

# Economics 216: The Macroeconomics of Development

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Spring 2002-2003

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# Lecture 1

## The Historical Experience of Economic Development

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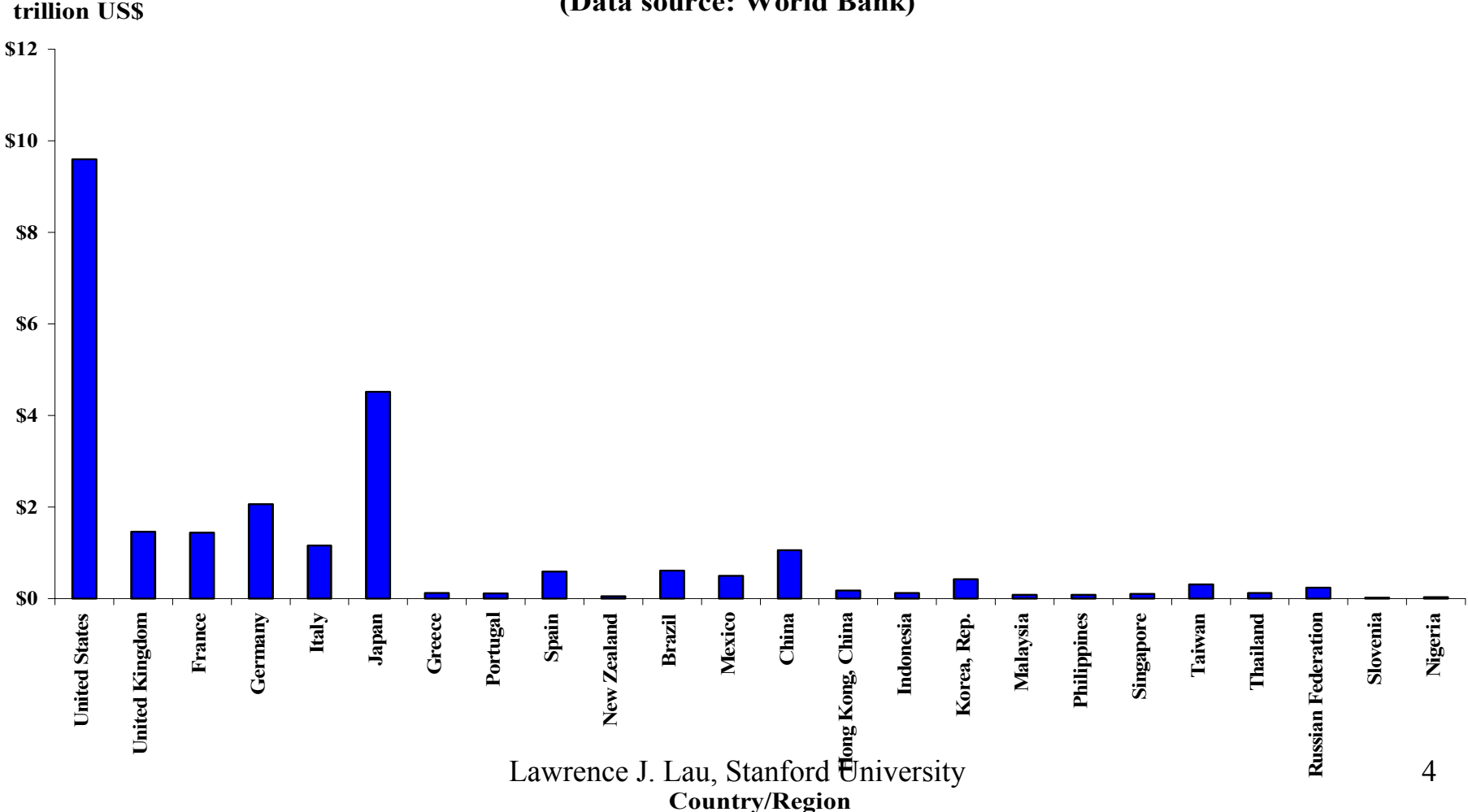
# Defining and Measuring Development

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- ◆ What distinguishes a developed from a developing (underdeveloped) economy?
- ◆ Economic development is multi-dimensional.
- ◆ Level of well-being (aggregate and per capita).
  - ◆ Current consumption of goods and services
  - ◆ Potential consumption of goods and services (gross national product (GNP))
  - ◆ Net change in tangible wealth (increase in physical capital stock, discovery and depletion of natural resources)
  - ◆ Current and future potential consumption of goods and services (national wealth, including natural resources and intangible wealth such as human, R&D and other forms of intellectual capital, goodwill)
  - ◆ Quality of life (leisure, life expectancy, literacy, health (infant mortality, morbidity), environment, choice (freedom), security, rule of law)
- ◆ Distribution of consumption, income, wealth and other benefits of economic development; satisfaction of basic needs; extent and incidence of poverty (both in itself and along ethnic, class and geographical lines); equality of opportunities (consumption externalities).
- ◆ An economically developed country may be underdeveloped in other non-economic, e.g., social and political, dimensions.
- ◆ The rate of growth is just as important as the level--Is there improvement over time? Is life getting better? Is there hope for the future?

# GNPs of Selected Economies, 2000

GNP of Selected Countries/Regions, 2000  
(Data source: World Bank)



# Distribution of GNP Per Capita

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- ◆ Total World GNP in 2001 was US\$31.5 trillion (compared to an U.S. GNP of approximately US\$10 trillion)
- ◆ World GNP per capita in 2001 was US\$ 5,140

Type of economy	Average Per Capita GNP
Low-Income	US\$430
Lower & Middle-Income	US\$1,160
High-Income	US\$26,710
- ◆ GNP per capita in 2000 ranges from a low of US\$100 (Ethiopia) to a high of US\$42,060 (Luxembourg), a multiple of more than 400. U.S. GNP per capita in 2000 is US\$34,100.
- ◆ The mode of the distribution of GNP per capita by countries is between US\$200 and US\$400, with a relative frequency of 0.168; the median is between US\$1,660 and US\$1,670 (Russia, Tonga, West Bank & Gaza, and Romania).
- ◆ GDP per capita in 2002

United States	US\$37,000
China	US\$980

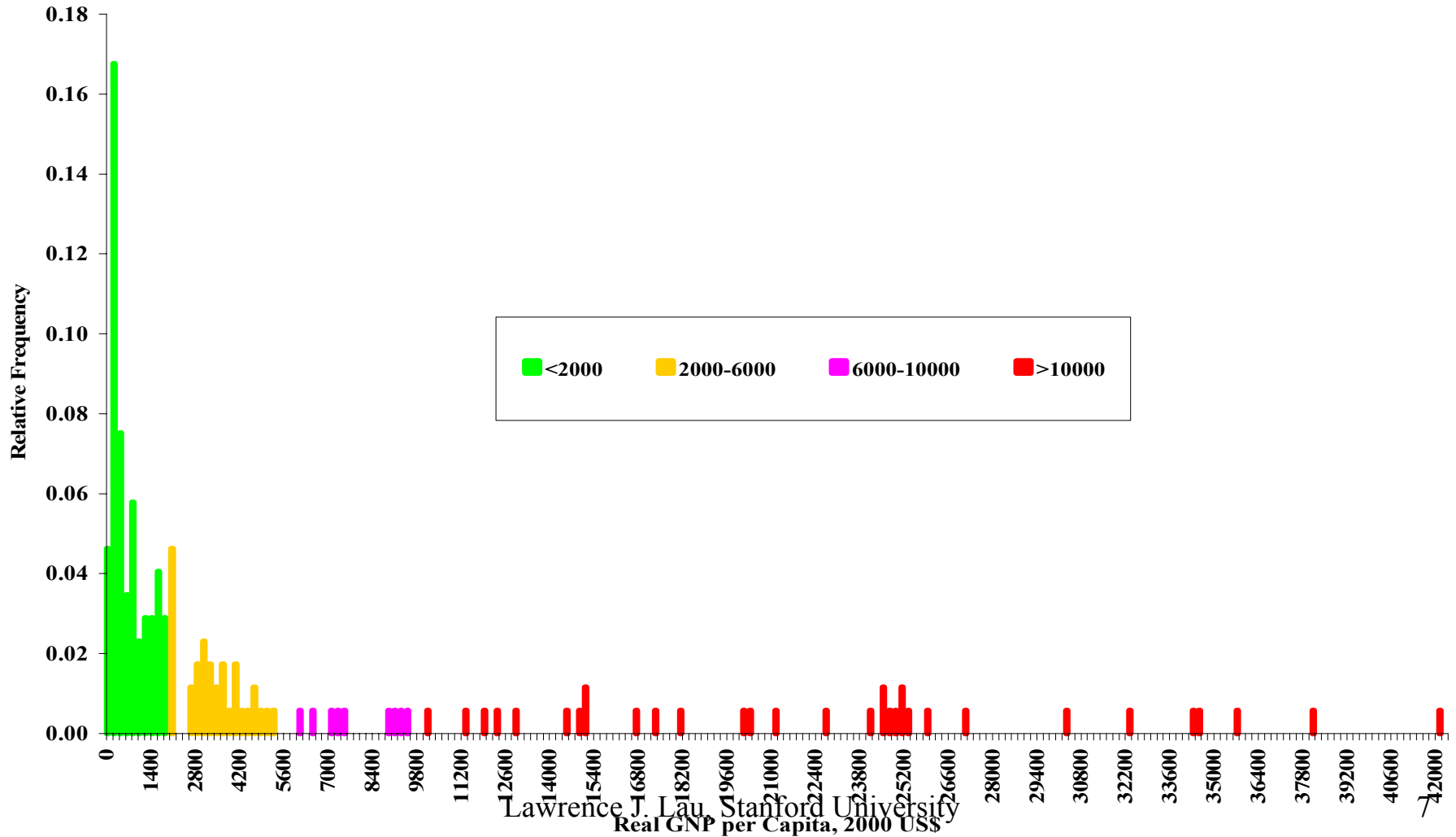
# Real GNPs per Capita of Countries and Regions of the World, US\$, 2000

GNP per Capita, US\$, 2000

1	Ethiopia	100	44	Zimbabwe	460	87	Romania	1670	130	Mexico	5070
2	Burundi	110	45	Senegal	490	88	Guatemala	1680	131	Czech Rep	5250
3	Sierra Leone	130	46	Haiti	510	89	Iran, Islan	1680	132	Uruguay	6000
4	Eritrea	170	47	Armenia	520	90	Jordan	1710	133	St. Kitts a	6570
5	Malawi	170	48	Congo, Re	570	91	Fiji	1820	134	Seychelles	7050
6	Guinea-Bissau	180	49	Indonesia	570	92	Macedonia	1820	135	Saudi Ara	7230
7	Niger	180	50	Cameroon	580	93	Suriname	1890	136	Argentina	7460
8	Tajikistan	180	51	Lesotho	580	94	Maldives	1960	137	Korea, Re	8910
9	Chad	200	52	Bhutan	590	95	Marshall I	1970	138	Malta	9120
10	Burkina Faso	210	53	Azerbaijan	600	96	El Salvado	2000	139	Barbados	9250
11	Mozambique	210	54	Cote d'Ivo	600	97	Thailand	2000	140	Antigua ar	9440
12	Rwanda	230	55	Solomon Is	620	98	Colombia	2020	141	Slovenia	10050
13	Mali	240	56	Georgia	630	99	Namibia	2030	142	Portugal	11120
14	Nepal	240	57	Papua Nev	700	100	Peru	2080	143	Greece	11960
15	Madagascar	250	58	Ukraine	700	101	Tunisia	2100	144	Cyprus	12370
16	Cambodia	260	59	Turkmenis	750	102	Micronesi	2110	145	New Zeala	12990
17	Nigeria	260	60	Equatorial	800	103	Dominican	2130	146	Macao, CH	14580
18	Kyrgyz Republ	270	61	China	840	104	Jamaica	2610	147	Bahamas,	14960
19	Tanzania	270	62	Sri Lanka	850	105	St. Vincen	2720	148	New Caled	15060
20	Central Africa	280	63	Guyana	860	106	Belarus	2870	149	Spain	15080
21	Angola	290	64	Honduras	860	107	Latvia	2920	150	Israel	16710
22	Lao PDR	290	65	Djibouti	880	108	Lithuania	2930	151	French Po	17290
23	Sao Tome and	290	66	Syrian Ara	940	109	South Afri	3020	152	Kuwait	18030
24	Togo	290	67	Yugoslavia	940	110	Turkey	3100	153	Italy	20160
25	Uganda	300	68	Kiribati	950	111	Belize	3110	154	Australia	20240
26	Zambia	300	69	Bolivia	990	112	Gabon	3190	155	Canada	21130
27	Sudan	310	70	Philippines	1040	113	Panama	3260	156	Ireland	22660
28	Gambia, The	340	71	Albania	1120	114	Botswana	3300	157	France	24090
29	Ghana	340	72	Vanuatu	1150	115	Malaysia	3380	158	United Kin	24430
30	Kenya	350	73	Morocco	1180	116	Brazil	3580	159	Belgium	24540
31	Uzbekistan	360	74	Ecuador	1210	117	Estonia	3580	160	Singapore	24740
32	Bangladesh	370	75	Bosnia and	1230	118	Slovak Rep	3700	161	Netherland	24970
33	Benin	370	76	Kazakhsta	1260	119	Mauritius	3750	162	Germany	25120
34	Mauritania	370	77	Cape Verd	1330	120	Grenada	3770	163	Finland	25130
35	Yemen, Rep.	370	78	Swaziland	1390	121	Costa Rica	3810	164	Austria	25220
36	Comoros	380	79	Paraguay	1440	122	Lebanon	4010	165	Hong Kon	25920
37	Mongolia	390	80	Samoa	1450	123	St. Lucia	4120	166	Sweden	27140
38	Vietnam	390	81	Egypt, Ara	1490	124	Poland	4190	167	Iceland	30390
39	Moldova	400	82	Bulgaria	1520	125	Venezuela,	4310	168	Denmark	32280
40	Nicaragua	400	83	Algeria	1580	126	Chile	4590	169	United Sta	34100
41	Pakistan	440	84	Myanmar, Es	1660	127	Yersity	4620	170	Norway	34830
42	Guinea	450	85	Tonga	1660	128	Hungary	4710	171	Japan	35620
43	India	450	86	West Bank	1660	129	Trinidad a	4930	172	Switzerlan	38140
									173	Luxembou	42060

# Relative Frequency Distribution of Real GNP per Capita of Countries & Regions of the World

Relative Frequency Distribution of Real GNP per Capita of Countries & Regions of the World



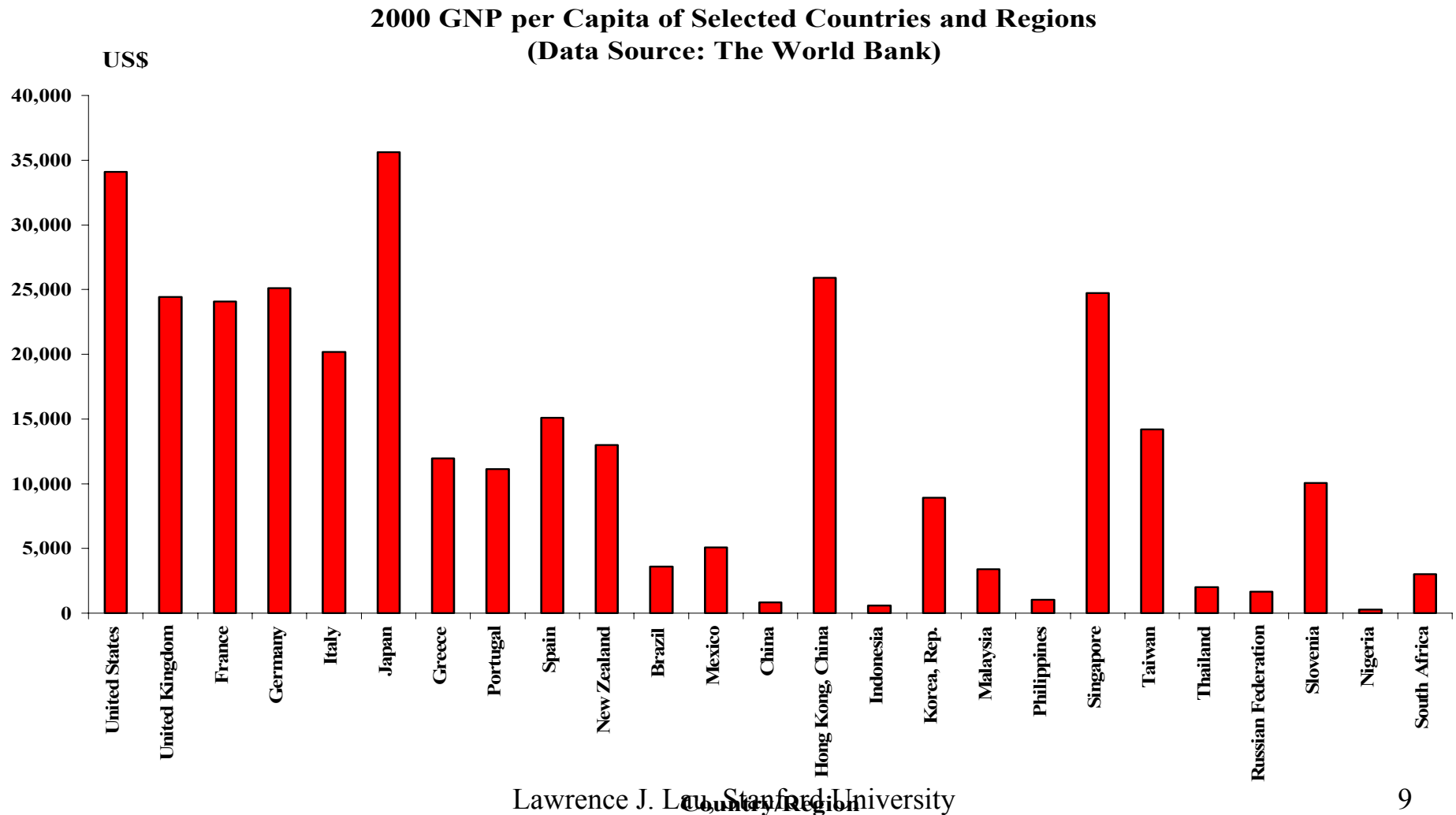
# Is Economic Development an Absolute or Relative Concept?

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- ◆ In 1963, Japan was considered to have achieved developed country status by attaining the then GNP per capita of Italy, which had the lowest level of GNP per capita among the developed countries at the time (US\$6,000 in 1963 prices, equivalent to US\$28,100 in 2000 prices).
- ◆ A year later, Japan was admitted as a member of the Organization for Economic Cooperation and Development (OECD)
- ◆ South Korea (GNP per capita = US\$8,910 in 2000) was admitted as a member of OECD in 1997 (however, South Korean GNP per capita declined precipitously in US\$ terms as a result of the East Asian currency crisis of 1997-1998).
- ◆ Should we use the real GNP per capita of Italy in 1963 or the current real GNP per capita of Italy (US\$20,160 in 2000) as a criterion?



# GNP per Capita of Selected Economies, 2000



# A Working Definition of a Developed Economy

## ◆ Economies on the borderline of “developed” status

Economy	Per Capita GNP in 2000
Argentina	US\$7,460
Greece	US\$11,960
Italy	US\$20,160
South Korea	US\$8,910
Mexico	US\$5,070
New Zealand	US\$12,990
Portugal	US\$11,120
Slovenia	US\$10,050
Spain	US\$15,080
Taiwan	US\$14,188

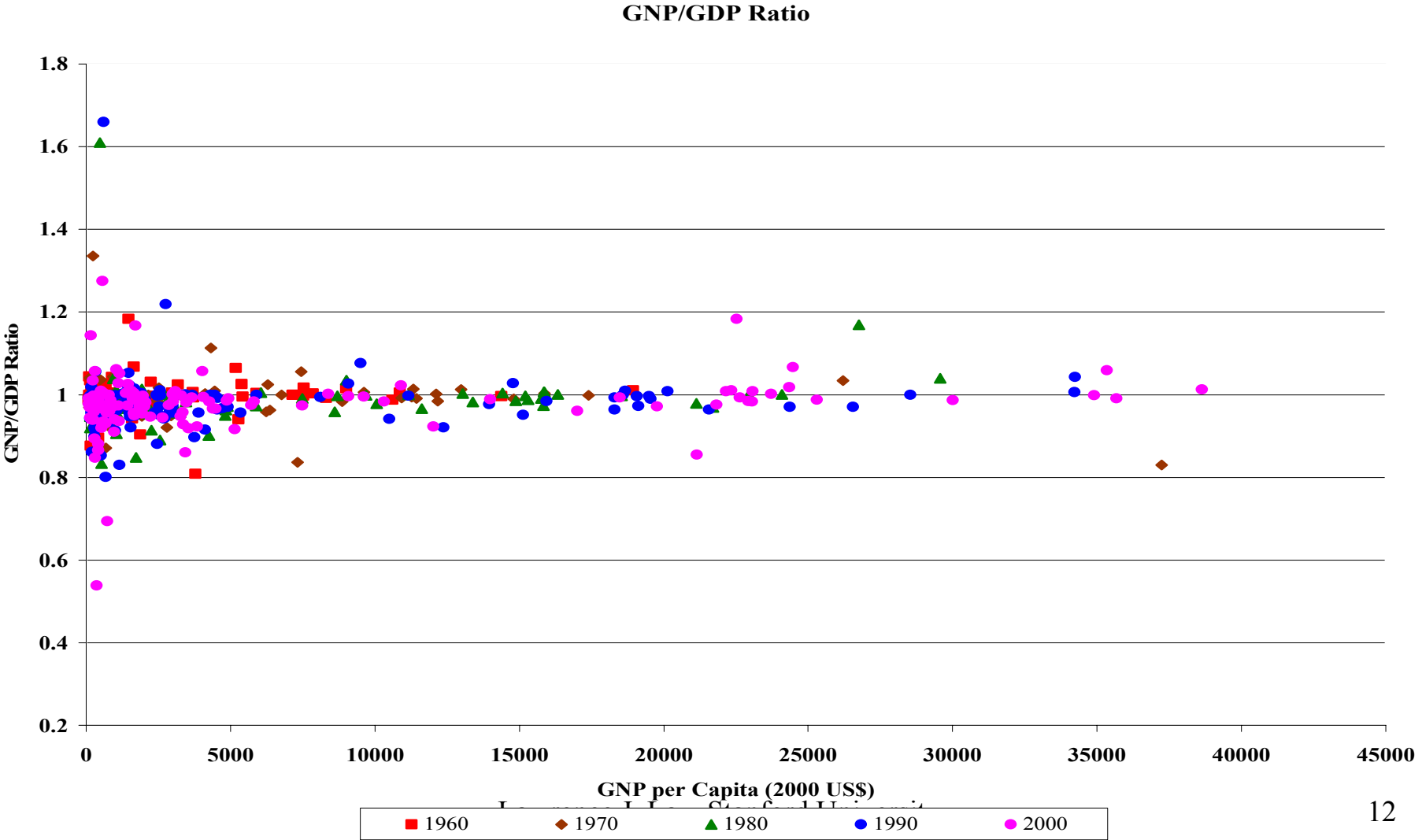
◆ An economy is said to be developed if its GNP per capita exceeds US\$10,000 in 2000 US\$.

◆ There are very few economies that will be wrongly classified.

