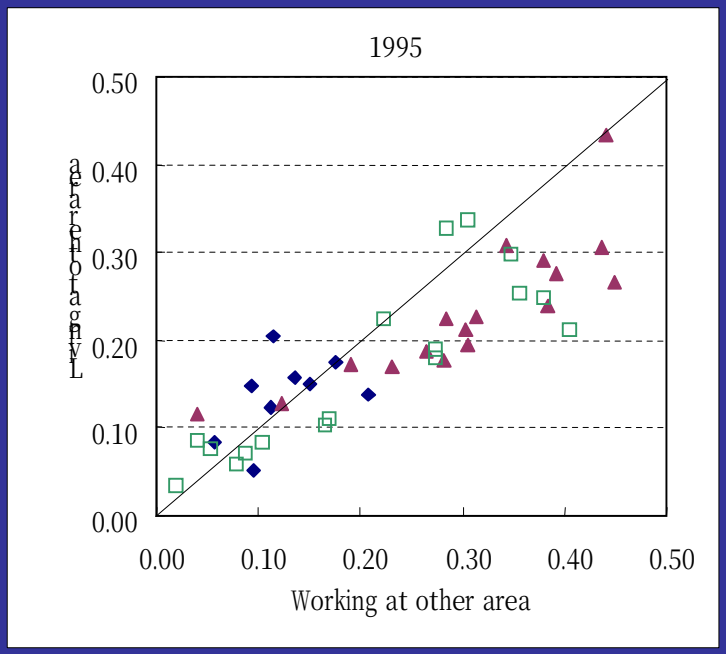
Expansion of Livelihood Area

Expansion of Livelihood Area : Inflow and Outflow of Labors (1965-1995)









Inflow

Outflow

◇ Urban Area

△ City Area (over 300k)

□ City Area (below 300k)

Data Source : Population Census

Classification of Regions for Cross-subsidy

① Regions at Least Having Urban Functions

Ex. Kitami

② Regions at Least Having High-productivity in Agriculture

Ex. Obihiro District

③ Vital Regions Regardless of Population Scale

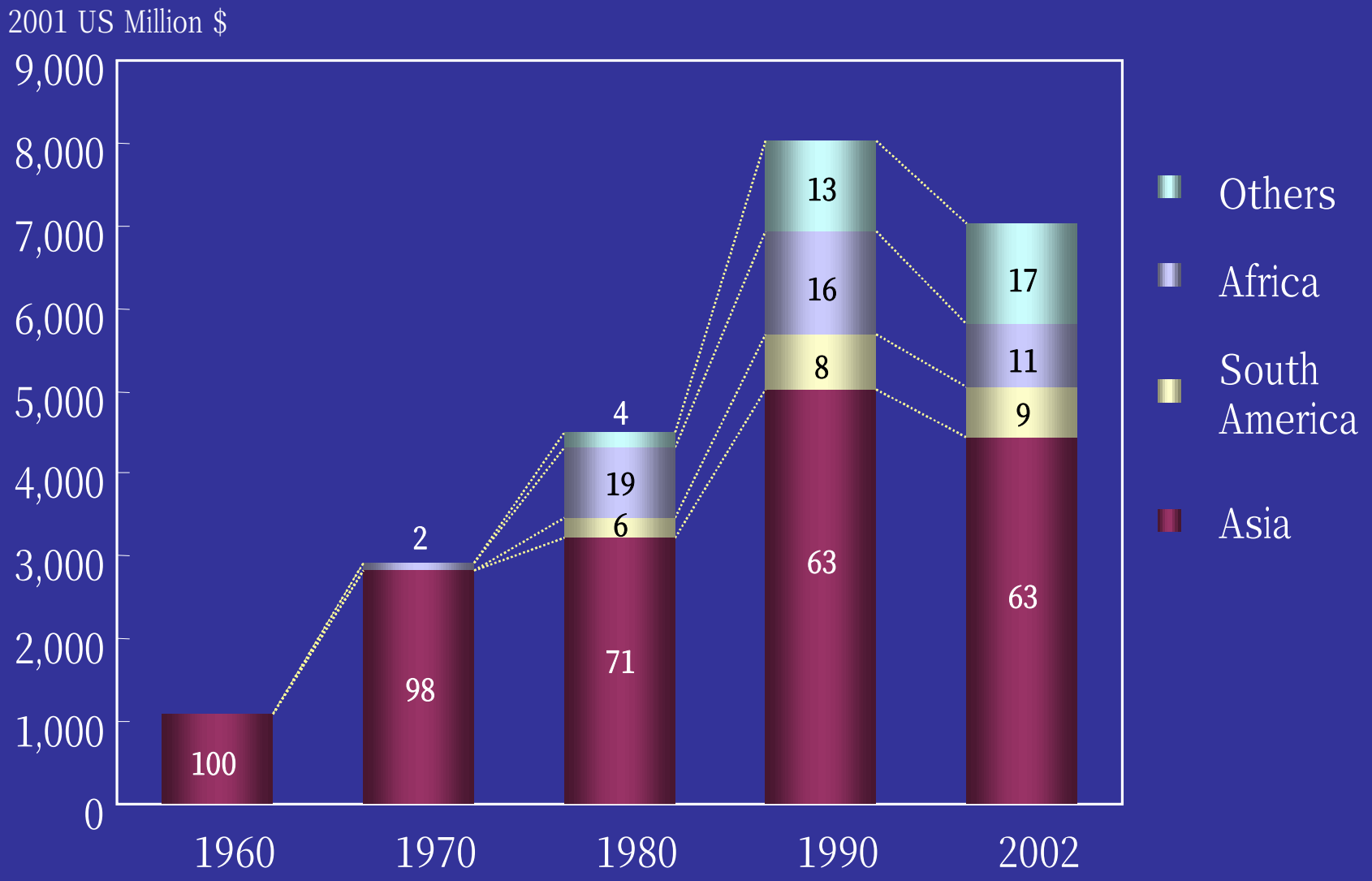
Ex. Niseko

④ Un-sustainable Regions due to Ageing Population

5. Missions of Transportation Experts

- Toward the future of Regions
- Constraints for Projects Implementation
- Competing in the Global Market

Total Value and Distribution of Japan-ODA



The figures in this graph show the share of ODA in each year.

Source: OECD, DAC (2004) International Development Statistics

To the Future

Challenging Issues	=	Expanded Role of Experts
Comprehensive Discussions	→	Detail Design of Measures
Beyond the Countries' Border and Individual Field	↔	Contribution of EASTS

Thank You for Your Kind Attention!