# Measurement and Comparability Issues

- ◆ GNP--Gross National Product--the value of goods and services produced by the nationals of a country (regardless of location) in a given period.
- ◆ GDP--Gross Domestic Product--the value of goods and services produced within the geographical boundaries of a country or region in a given period.
- ◆ The differences between GNP and GDP—net factor incomes from abroad--incomes of foreign direct investment and expatriate workers, profits earned by foreign investors (both portfolio and direct) and lenders—are for most economies quite minor.
- ◆ As an indicator of the well-being or the standard of living of the nationals of a country, GNP is more reliable than GDP.

# GNP/GDP Ratios



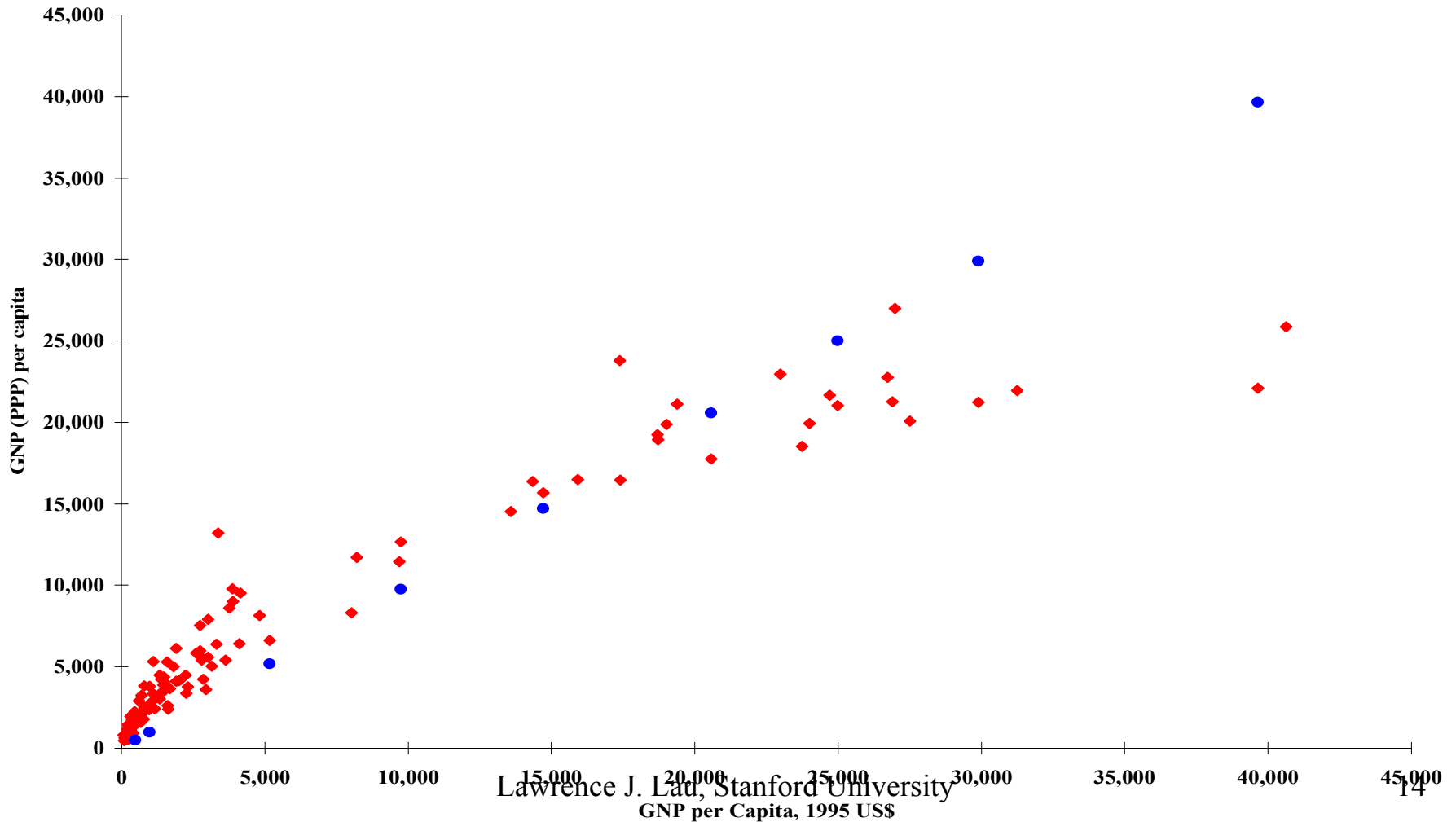
# Measurement and Comparability Issues

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- ◆ Aggregate or per capita
- ◆ Level or rate of growth
- ◆ Market or “Purchasing-Power-Parity” (PPP) exchange rate
  - ◆ Relative prices of goods and services differ across countries
  - ◆ One would want to make international comparison of aggregate real output or GNP that abstracts from differences in relative prices--use of a single common set of prices
  - ◆ An index number problem--the outcome depends on the set of prices used
  - ◆ Differences in prices across countries are the greatest in the non-tradable sector (e.g., real estate, service sector); prices of tradable goods are less variable across countries although there are also differences in transportation costs, tariffs, distribution margins and tastes.
  - ◆ Differences in prices may in turn induce differences in the composition of the outputs of different countries, further affecting the results of the comparison—it is in principle possible for two economies to have alternately a higher “PPP” GDP than the other depending on the set of prices used.
  - ◆ PPP adjustments typically raise the GNP of low-income countries and lower the GNP of high-income countries
- ◆ Differences in basic needs (e.g., climatic and physiological differences) may also cause differences in prices in addition to differences in tastes.

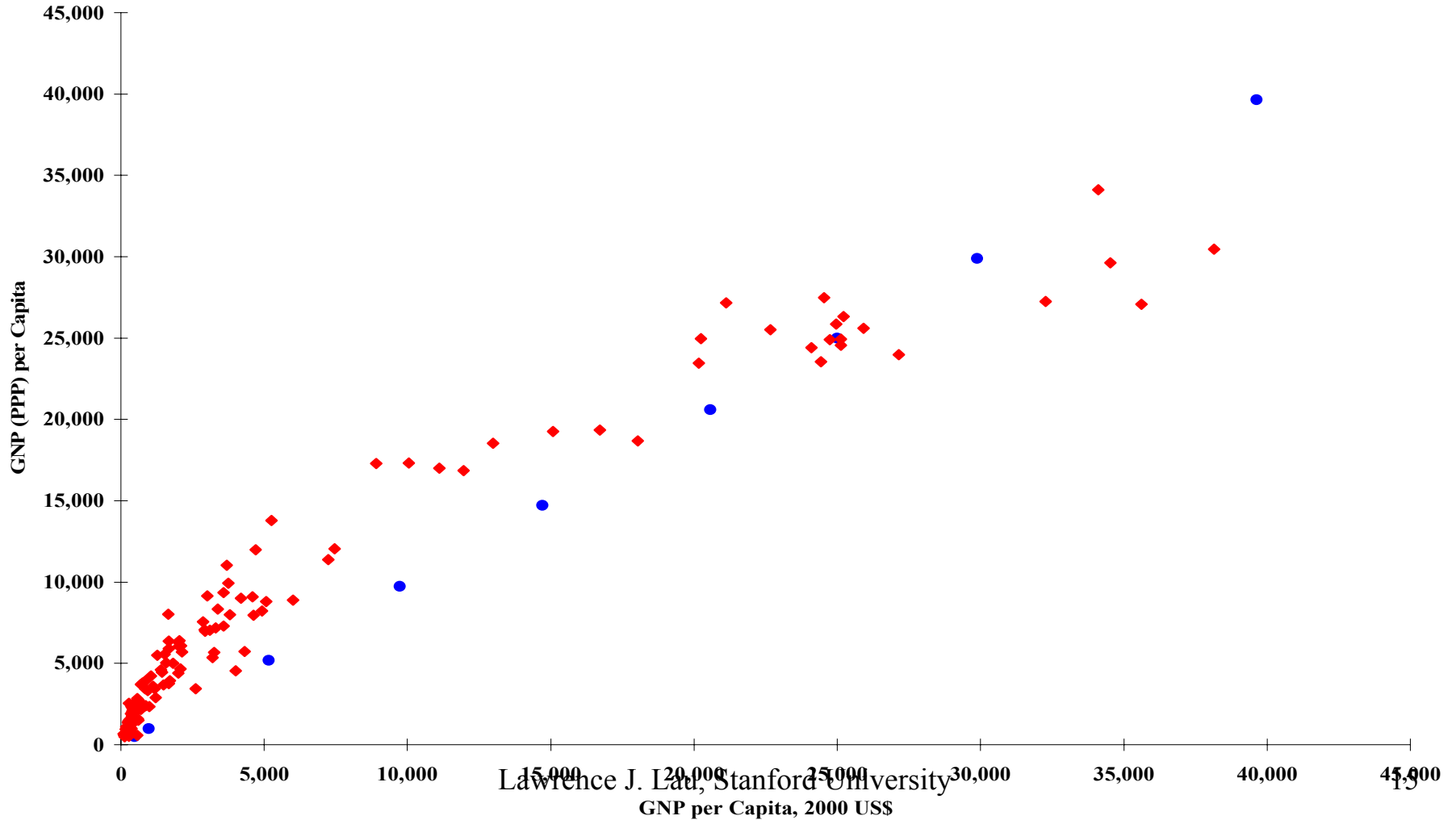
# GNP (PPP) per Capita and GNP per Capita, 1995

GNP (PPP) per Capita and GNP per Capita, 1995, US Dollars



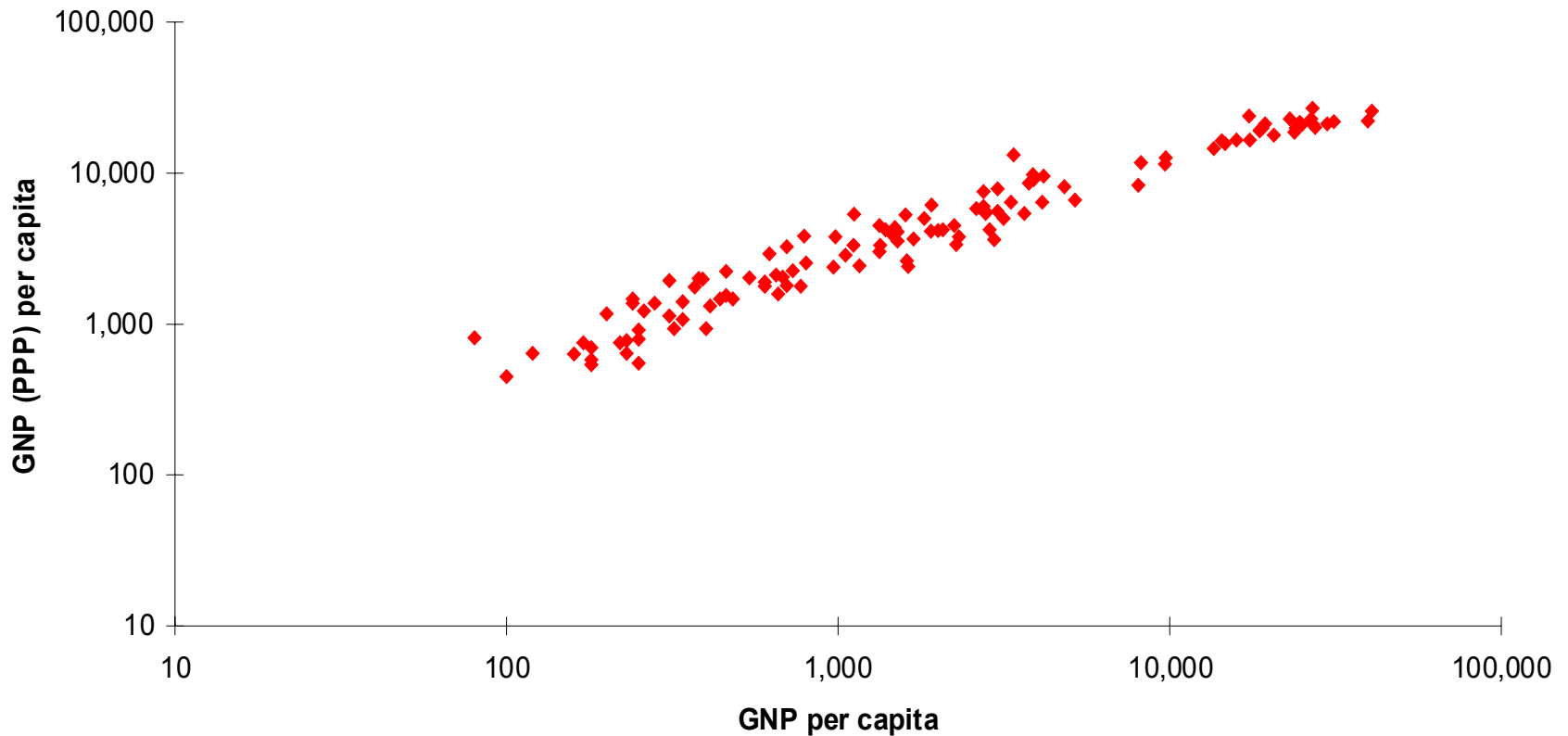
# GNP (PPP) per Capita and GNP per Capita, 2000

GNP (PPP) per Capita and GNP per Capita, 2000, US Dollars



# GNP (PPP) per Capita and GNP per Capita, 1995 (Logarithmic Scale)

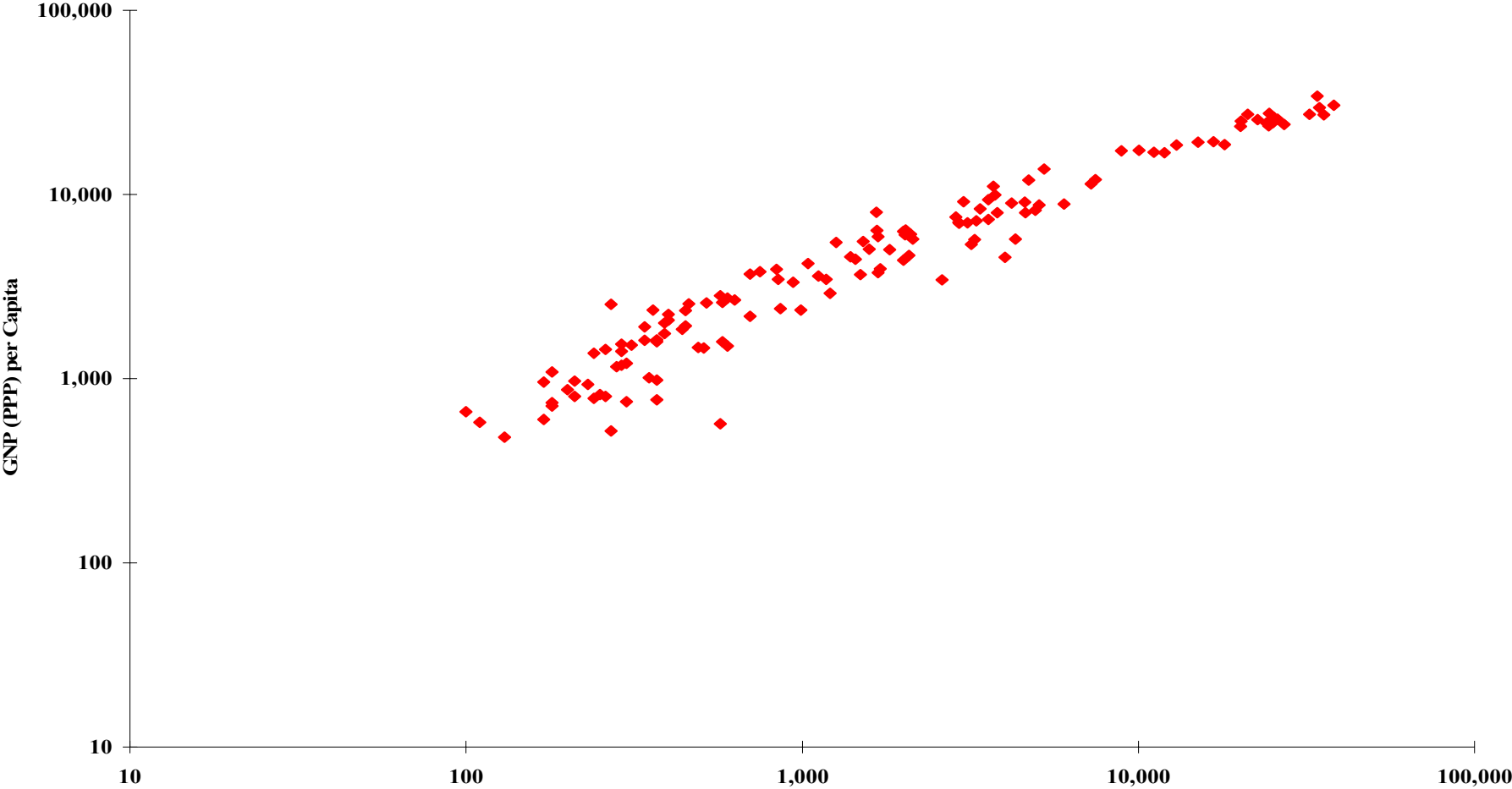
GNP (PPP) per capita and GNP per capita, 1995, US Dollars





# GNP (PPP) per Capita and GNP per Capita, 2000 (Logarithmic Scale)

GNP (PPP) per Capita and GNP per Capita, 2000, US Dollars



# Measurement and Comparability Issues

- ◆ Tangible and intangible investment and wealth (the effect of treatment of expenditures on education, R&D, software, goodwill, re-organization and restructuring that are routinely expensed (for accounting and tax reasons) in underestimating true value-add (GNP) and savings and investment)
- ◆ Depletion of exhaustible resources--oil, forests, other minerals, guano, etc--and degradation of air and water and other natural and environmental resources should be subtracted from GNP (it is similar to a reduction of the stock of inventory)
  - ◆ Kuwait and Saudi Arabia have high measured GNP per capita but are not considered developed economies
- ◆ Unrealized capital gains and losses
- ◆ The value of time (leisure) and other non-market activities
  - ◆ e.g., imputation of income from owner-occupied residential housing and consumer durable
  - ◆ Marketization or monetization boosts measured GDP and GNP without necessarily increasing welfare to the same extent. Is there real value added?
- ◆ Is an expenditure on a good or service a benefit or a cost? A question of the origin or initial conditions (e.g., should elective surgery be treated differently from non-elective surgery?)

# Indicators of Economic Development Other Than Real GNP per Capita

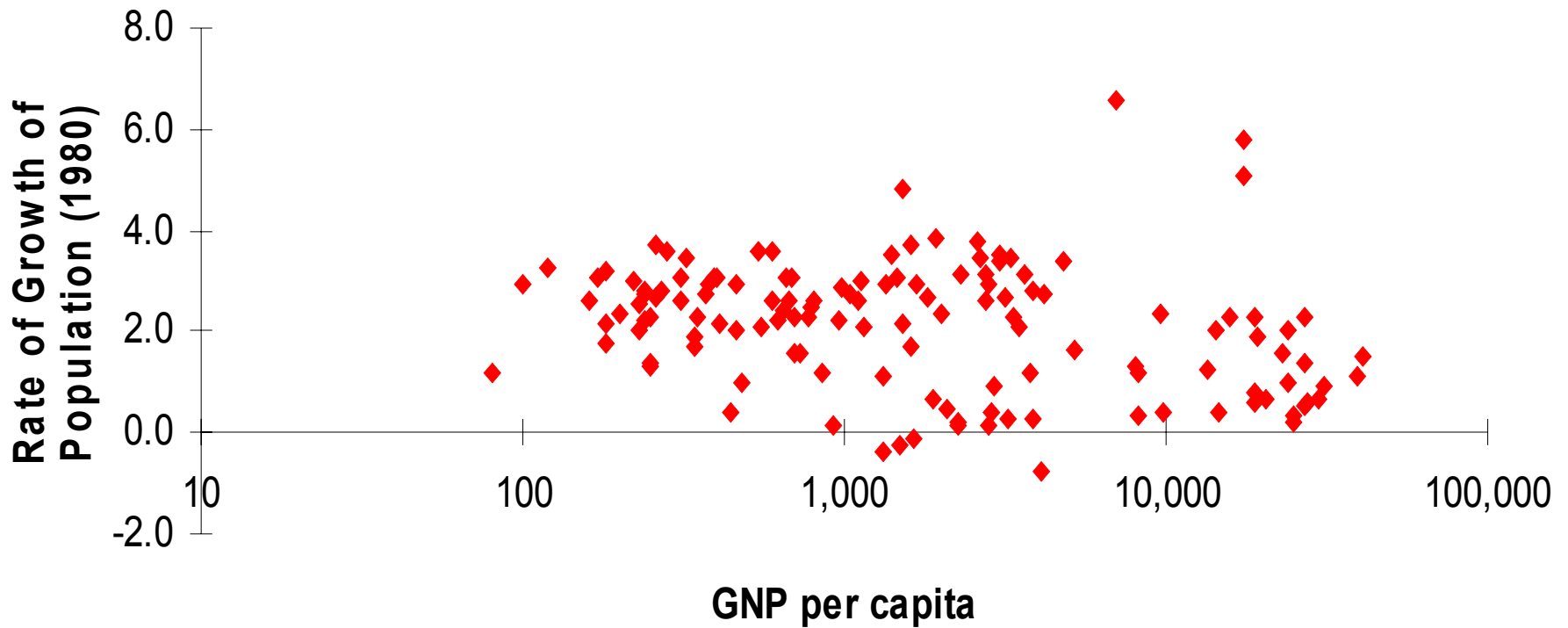
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- ◆ Real consumption per capita; energy consumption per capita
- ◆ The rate of growth of population; the rate of fertility
  - ◆ Economic development is almost always preceded by a decline in the rate of growth of population (the outliers in 2000 are Jordan and Singapore) and the rate of fertility
  - ◆ The rate of fertility has been shown empirically to depend on female education and female educational and employment opportunities and on the degree of urbanization
- ◆ The shares of value added originating from and the share of labor force employed by agriculture (primary), industry (secondary) and service (tertiary) sectors
  - ◆ The shares of agriculture in GDP and employment always decline with the level of economic development, with the former declining faster than the latter.
  - ◆ However, two kinds of services may be distinguished--high value-added and low-value added services (internet, financial, professional services versus fast-food and hawking in the streets). Thus, the shares of the service sector are frequently higher than the shares of the industrial sector throughout the process of economic development. Ultimately, for developed economies, the service sector dominates.
- ◆ Real wealth per capita (physical, human, and other intangible wealth (e.g., R&D capital), and natural resources); capital intensity
- ◆ Construction of the “National Balance Sheet”--adding up wealth creation, depletion of natural resources and degradation of the environment as well as the net stock of portfolio and direct investments abroad and subtracting net debt owed to foreign nationals.
- ◆ US\$10,000 in 2000 prices as a marker separating developed and developing economies

# Demographic Transition: The Rate of Growth of Population, 1995 (1)

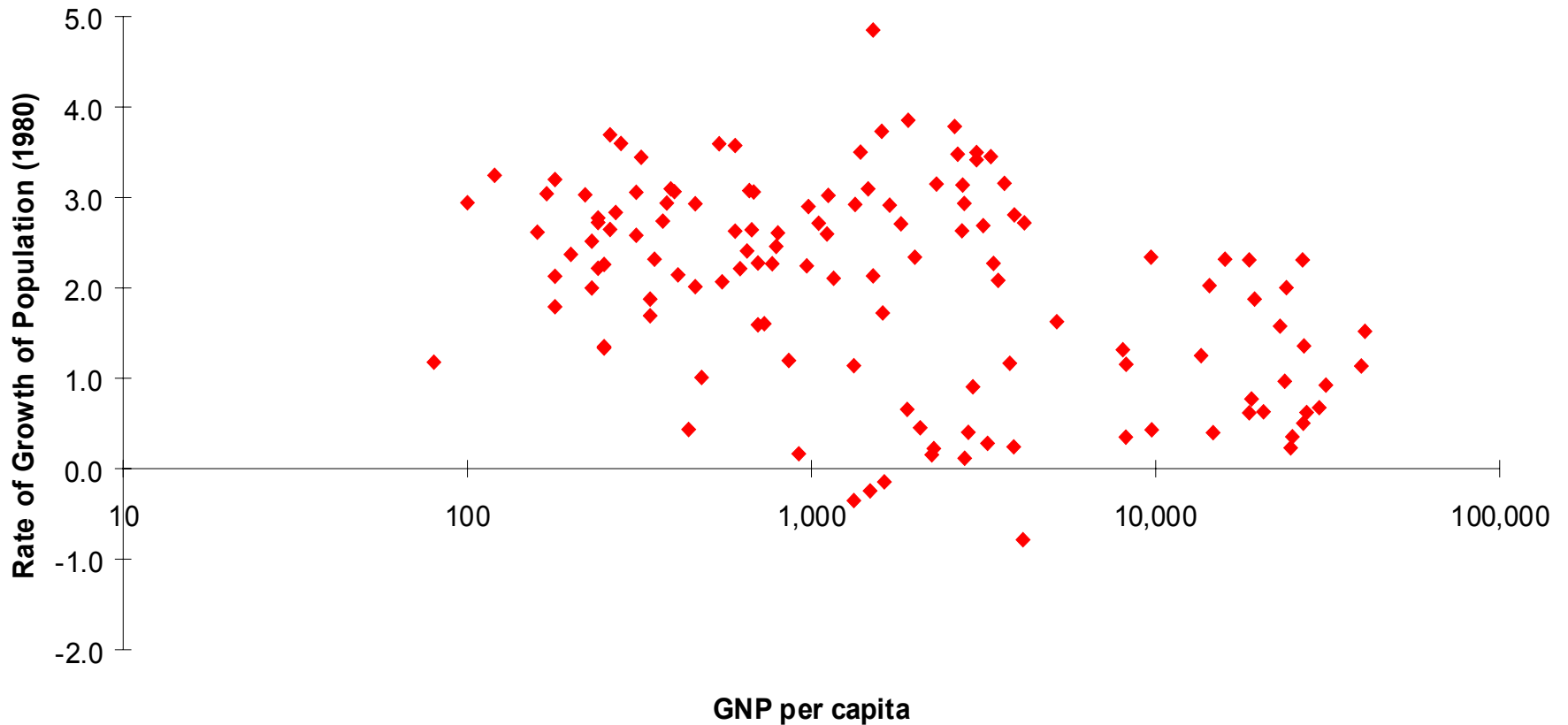
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Rate of Growth of Population and GNP per capita



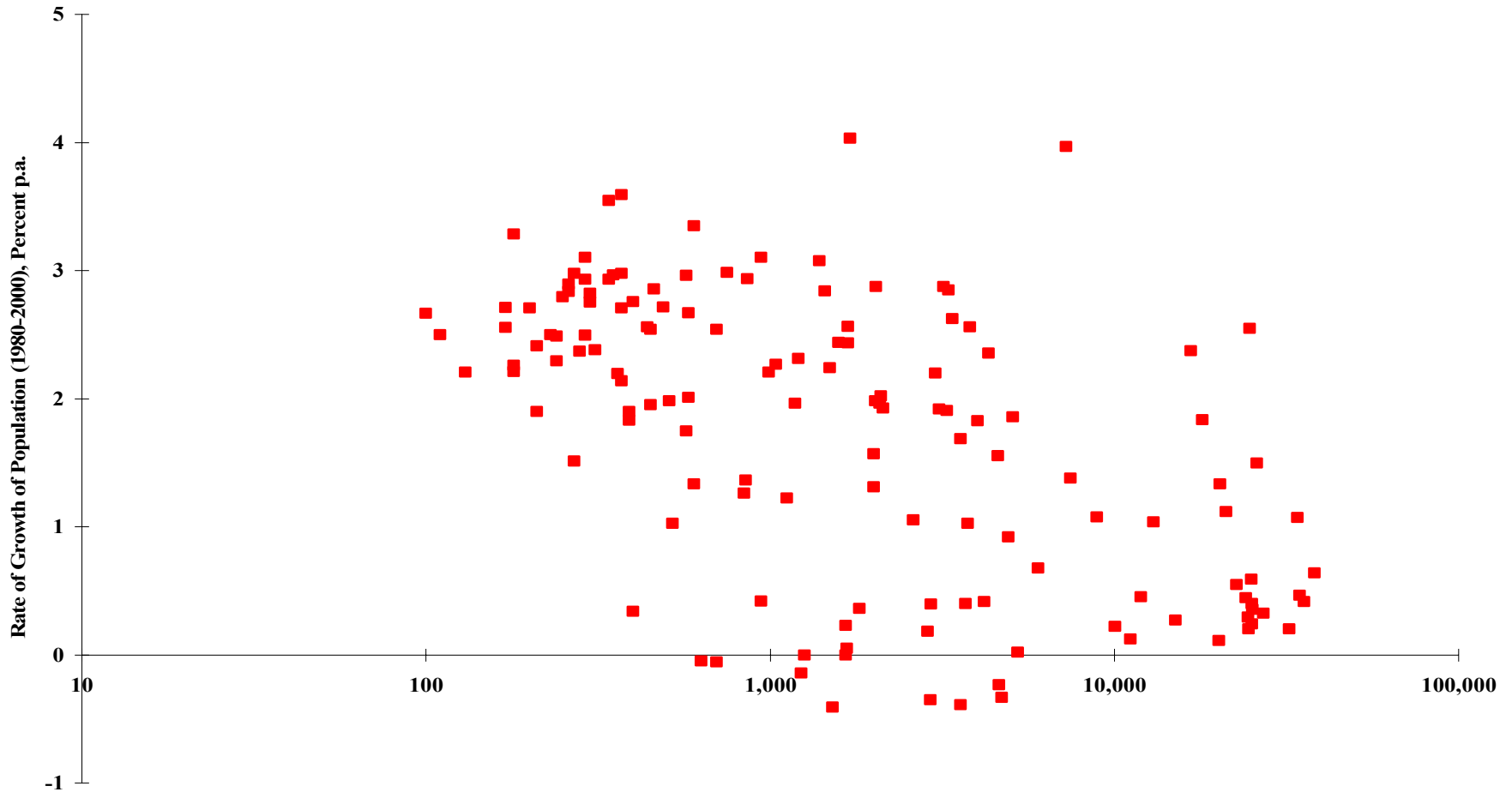
# Demographic Transition: The Rate of Growth of Population, 1995 (2)

Rate of Growth of Population and GNP per capita (without oil producers)



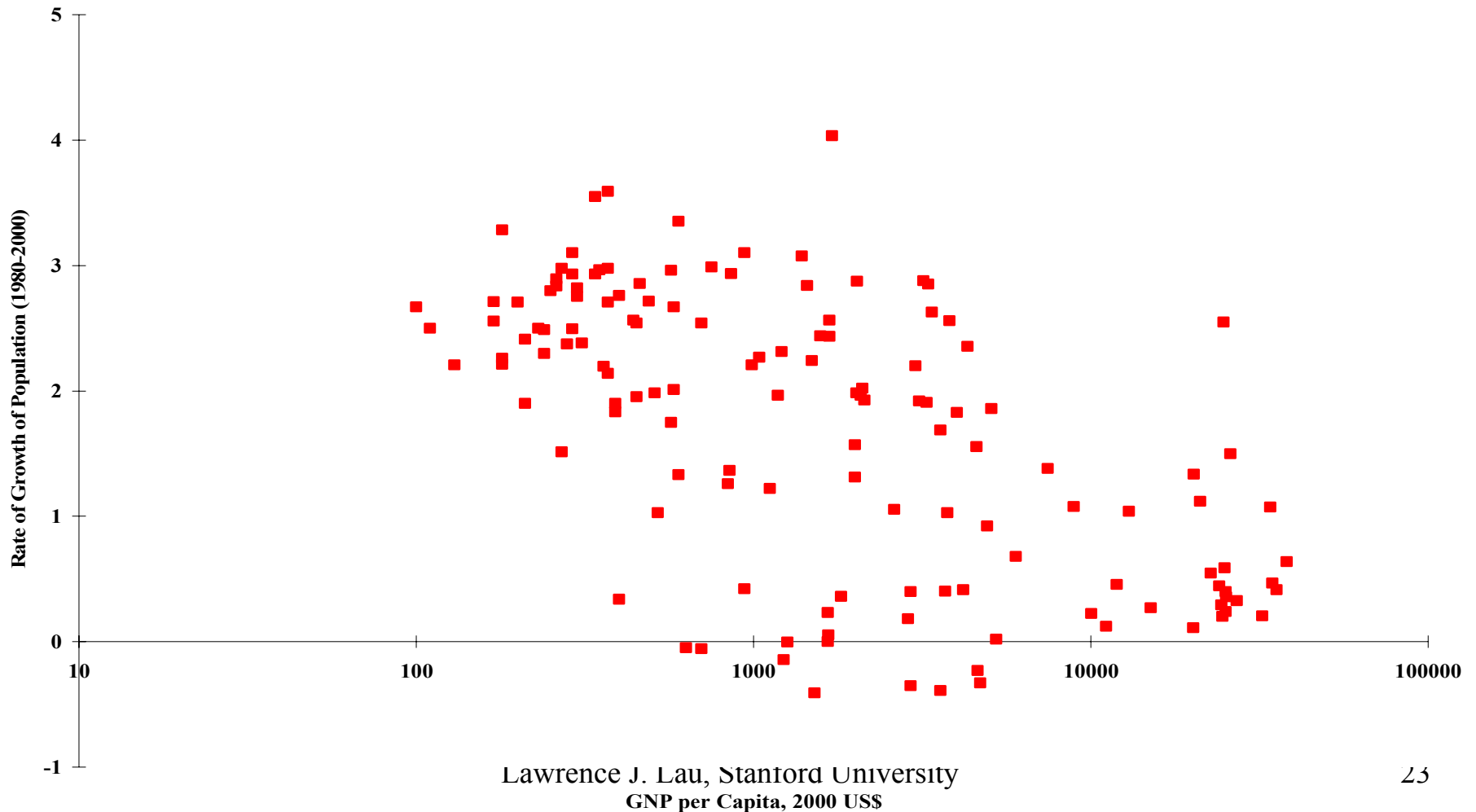
# Demographic Transition: The Rate of Growth of Population, 2000 (1)

Rate of Growth of Population and GNP per capita



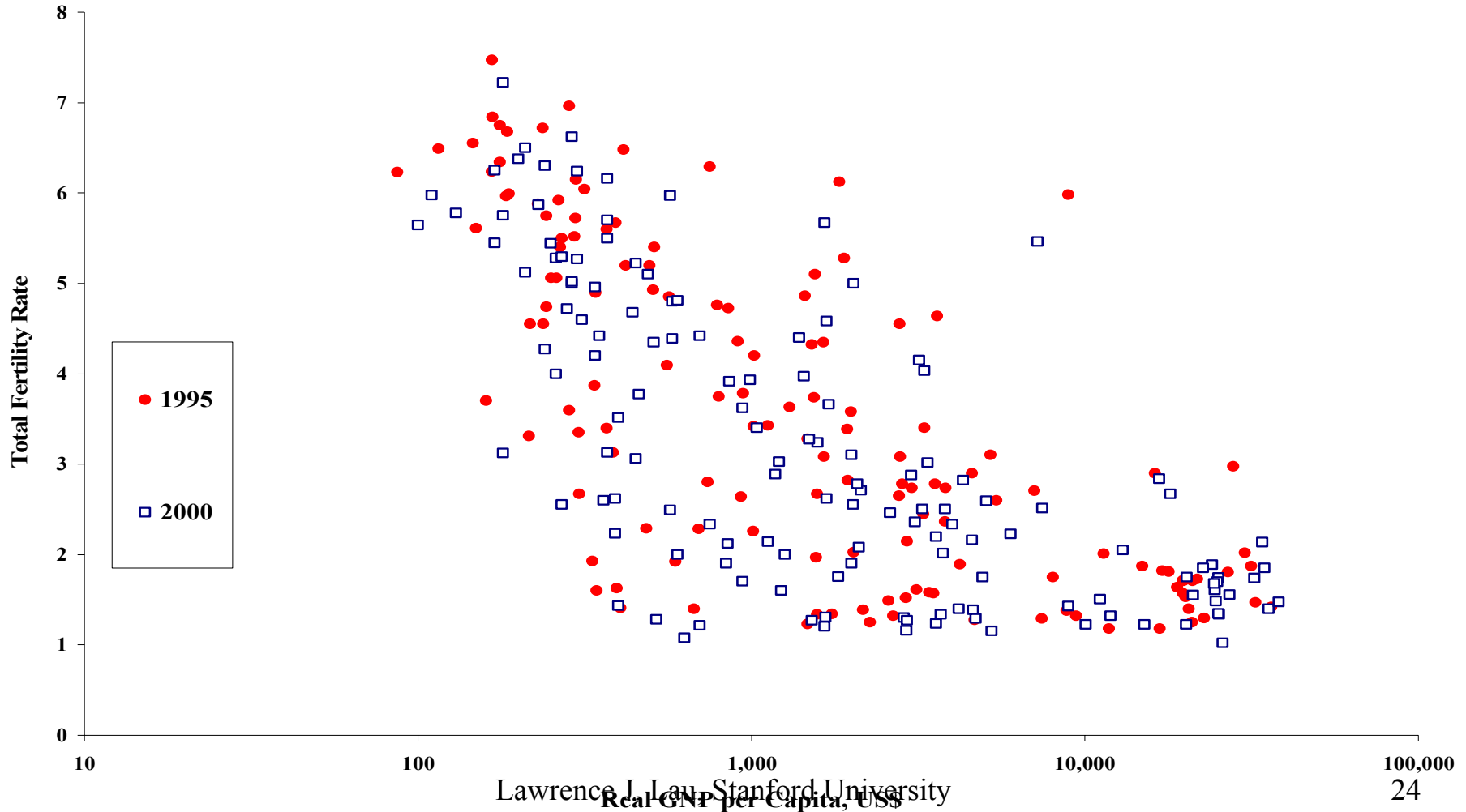
# Demographic Transition: The Rate of Growth of Population, 2000 (2)

Rate of Growth of Population and GNP per Capita (without oil producers)



# Demographic Transition: Total Fertility Rate and GNP per Capita

Total Fertility Rate and GNP per Capita, 1995 and 2000





# Why Do the Shares of the Agricultural Sector in Both GDP and Employment Decline?

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## ◆ The demand side

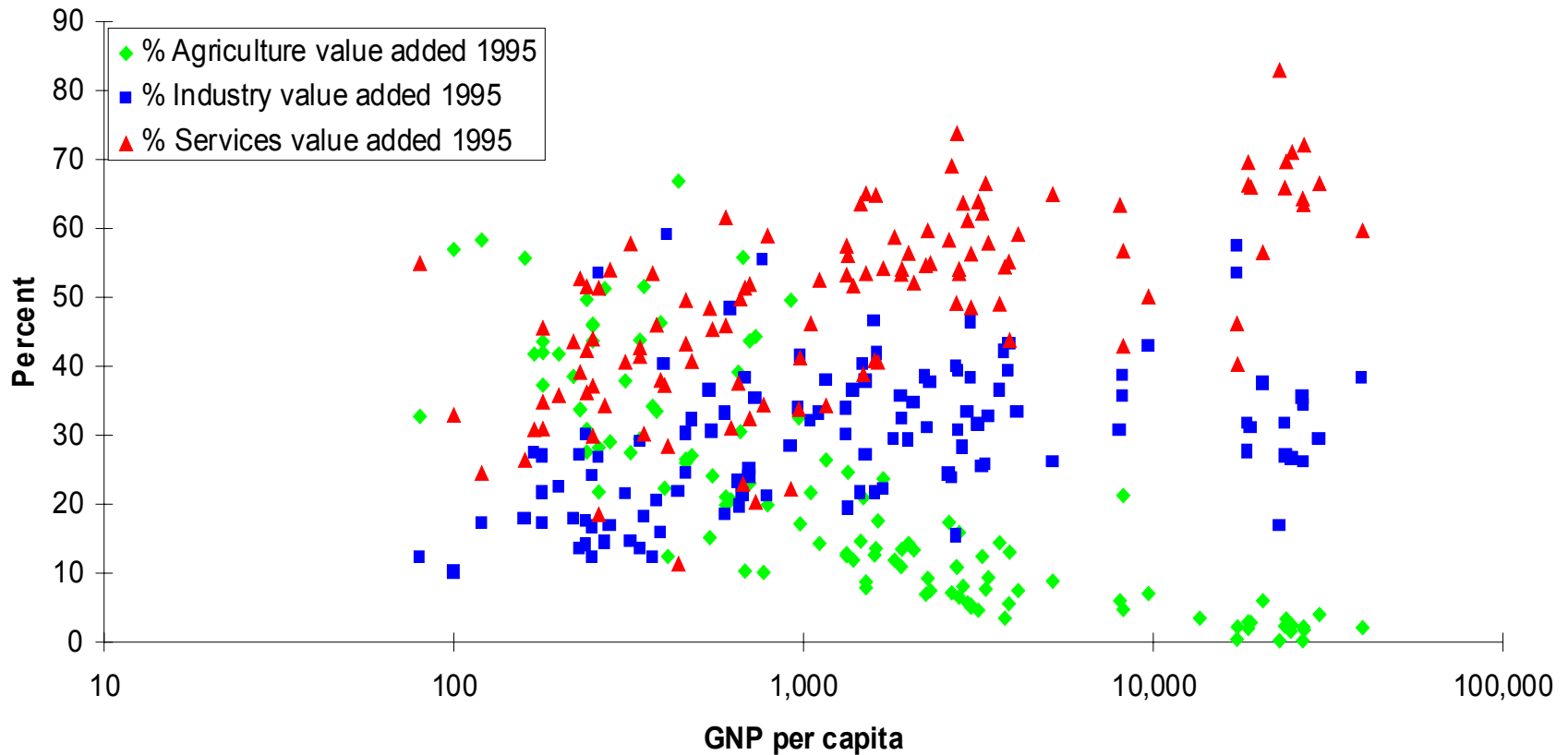
- ◆ Engel's Law—the household demand for food (primary commodities) rises less than proportionately as income, I.e., its share of the budget declines or equivalently the income elasticity of demand is less than one; increased aggregate demand must come from other sectors
- ◆ The price elasticity of demand for food (agricultural commodities) is low—increases in the quantity of agricultural output result in less than proportionate increase in the value of agricultural output

## ◆ The supply side

- ◆ The supply of arable land is fixed, limiting expansion of supply
- ◆ Increased productivity in agriculture releases labor force to the other sectors
- ◆ There is much more scope for product and process innovation in the industrial and service sectors compared to that of agriculture

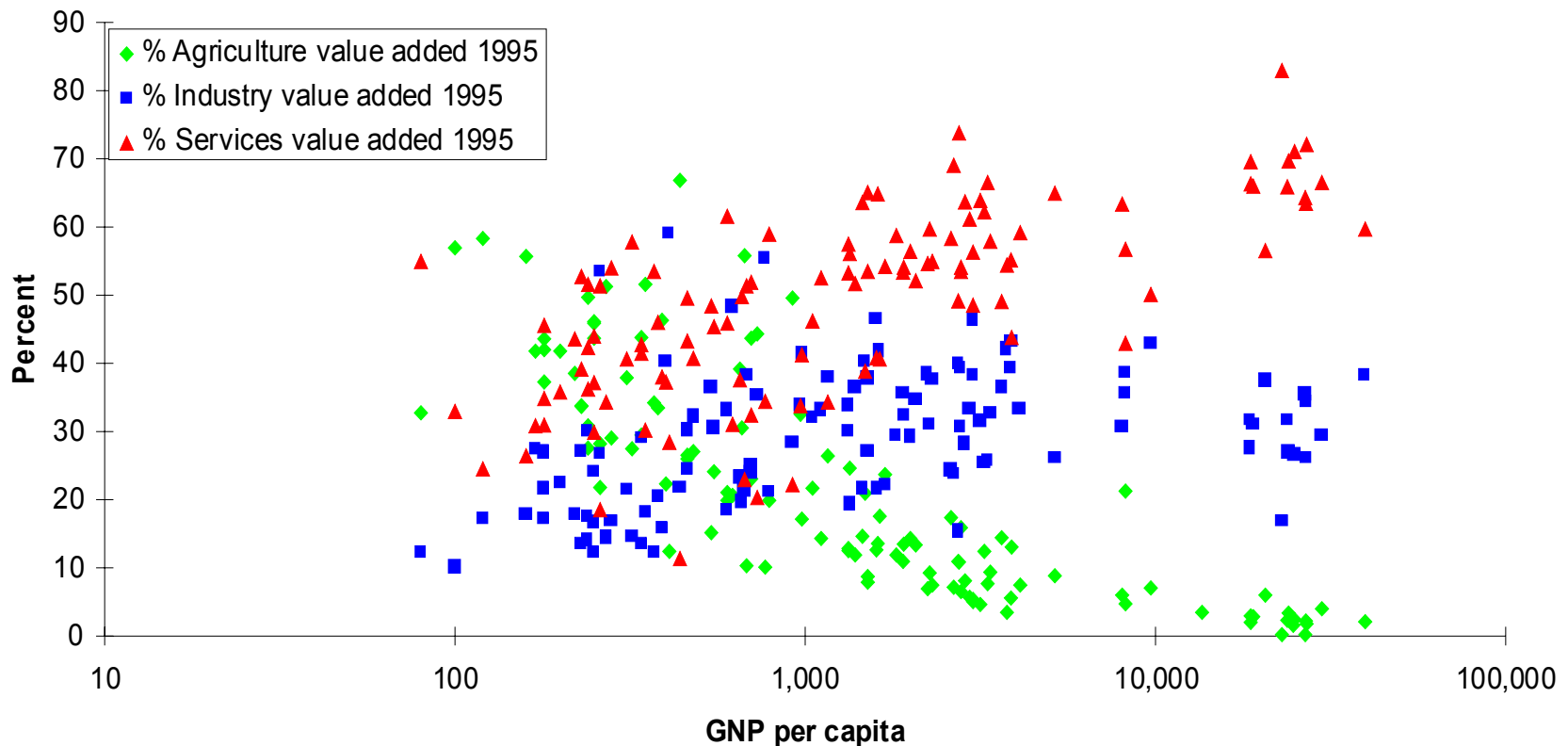
# Sectoral Composition of Output and GNP per Capita, 1995

Sectoral Composition of Output and GNP per capita, 1995



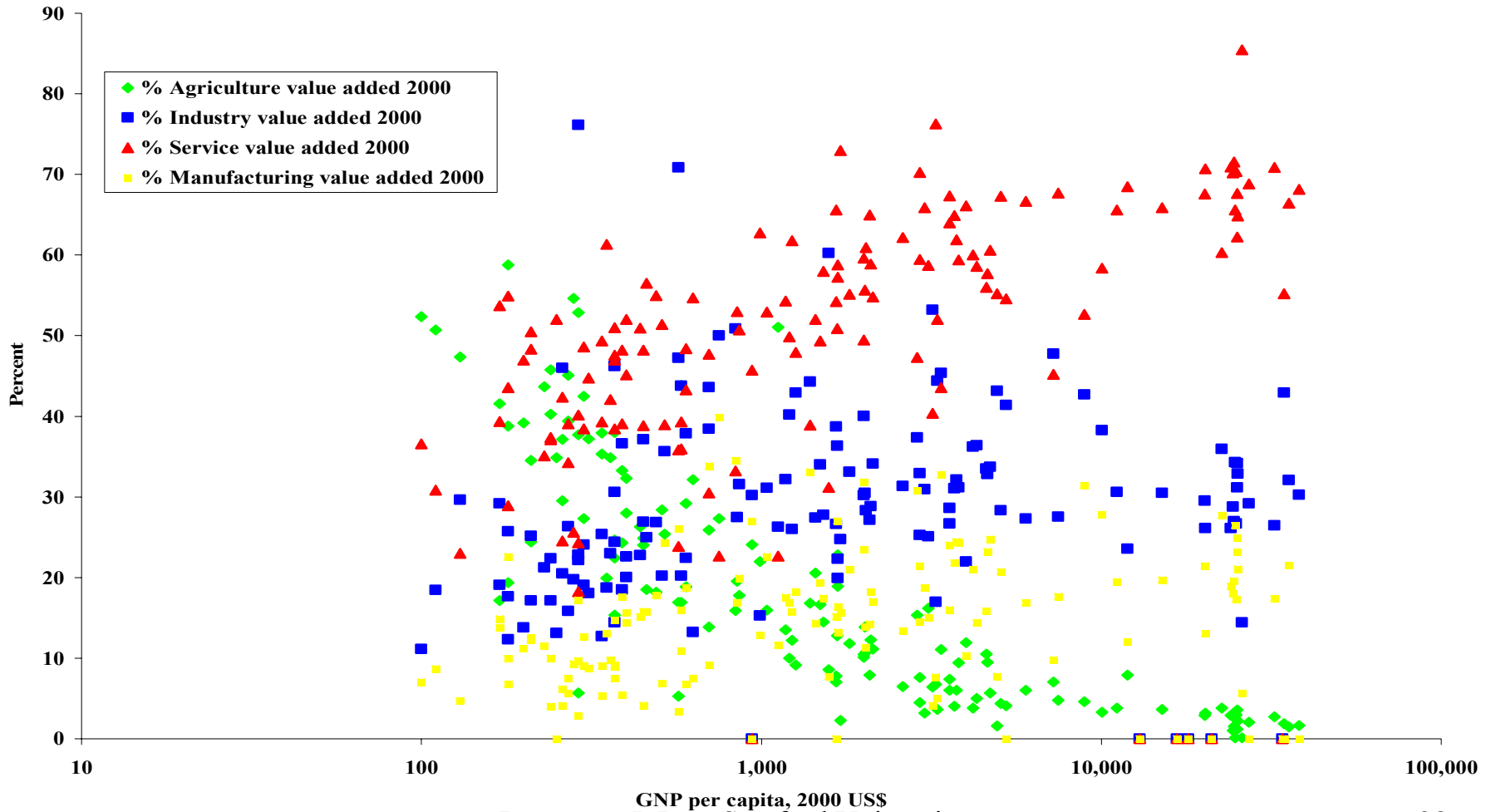
# Sectoral Composition of Output and GNP per Capita, 1995 (without Oil Producers)

Sectoral Composition of Output and GNP per Capita, 1995 (without Oil Producers)



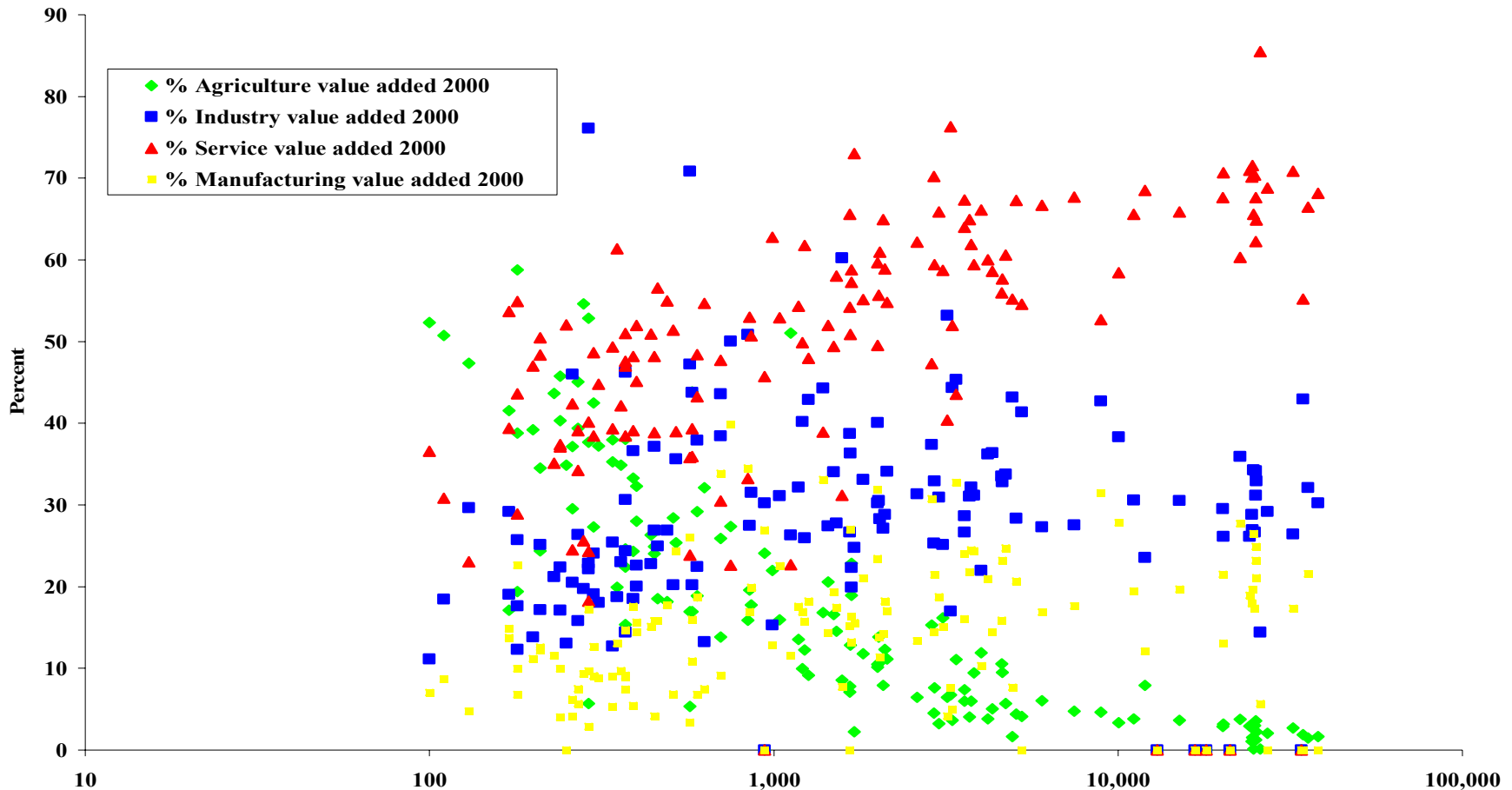
# Sectoral Composition of Output and GNP per Capita, Cross-Section of All Economies, 2000

Sectoral Composition of Output and GNP per capita, 2000



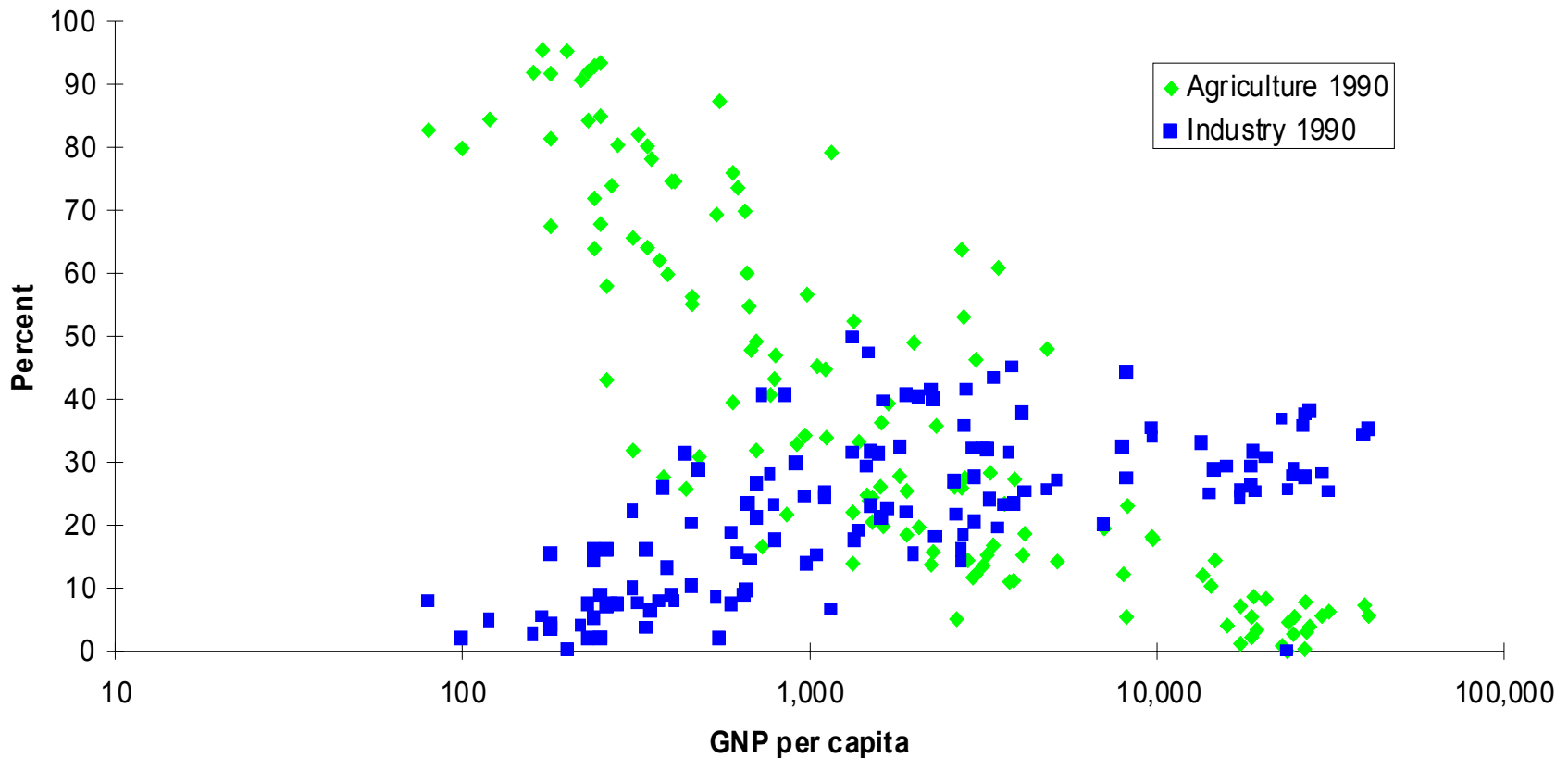
# Sectoral Composition of Output and GNP per Capita, 2000 (without Oil Producers)

Sectoral Composition of Output and GNP per Capita, 2000, without Oil Producers



# Sectoral Composition of Labor Force and GNP per Capita, 1995

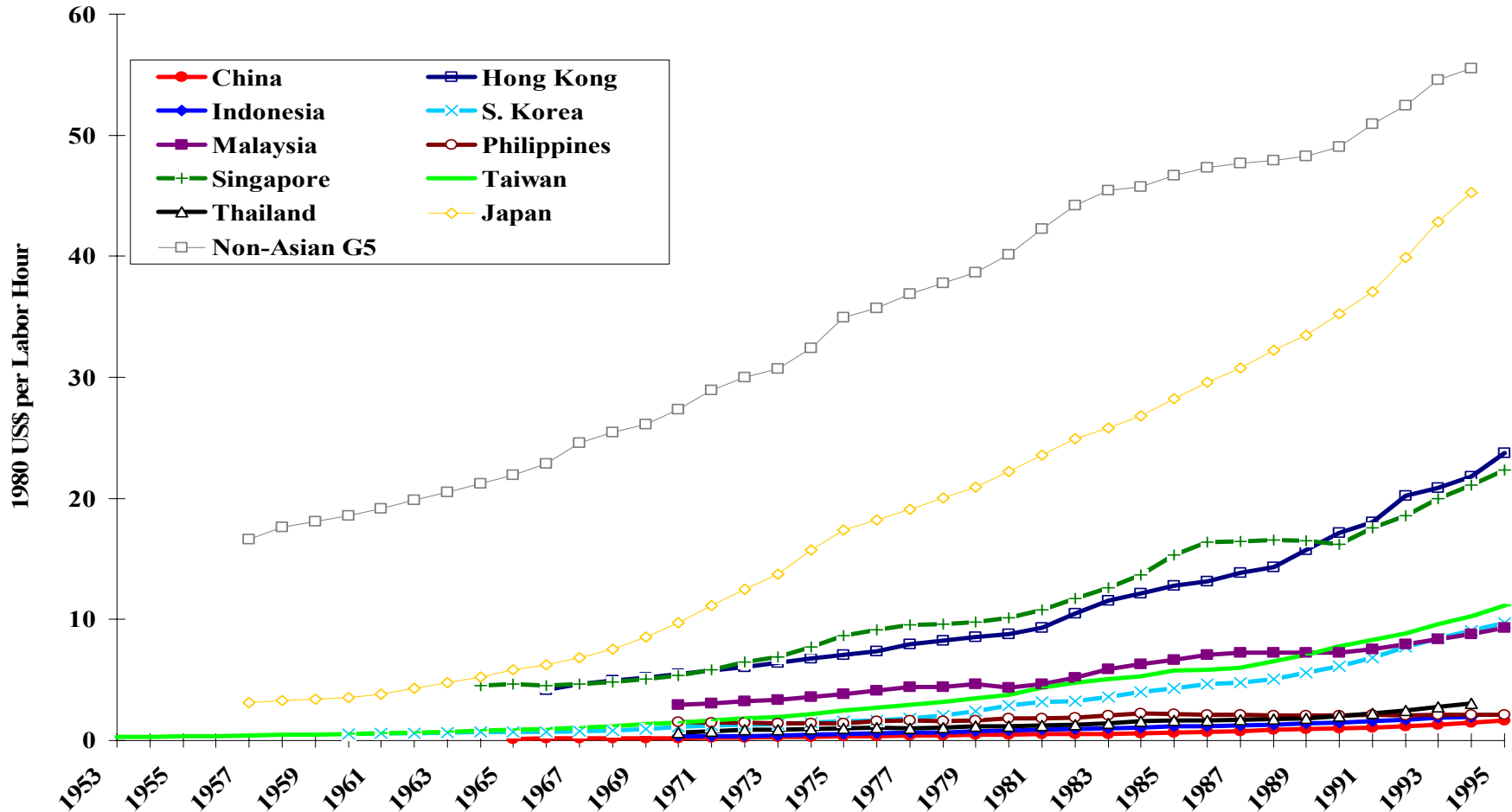
Sectoral Composition of Labor Force, 1990, and GNP per Capita, 1995





# Tangible Capital Stock per Labor Hour (1980 US\$): Selected Economies

Tangible Capital Stock per Labor Hour (1980 U.S.\$)



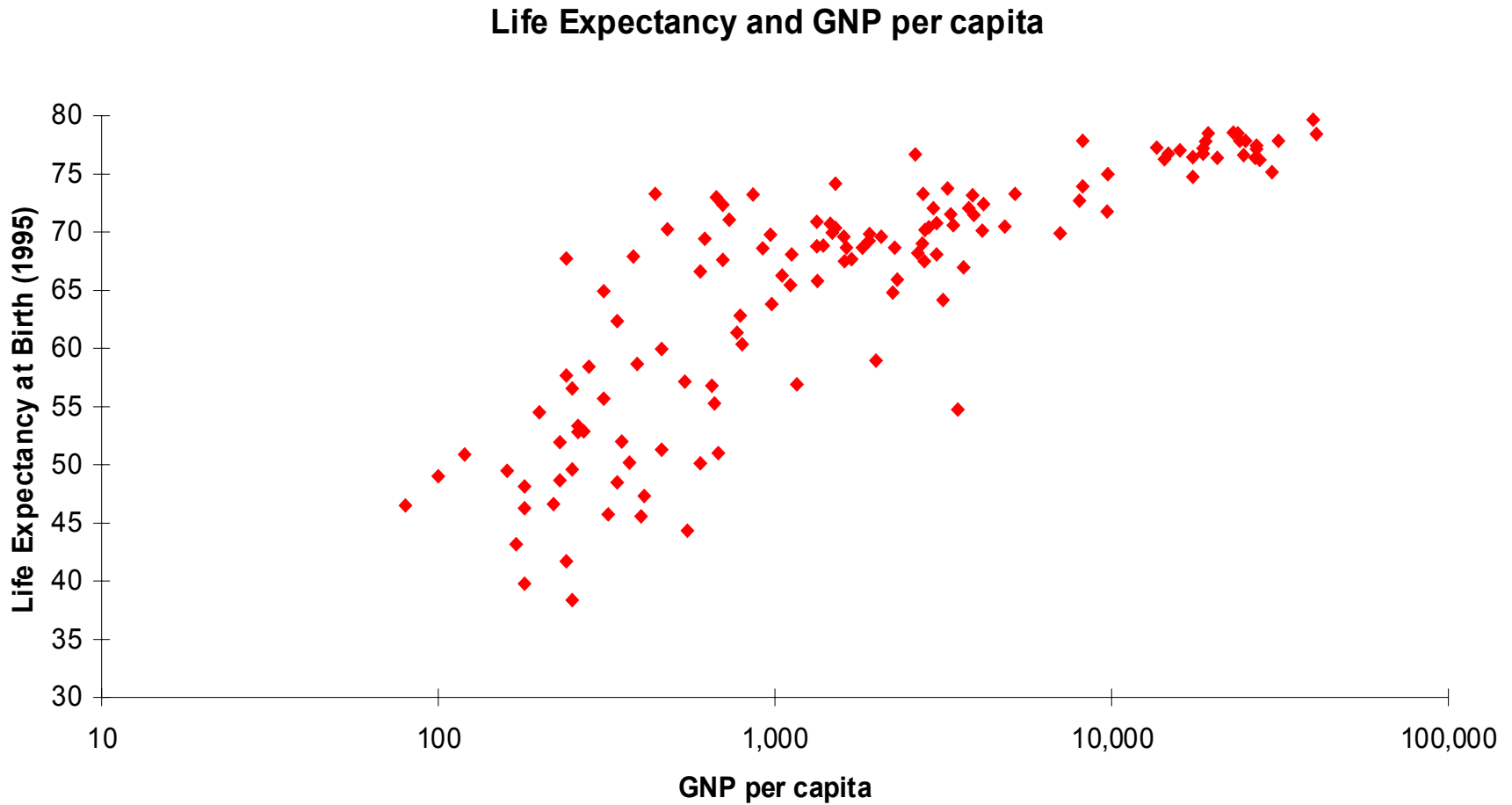


# Non-Economic Indicators of Development

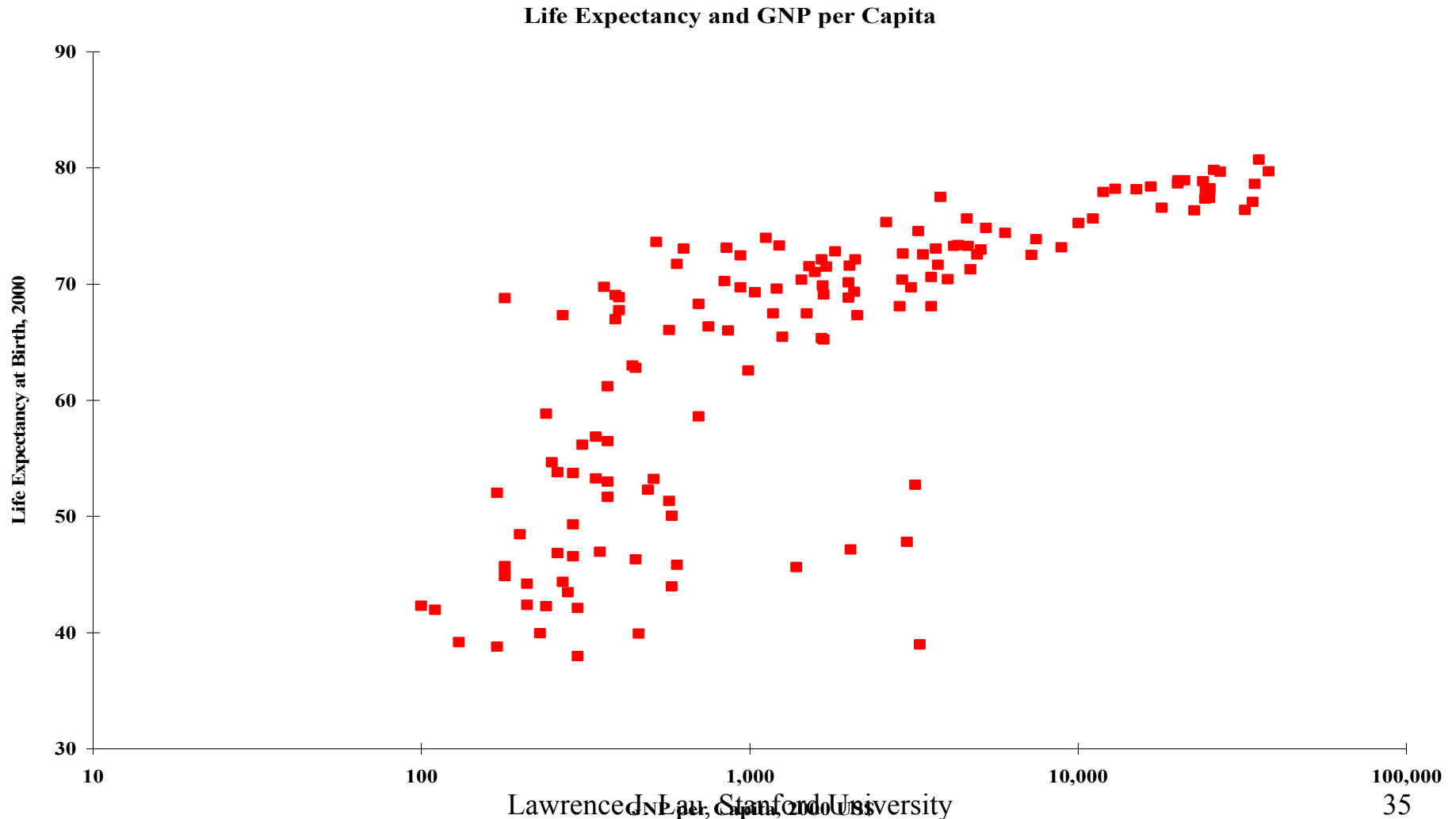
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- ◆ Political and social dimensions of economic development
  - ◆ Life expectancy; infant mortality; morbidity; nutritional status; and other health status and service accessibility indicators
    - ◆ Life expectancy and other health status indicators generally rises with GNP per capita; however, there are countries high GNP per capita but low life expectancy (Swaziland, Namibia, South Africa, Botswana, Gabon) with low GNP per capita but high life expectancy (Tajikistan and Kyrgyz Republic) and low infant mortality
  - ◆ Literacy (The outliers in 2000 are Saudi Arabia and Kuwait)
  - ◆ Educational enrollment and attainment rates
  - ◆ Due process or the rule of law; equality of opportunity in education and employment; social mobility; choice (freedom)
  - ◆ The level of community satisfaction--community preferences
  - ◆ Degree of democratization

# Life Expectancy at Birth and GNP per Capita, 1995

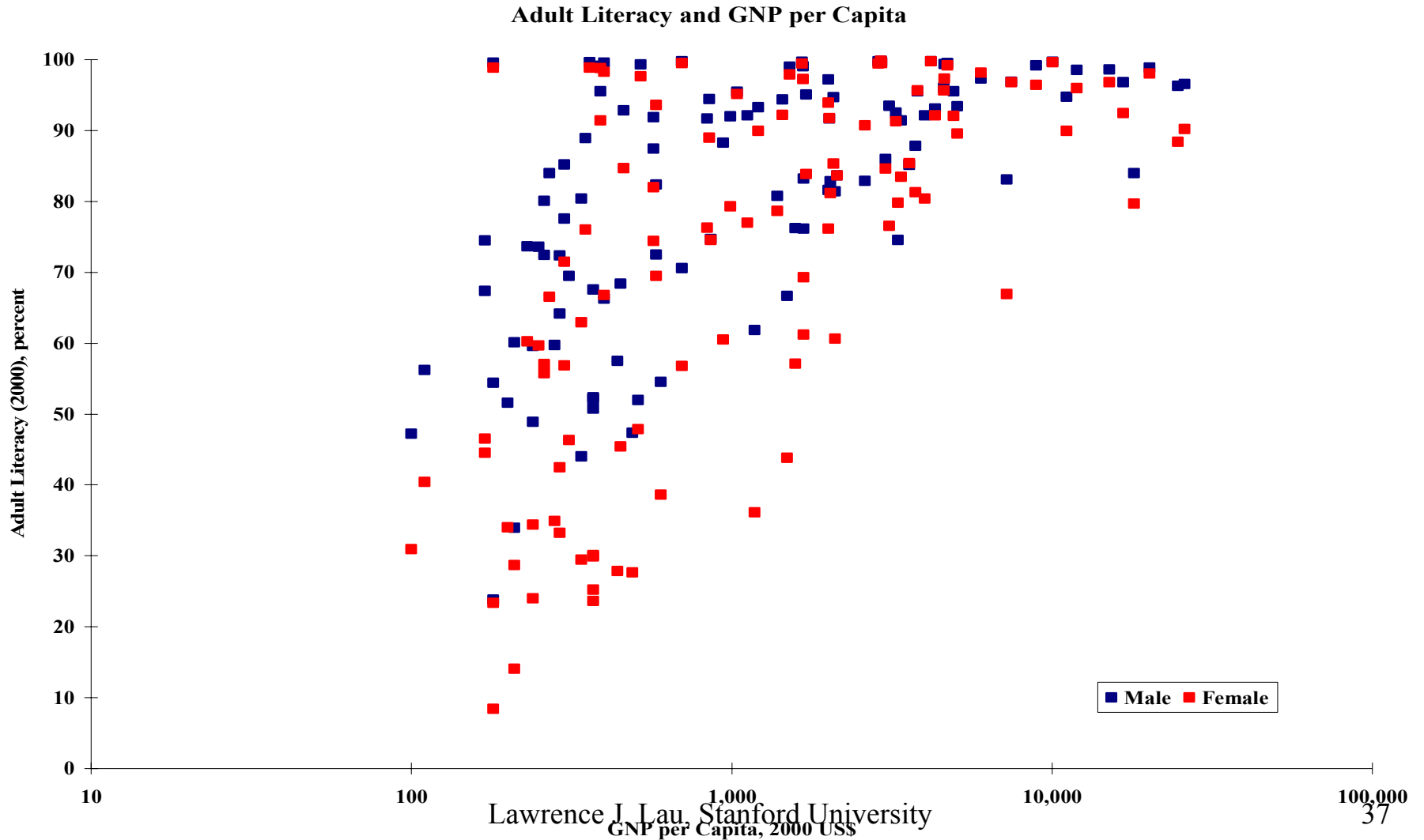


# Life Expectancy at Birth and GNP per Capita, 2000

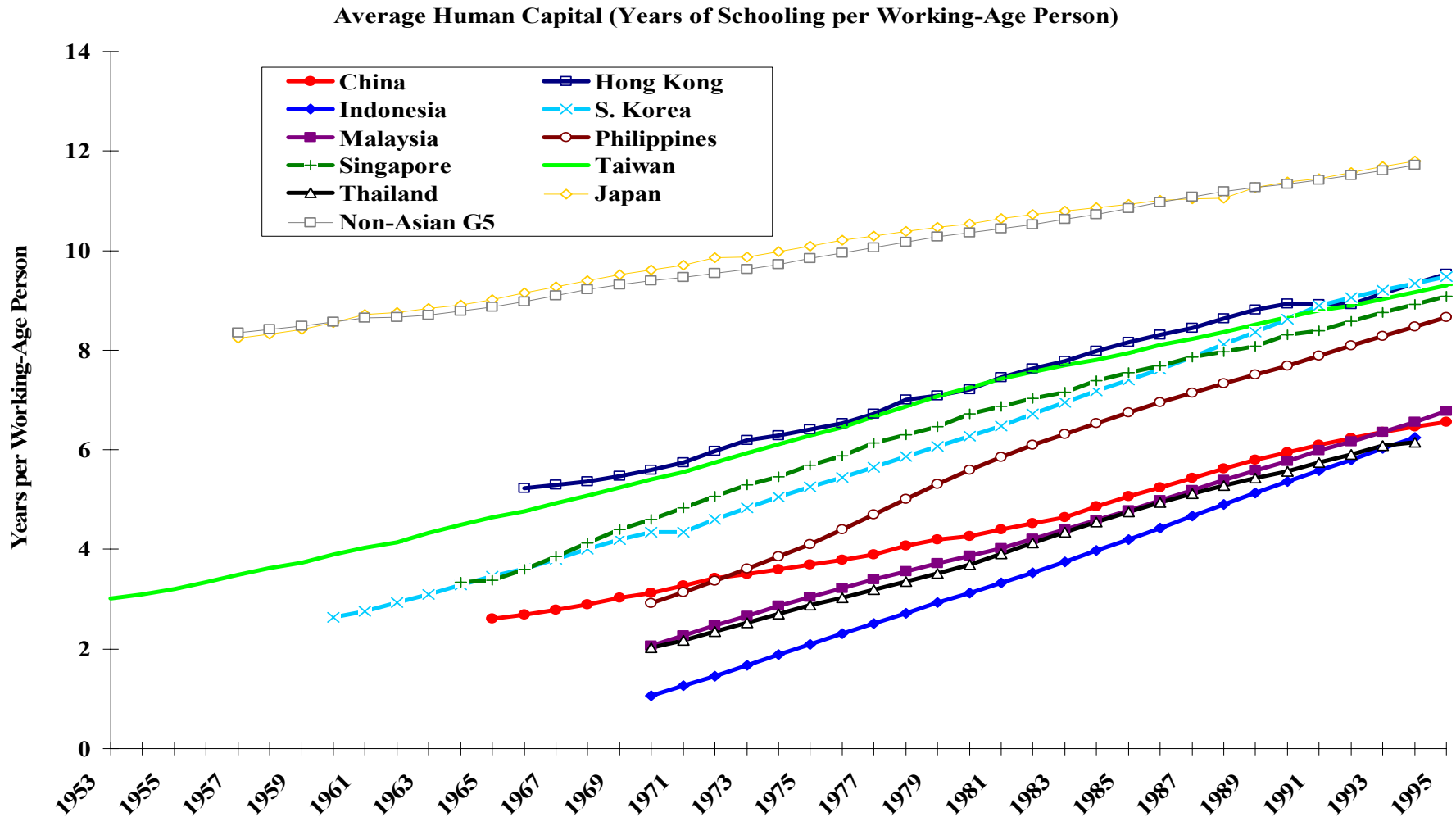




# Male and Female Literacy and GNP per Capita, 2000



# Average Human Capital (Years/Working-Age Person: Selected Economies)



# Indicators of Economic Development Other Than Real GNP per Capita

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- ◆ Accessibility, availability and affordability of services (communication, education, transportation, health care)
- ◆ The degree of equity of the income distribution; the incidence of poverty; the fulfillment of basic needs
- ◆ The degree of urbanization (the rise of cities as centers of markets and manufacturing; economies of agglomeration but infrastructural and social costs). Industrialization and urbanization are complementary—industrialization (or more broadly the growth of the non-agricultural sector) requires urbanization and urbanization facilitates industrialization.
- ◆ The degree of socio-economic mobility
  - ◆ e.g., inter-generational inter-income class transition probabilities
- ◆ The lack of a one-to-one correspondence between GNP per capita and the level of well-being (e.g., income distribution, freedom of choice (occupation, place of residence), rule of law)

# The Distribution of Income and Economic Development

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- ◆ Simon Kuznets's U-Shaped Hypothesis
  - ◆ The distribution of income worsens before it improves as economic development proceeds (Taiwan was a counter-example)
- ◆ Competing hypotheses on the distribution of income
  - ◆ An initially unequal distribution facilitates economic development and growth through its effect on domestic savings and investment (capitalists save and workers consume)
  - ◆ A more equal distribution of income provides the consumer demand base for economic development and growth
- ◆ The share of income held by the lowest 20% of households by income has a higher lower bound (4%) in developed economies than in other economies
- ◆ The share of income held by the highest 10% of households by income has a lower upper bound (30%) in developed economies than in other economies
- ◆ Developed economies do not have extremes of income distributions—they are neither too concentrated nor too egalitarian



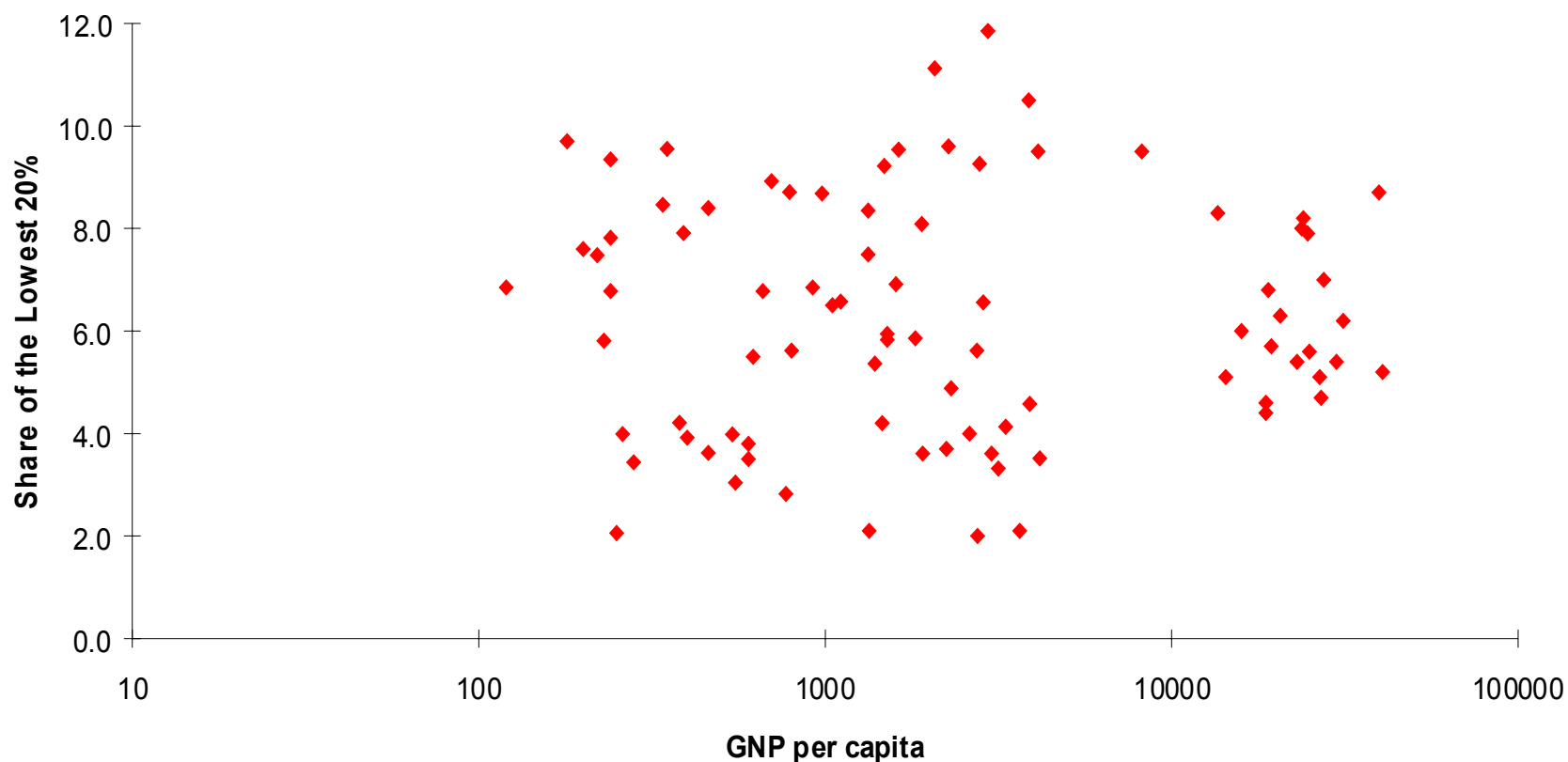
# The Distribution of Income and Economic Development

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- ◆ Cause and/or effect?
- ◆ A perfectly egalitarian distribution of income is not efficient or Pareto-optimal given differences in endowment (everyone can be made better off)
- ◆ Incentive is necessary to induce and encourage labor efforts, investment and innovation
- ◆ A compromise between efficiency and equity (a positive-sum game)
- ◆ One important issue is the degree of socio-economic mobility—can someone who starts with little or no wealth become successful?

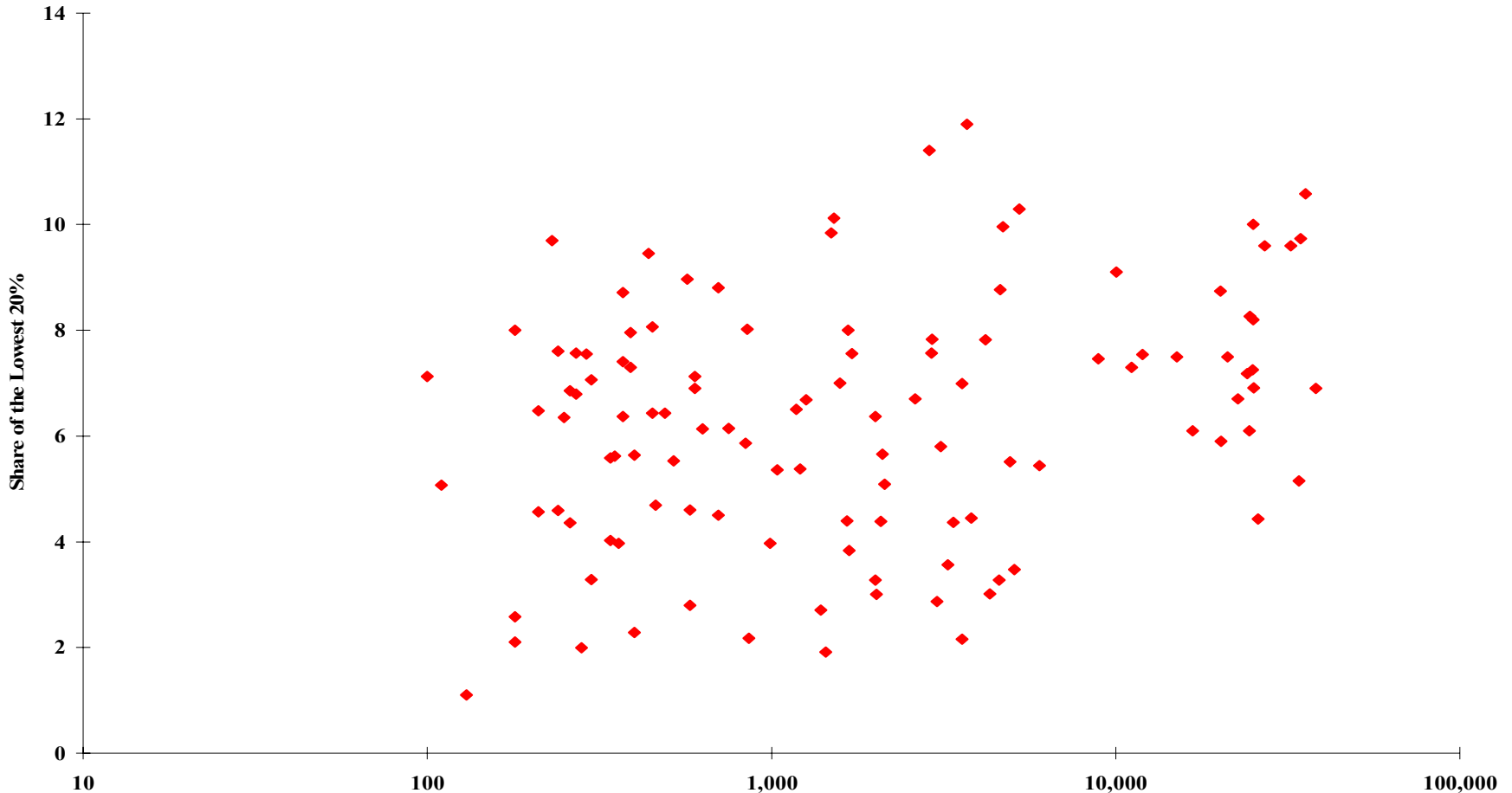
# The Distribution of Income and GNP per Capita (1)--Share of the Lowest 20%

The Distribution of Income and GNP per capita, 1995



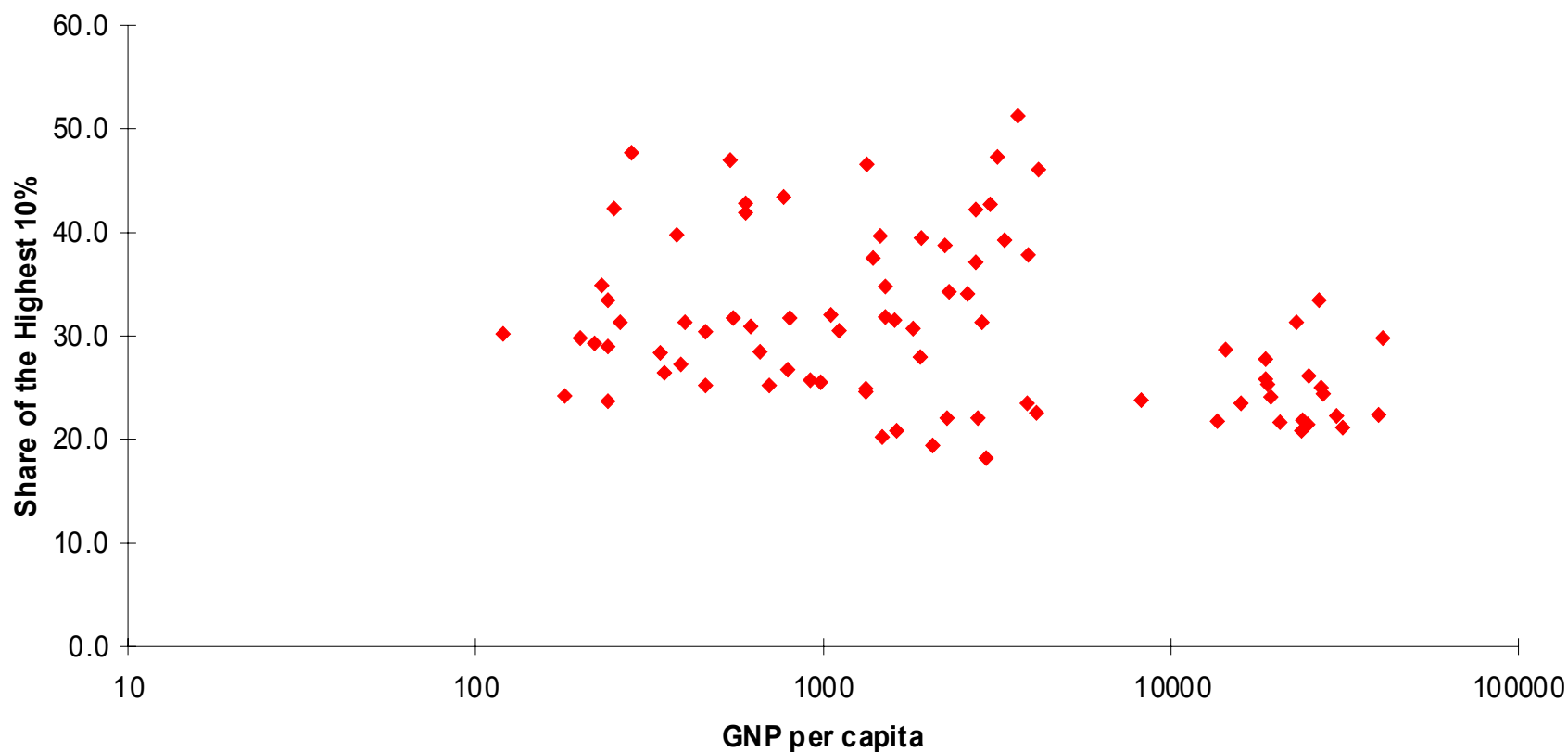
# The Distribution of Income and GNP per Capita, 2000 (1)--Share of the Lowest 20%

The Distribution of Income and GNP per Capita, 2000



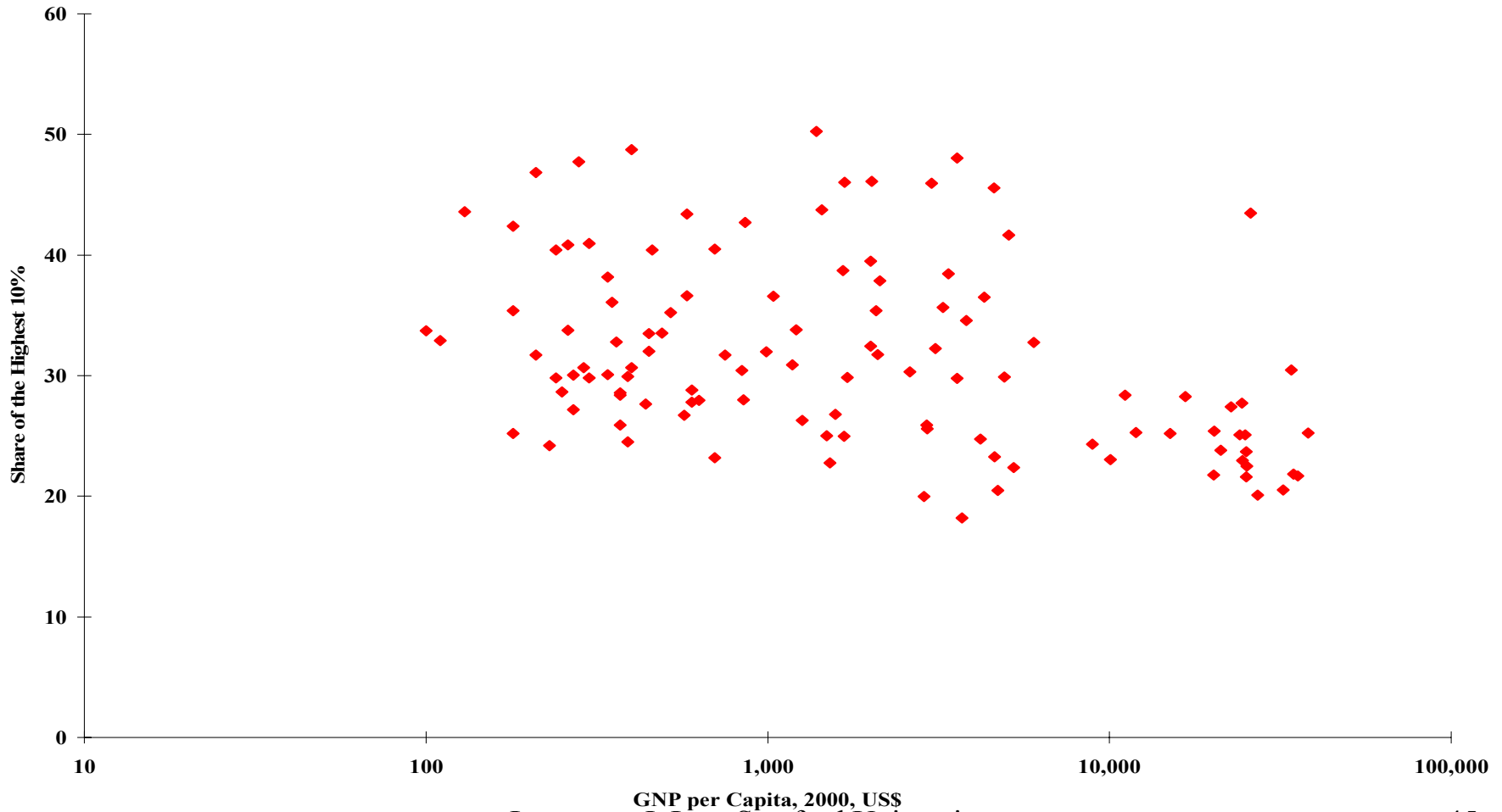
# The Distribution of Income and GNP per Capita (2)—Share of the Highest 10%

The Distribution of Income and GNP per capita, 1995



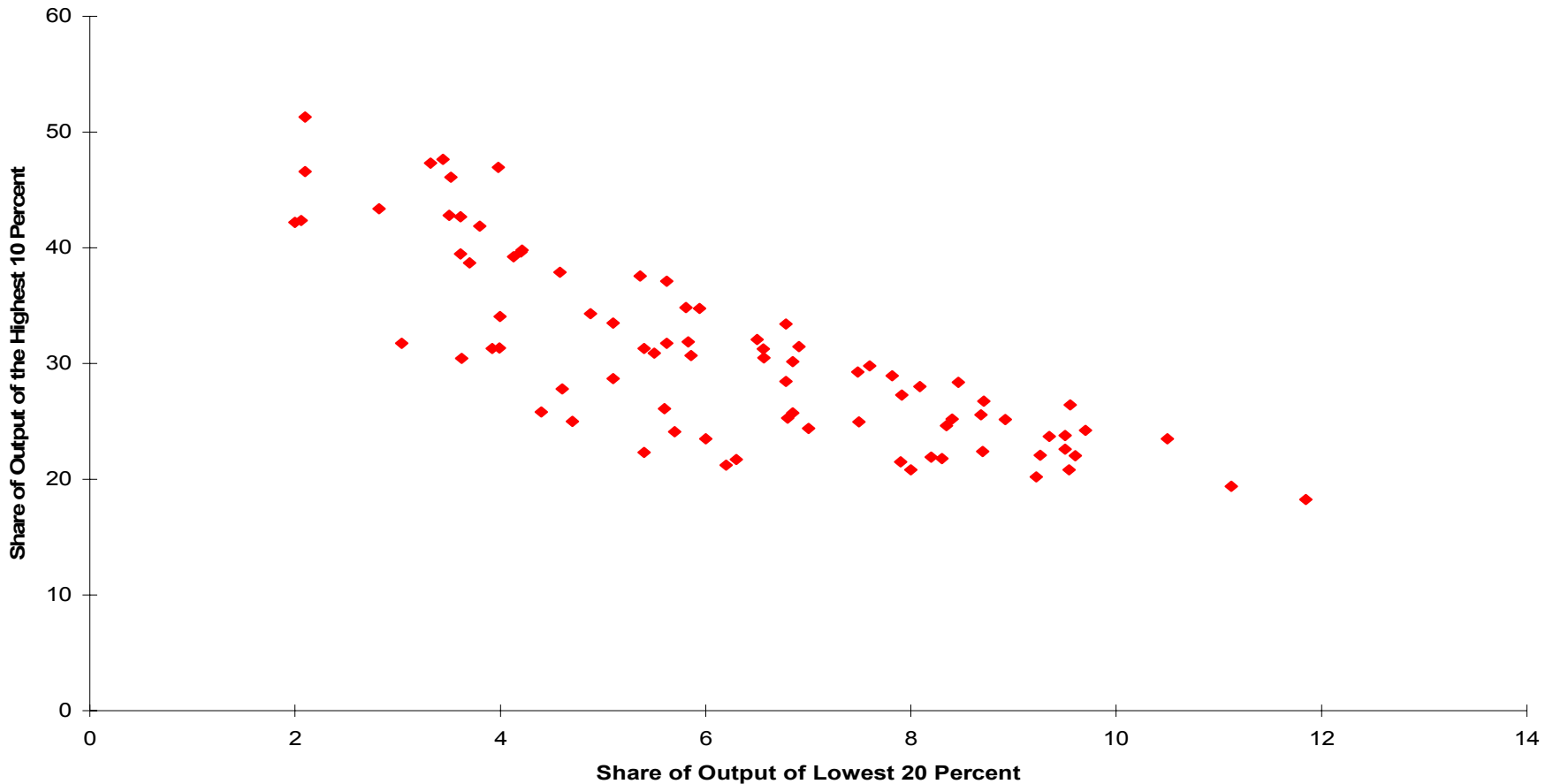
# The Distribution of Income and GNP per Capita, 2000 (2)—Share of the Highest 10%

The Distribution of Income and GNP per Capita, 2000

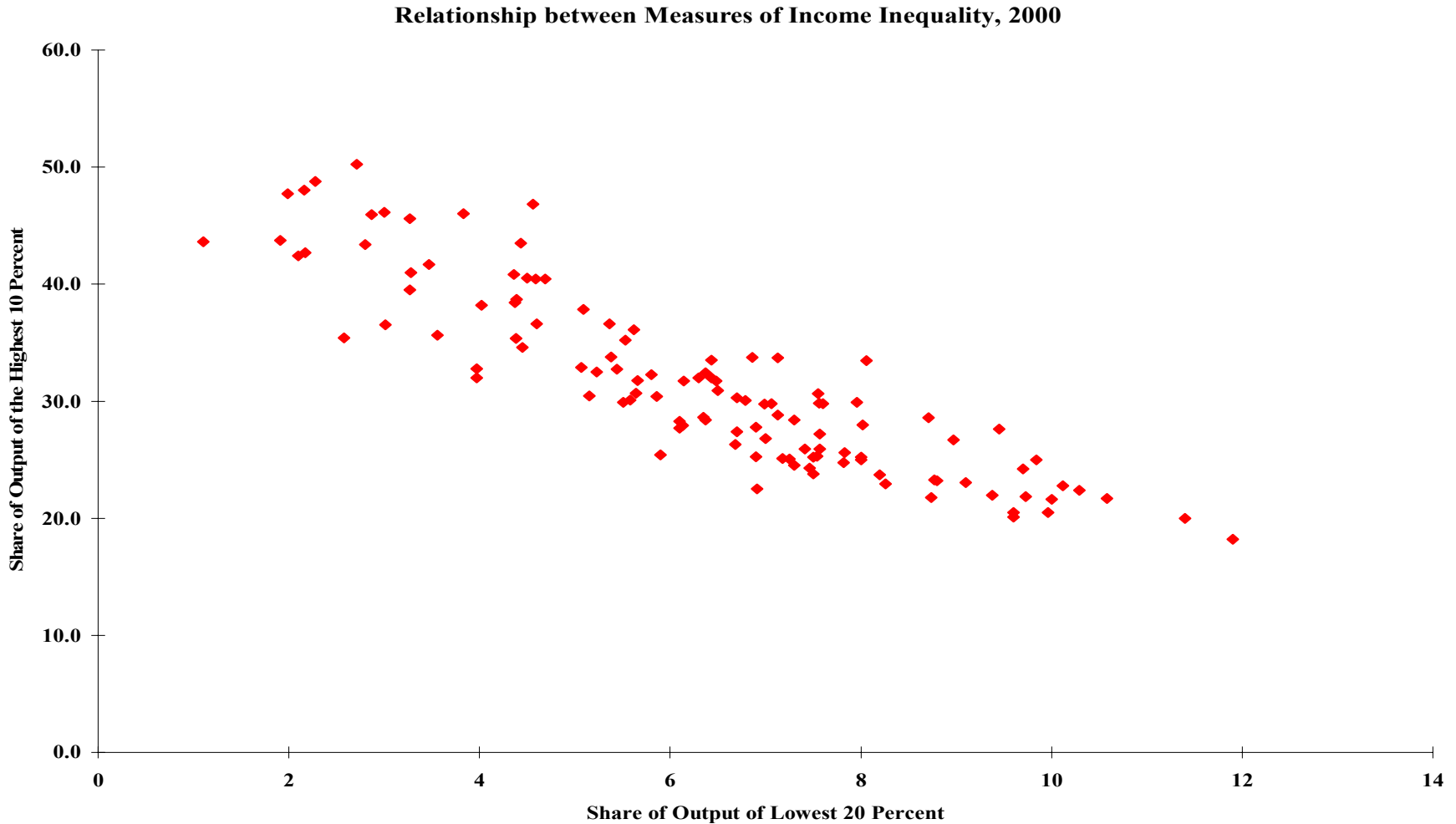


# Relationship between Measures of Income Inequality

Relationship between Measures of Income Inequality



# Relationship between Measures of Income Inequality, 2000



# Poverty and Economic Development

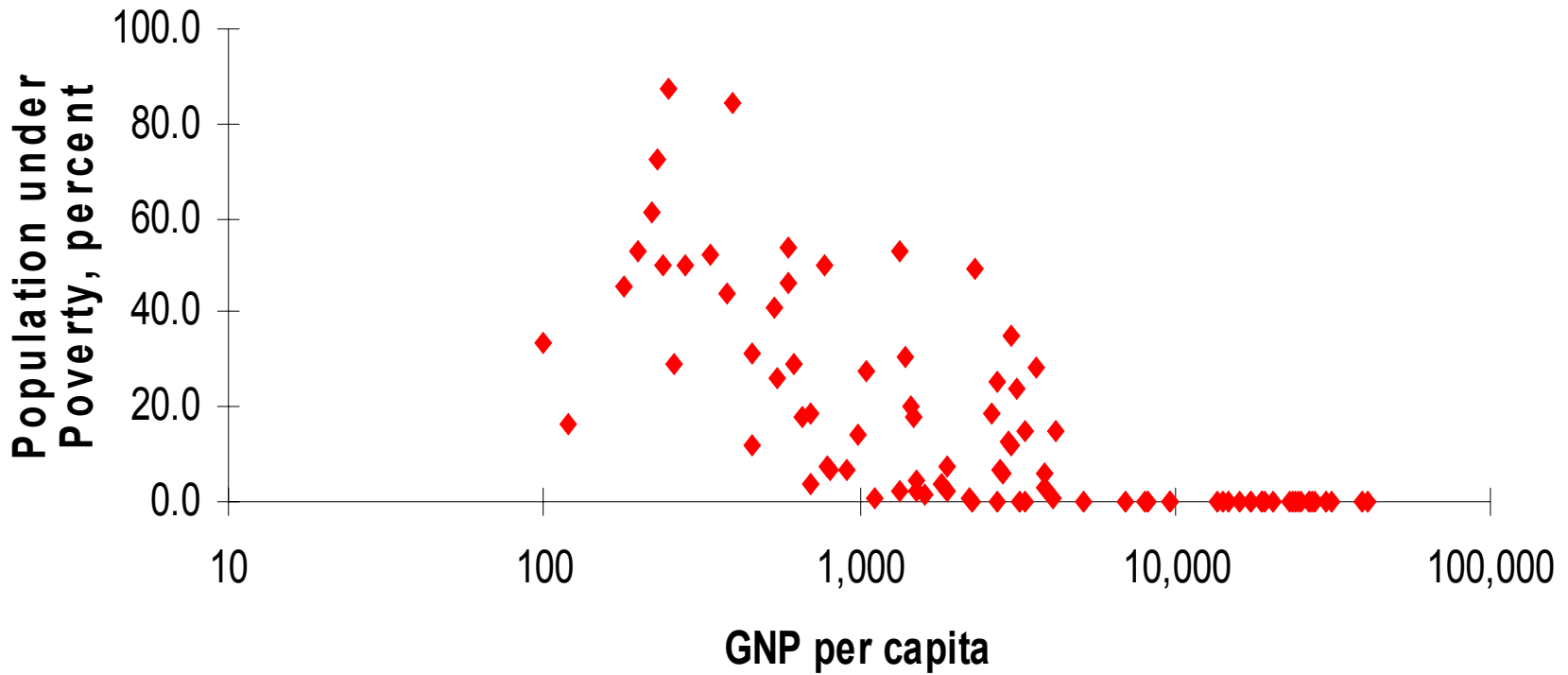
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- ◆ Poverty, defined as an income less than US\$1 in PPP prices per day per capita, has virtually disappeared in developed economies
- ◆ US\$1 in PPP terms for low-income economies translates into perhaps US\$0.40 in market exchange rate terms on average, or less than US\$150 per capita
- ◆ Note that the lowest-income countries do not necessarily have the highest incidence of poverty



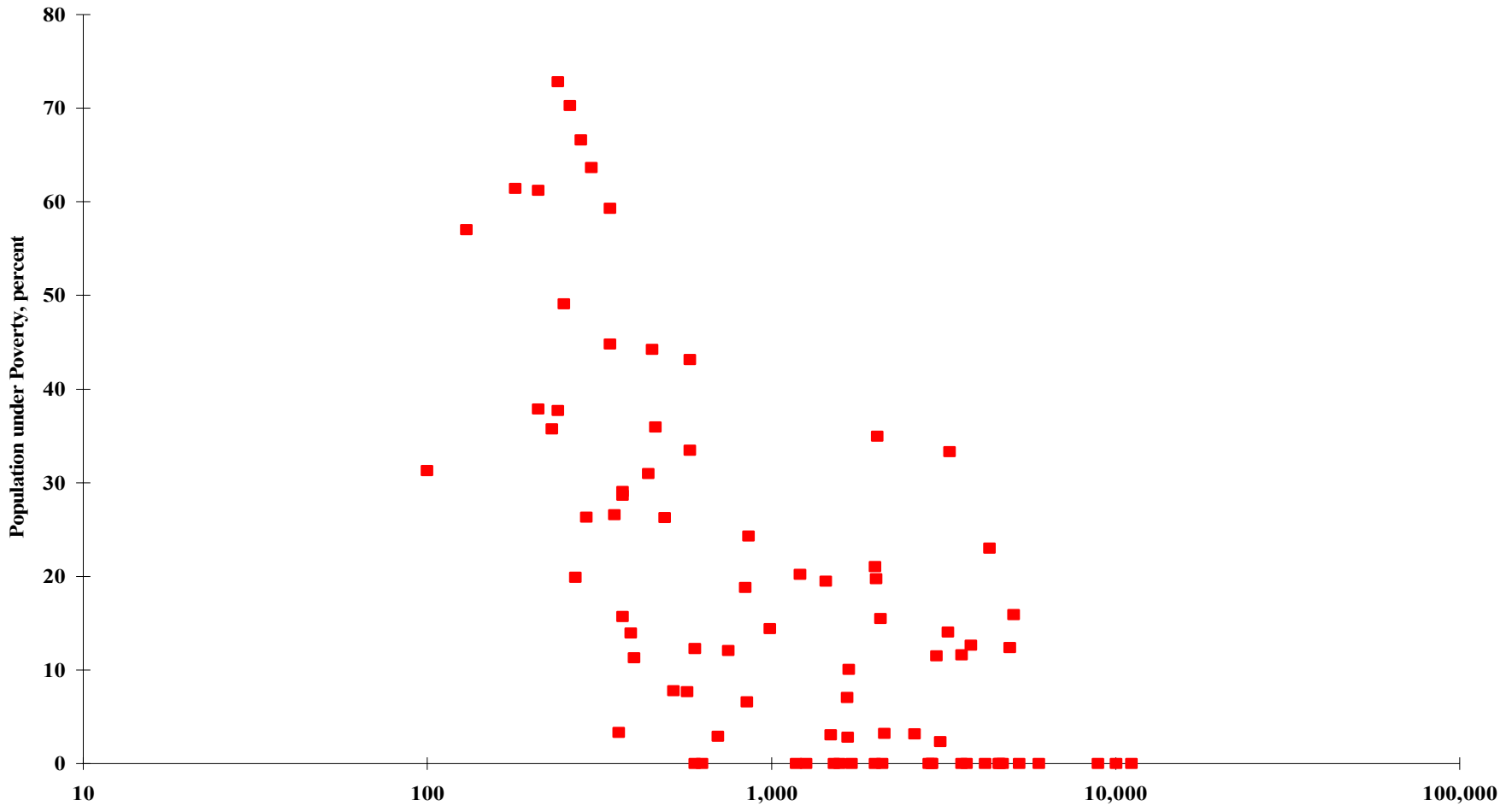
# Poverty and GNP per capita

Percent Population under Poverty and GNP per capita



# Poverty and GNP per Capita, 2000

Percent Population under Poverty and GNP per capita, 2000



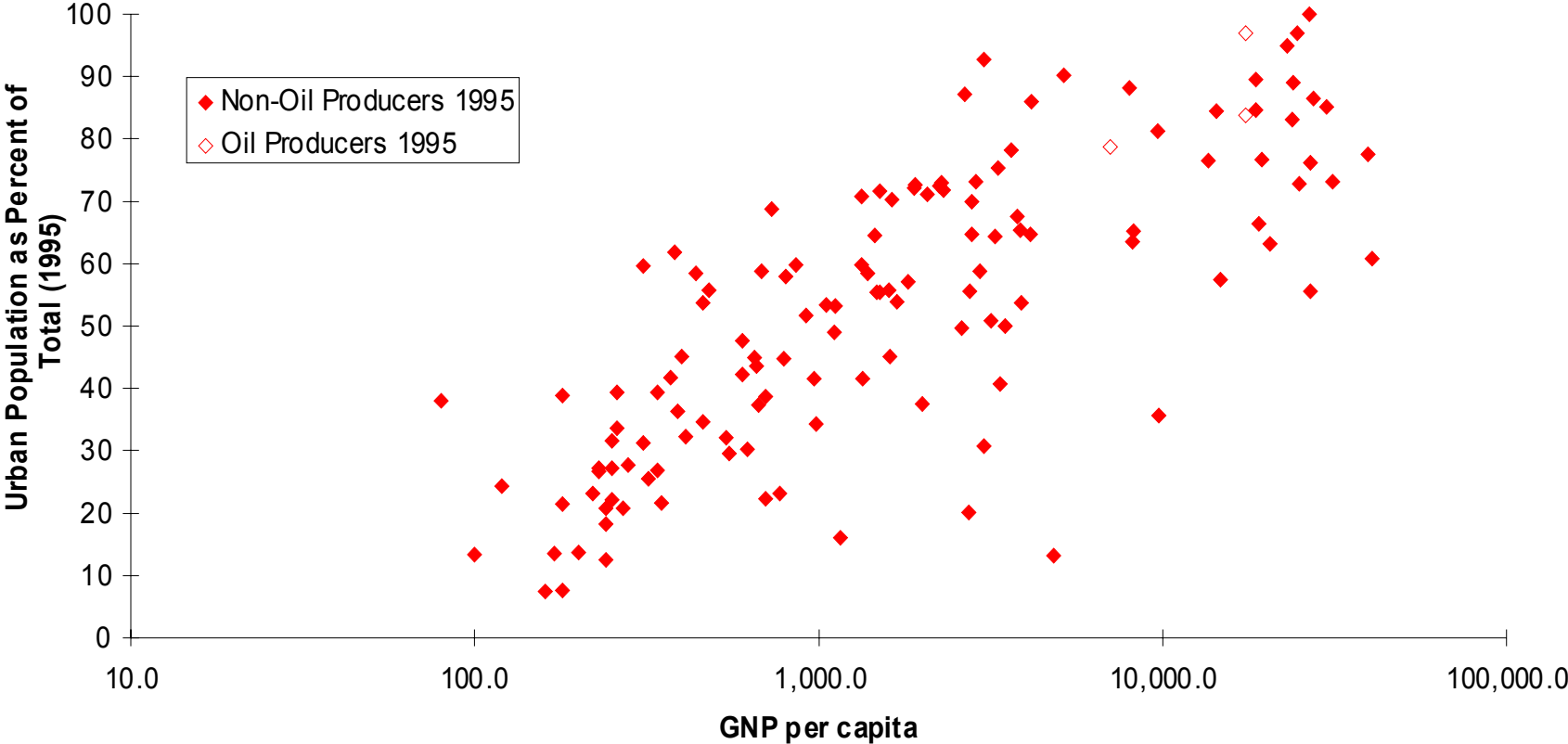
# Instruments for Changing the Income Distribution and Alleviating Poverty

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- ◆ Taxes and transfers
  - ◆ Requires an administrative apparatus that can be costly and ineffective
  - ◆ The inflation tax is possible but is generally considered regressive (inflation benefits borrowers and harms lenders (depositors) and there are more wealthy than poor individuals among borrowers)
- ◆ Provision of public goods and services (education, health care, transportation, infrastructure)
- ◆ Universalization of (basic) education rather than redistribution is the key to improving the distribution of income over time

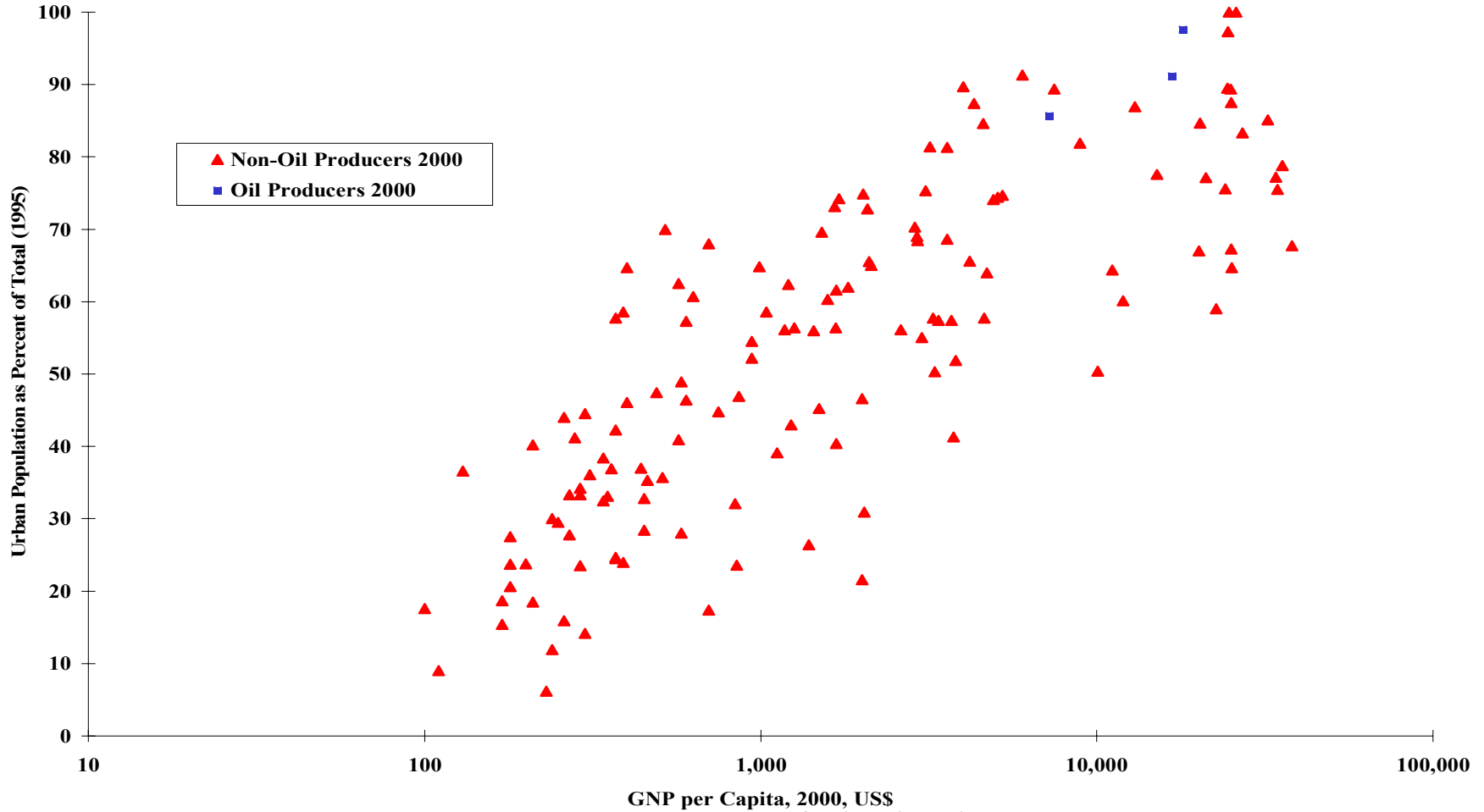
# The Degree of Urbanization

Urbanization and GNP per capita

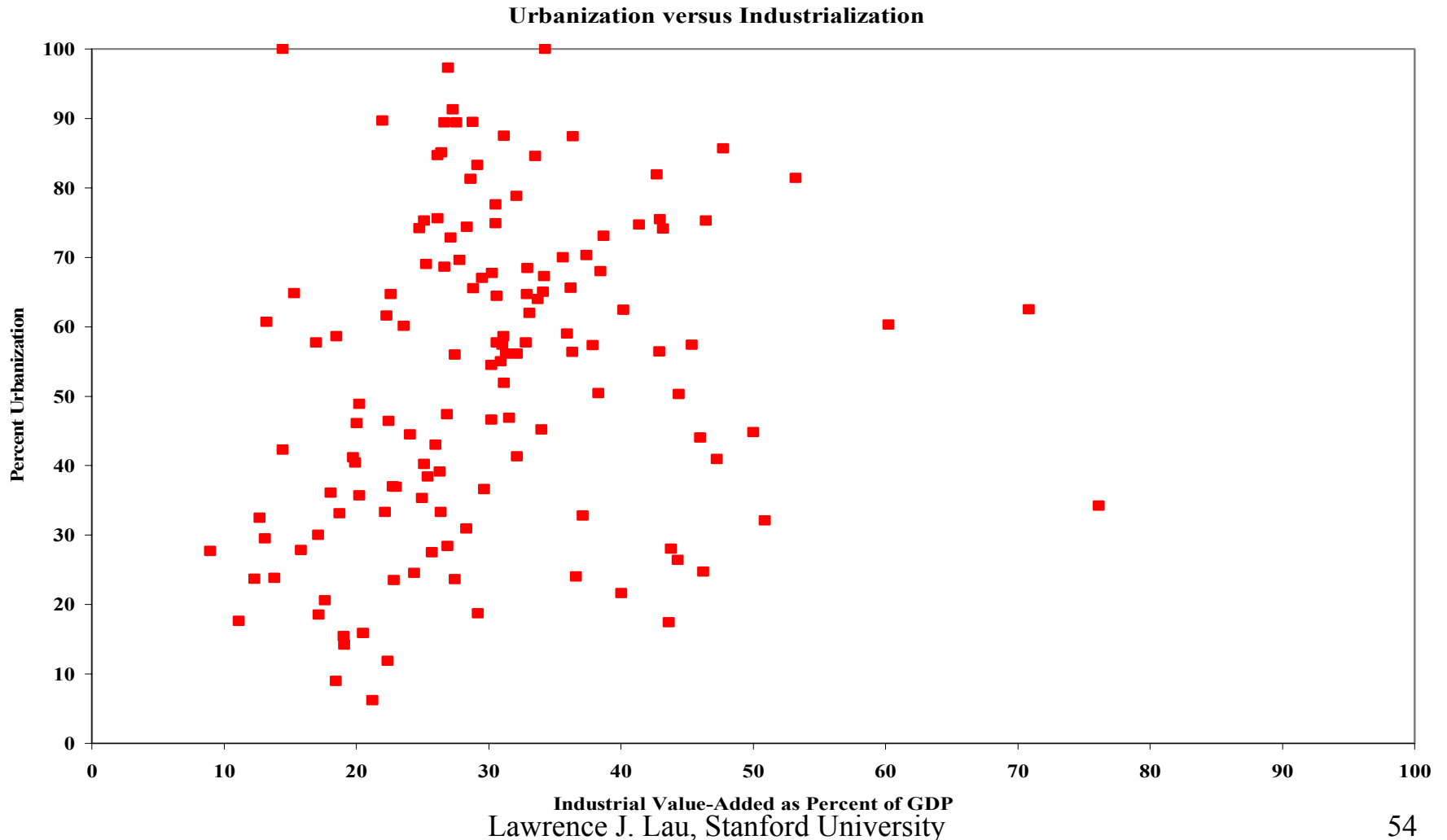


# The Degree of Urbanization, 2000

Urbanization and GNP per Capita, 2000

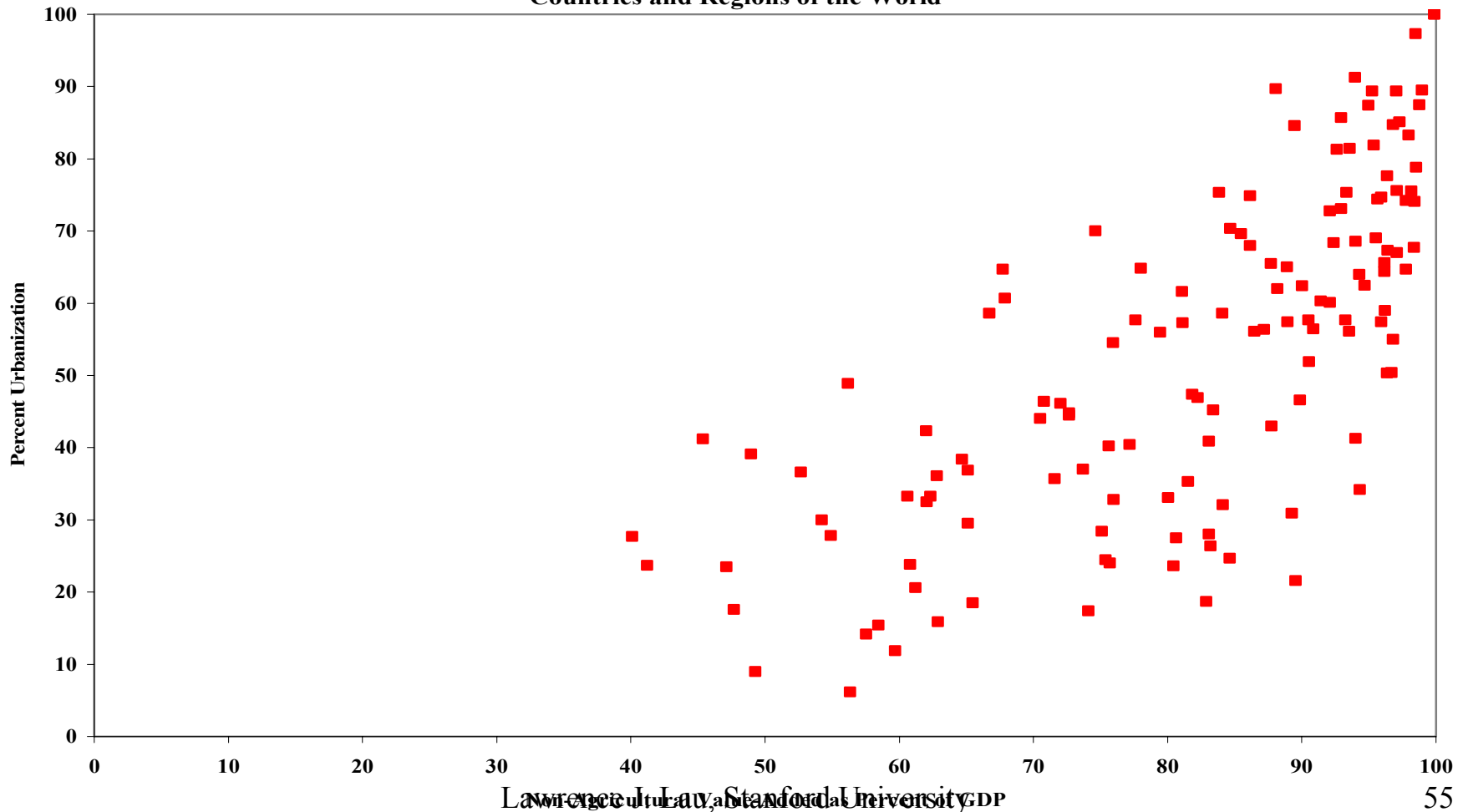


# The Degree of Urbanization and the Share of Industry in GDP, 2000



# The Degree of Urbanization and the Share of Non-Agriculture in GDP, 2000

Percent Urbanization versus Percent Non-Agriculture, 2002  
Countries and Regions of the World



# Characteristics of the Process of Early Economic Development

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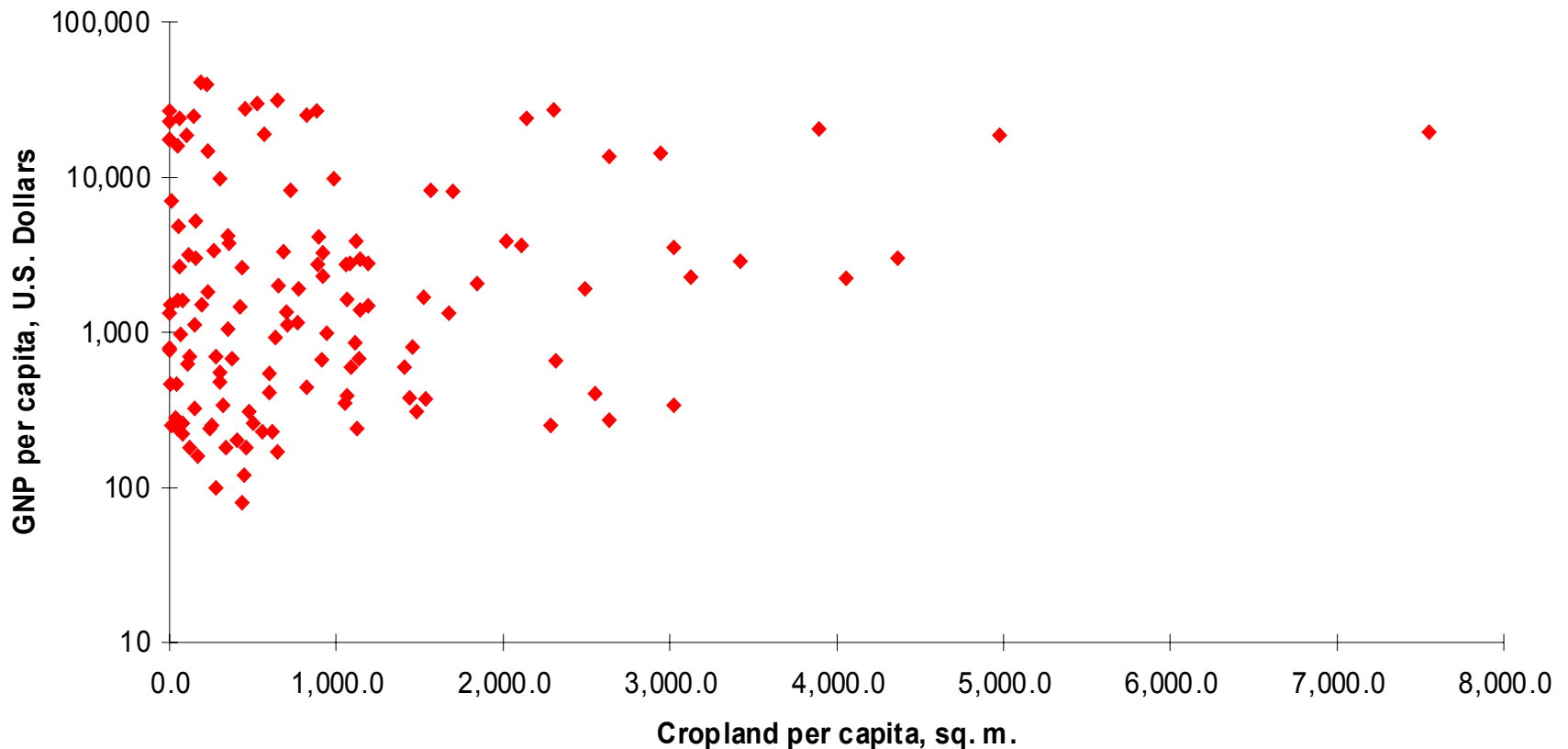
- ◆ Modern economic growth dates from early 19th Century—Empirical regularities sometimes referred to as “stylized facts”
- ◆ A rise in the productivity of labor in the agricultural sector enabling a release of surplus output and labor to the industrial sector
- ◆ A rise in industrialization supported by capital accumulation and the introduction of new technologies and organizations for production
  - ◆ e.g., the transition from cottage industry to factory production; the introduction of mass production and the assembly line
- ◆ A decline in the share of the agricultural sector and a rise in the share of the industrial sector (including mining) in total output and employment
- ◆ Natural endowments, and initial conditions, can make a difference.



# The Importance of Initial Endowment: Cropland per Capita

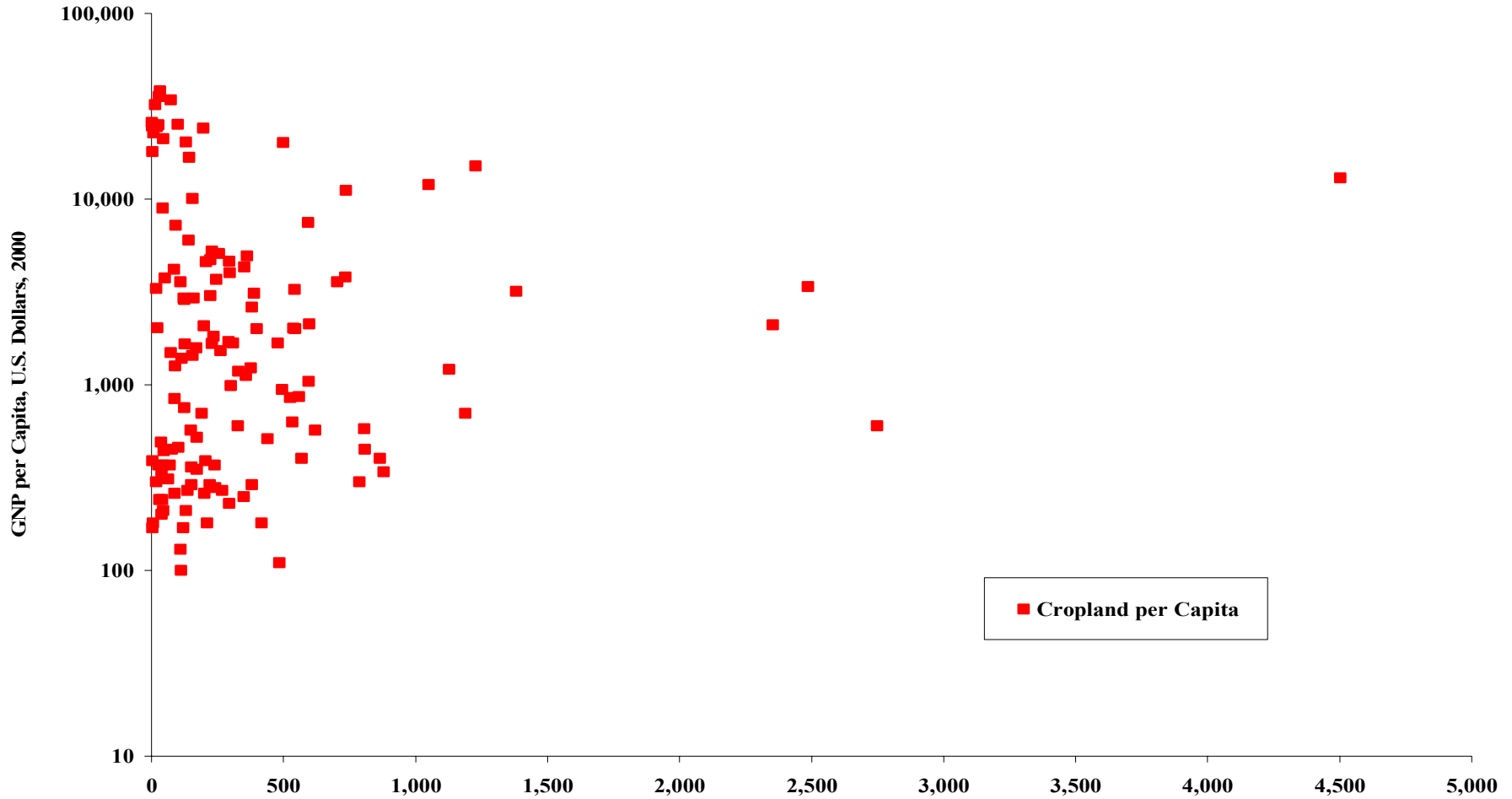
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GNP per capita, Dollars and Cropland per capita, sq. m., 1995



# The Importance of Initial Endowment: Cropland per Capita, 2000

GNP per Capita, US\$ and Cropland per Capita, sq. m., 2000



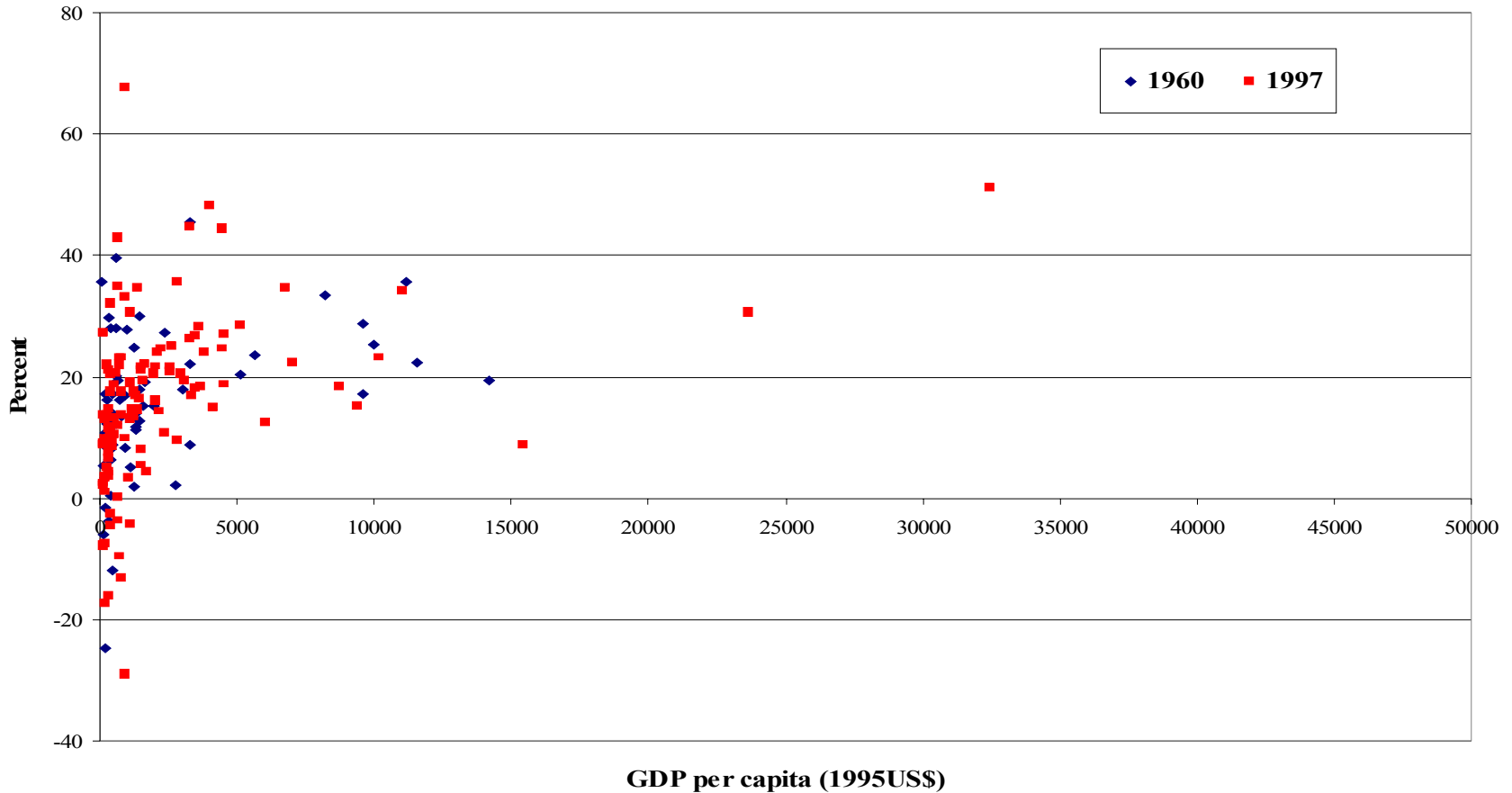
# Characteristics of the Process of Early Economic Development

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- ◆ A rise in the savings and investment rates
  - ◆ There remain significant differences in savings rates across countries that cannot be fully explained—cultural reasons?
- ◆ A rise in capital intensity, I.e., physical capital stock per unit labor
- ◆ A continuing rise in energy consumption (use) per capita
- ◆ A rise in the degree of urbanization

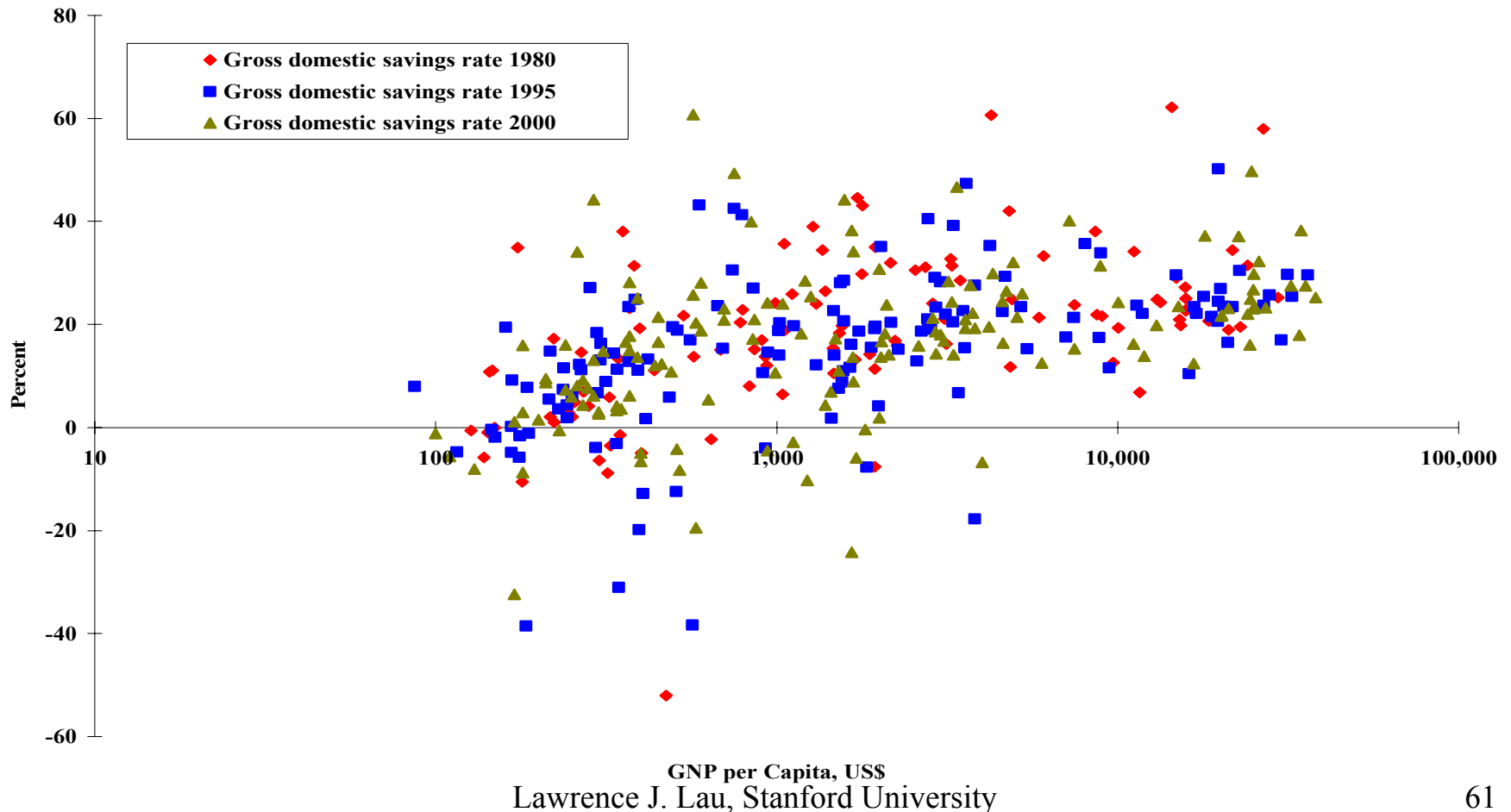
# Gross Domestic Savings as a Percent of GDP and Real GDP per Capita

Gross Domestic Savings as a Percent of GDP



# Savings Rates and Real GNP per Capita over Time

Gross Domestic Savings Rates and GNP per Capita, 1980, 1995 and 2000



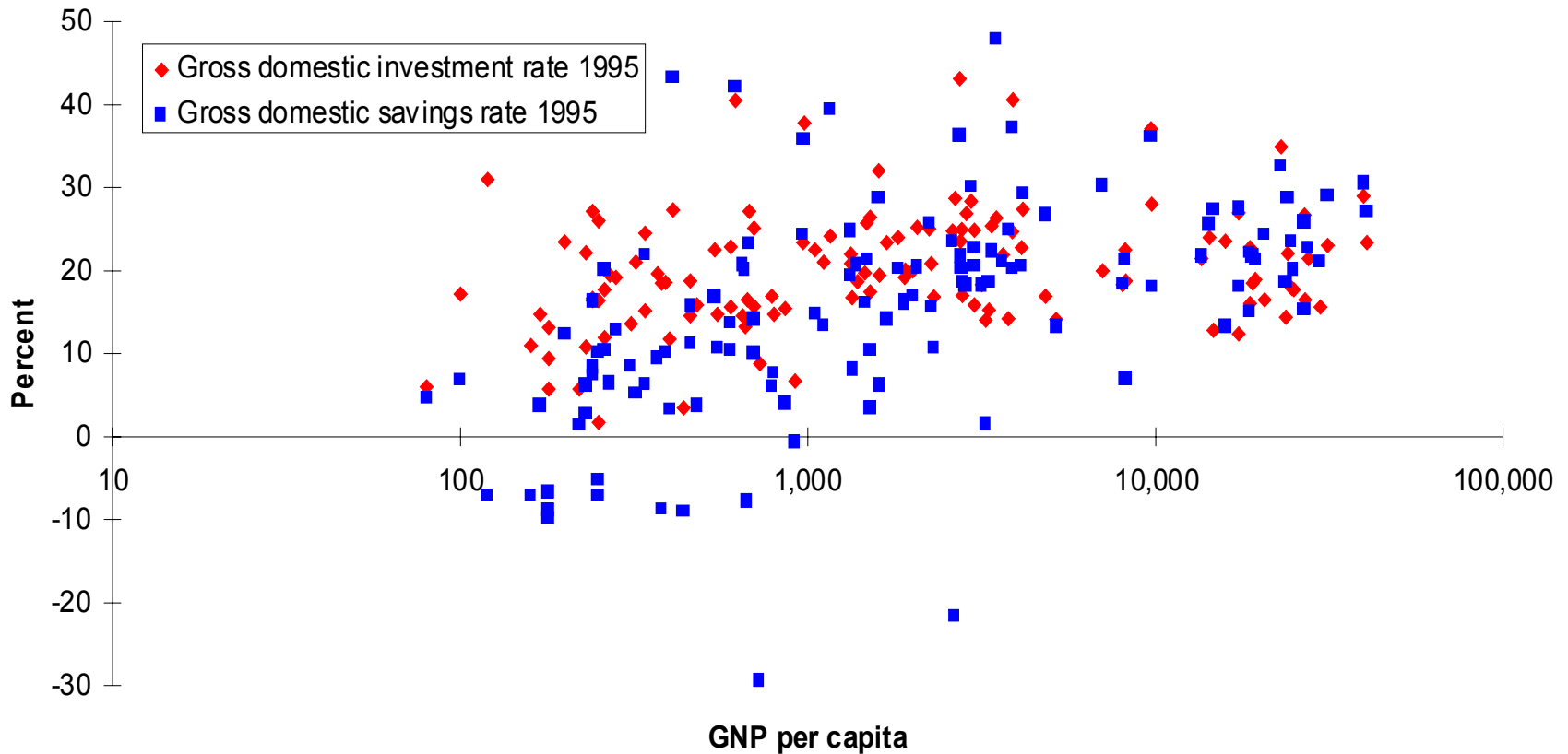
# The Savings Rate and Real Output per Capita: East Asian Economies

National Savings Rate and Real GNP per Capita



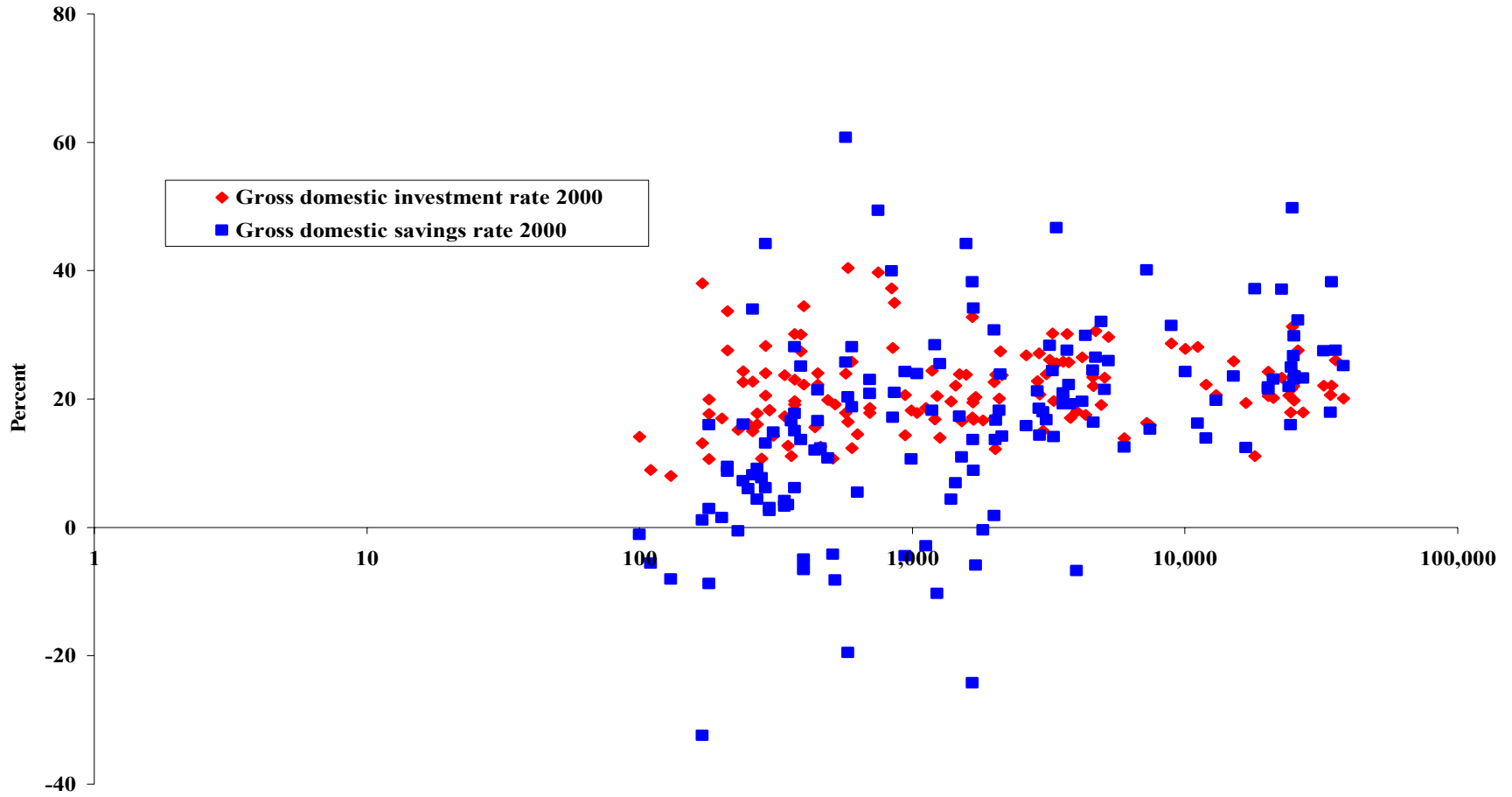
# Savings and Investment Rates and GNP per Capita, 1995

Savings and Investment Rates and GNP per capita



# Savings and Investment Rates and GNP per Capita, 2000

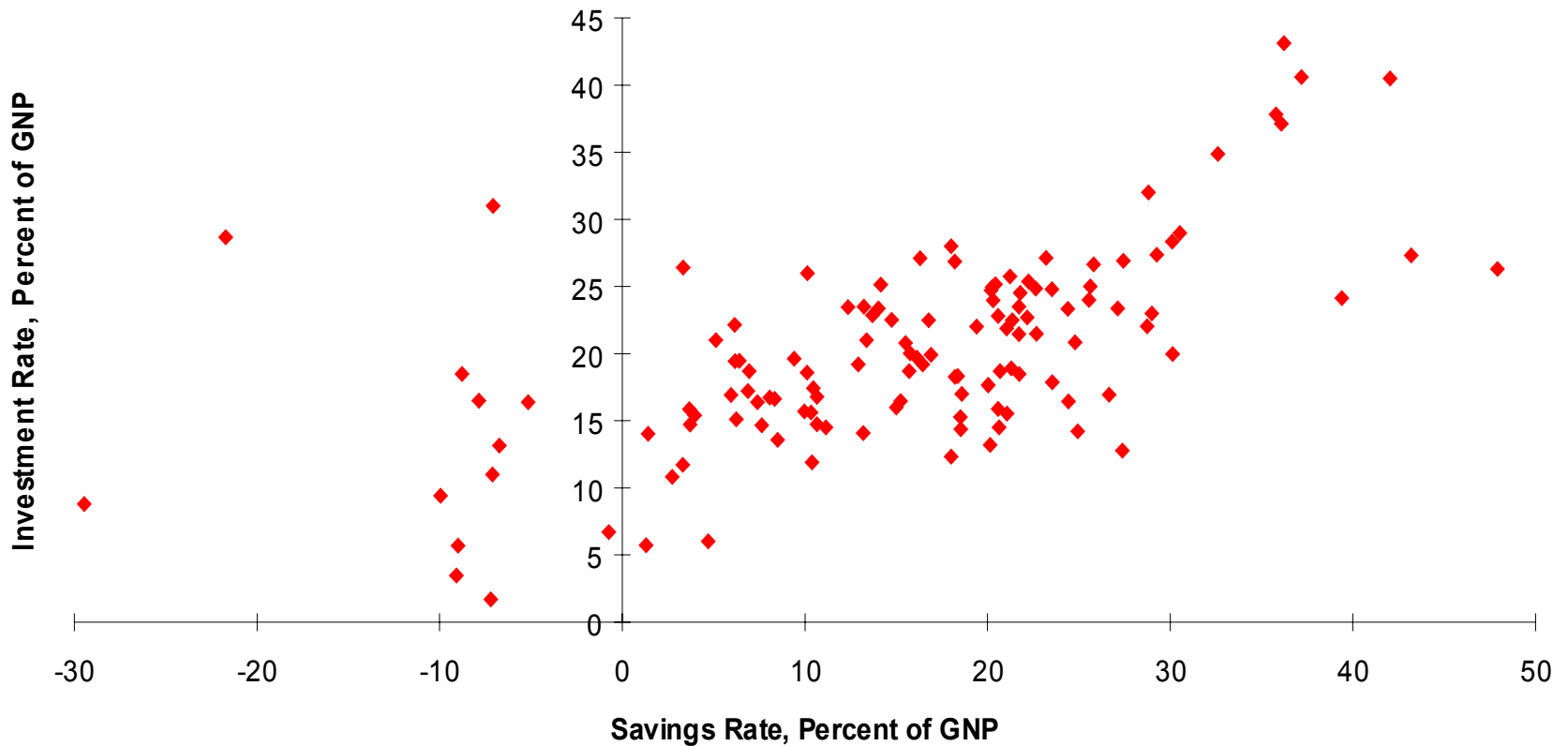
Savings and Investment Rates and GNP per Capita, 2000





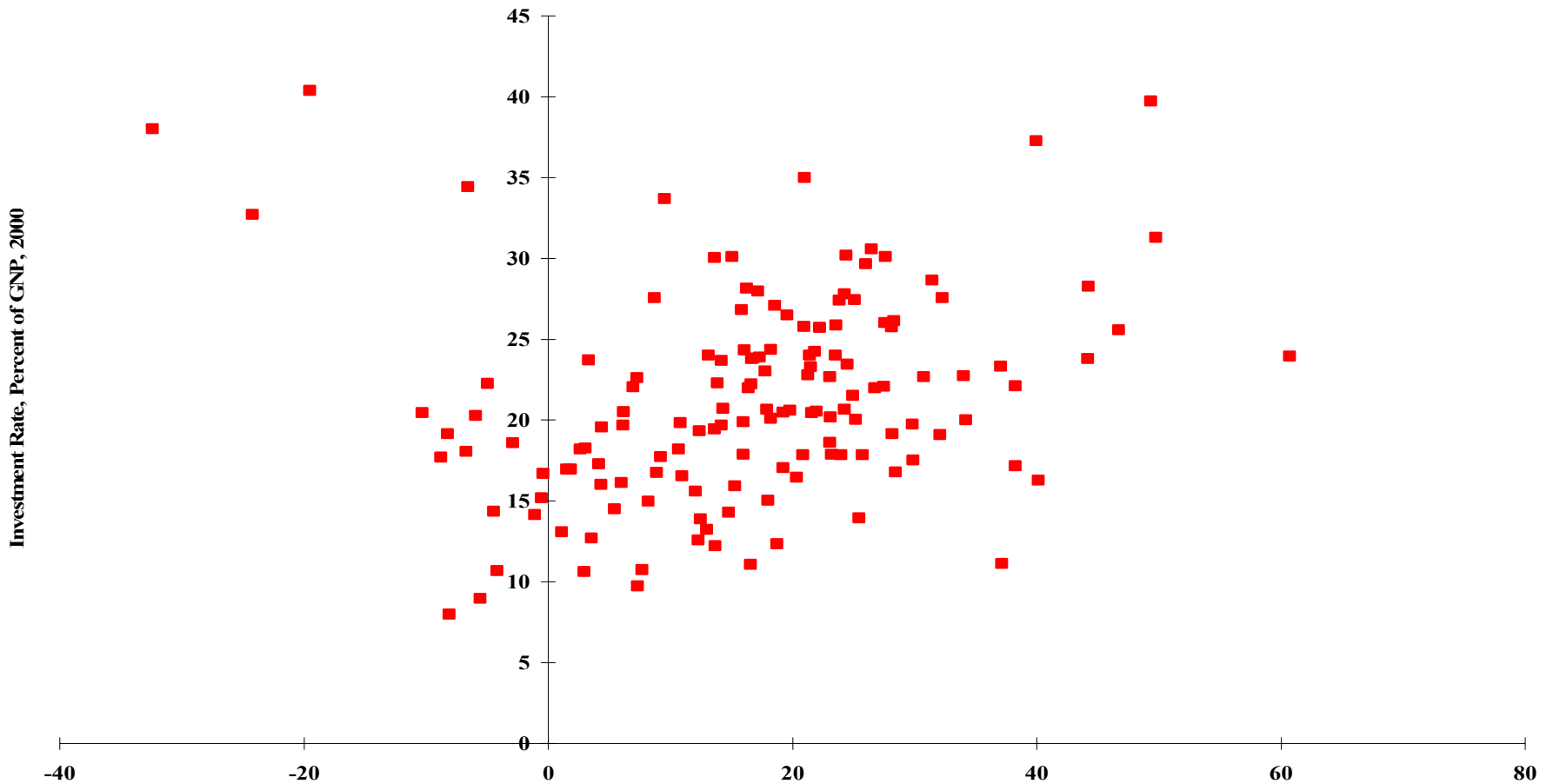
# The Relationship between Investment Rate and Savings Rate, 1995

The Relationship between Investment Rate and Savings Rate, 1995



# The Relationship between Investment Rate and Savings Rate, 2000

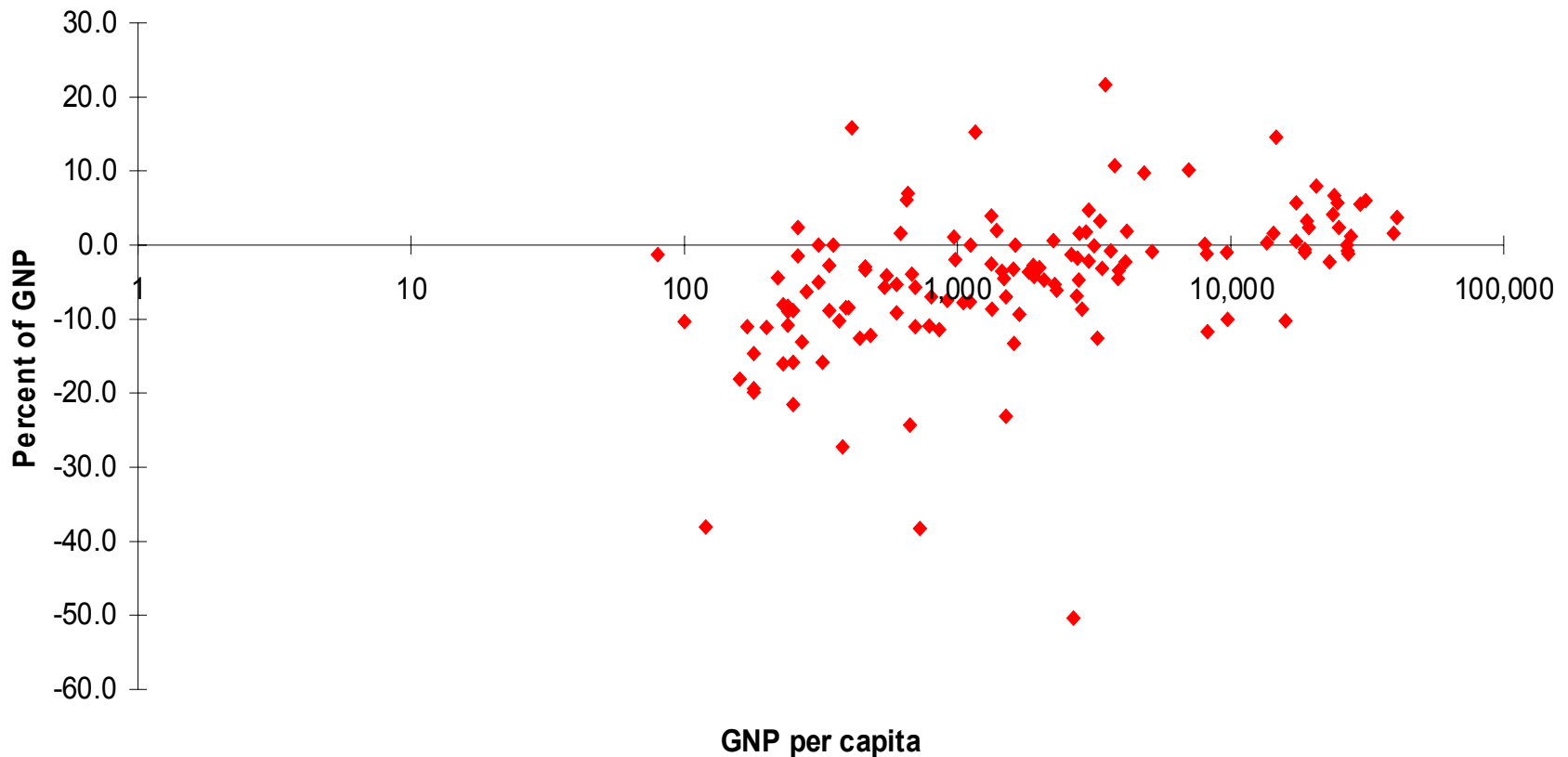
The Relationship between Investment Rate and Savings Rate, 2000



Lawrence J. Lau, Stanford University

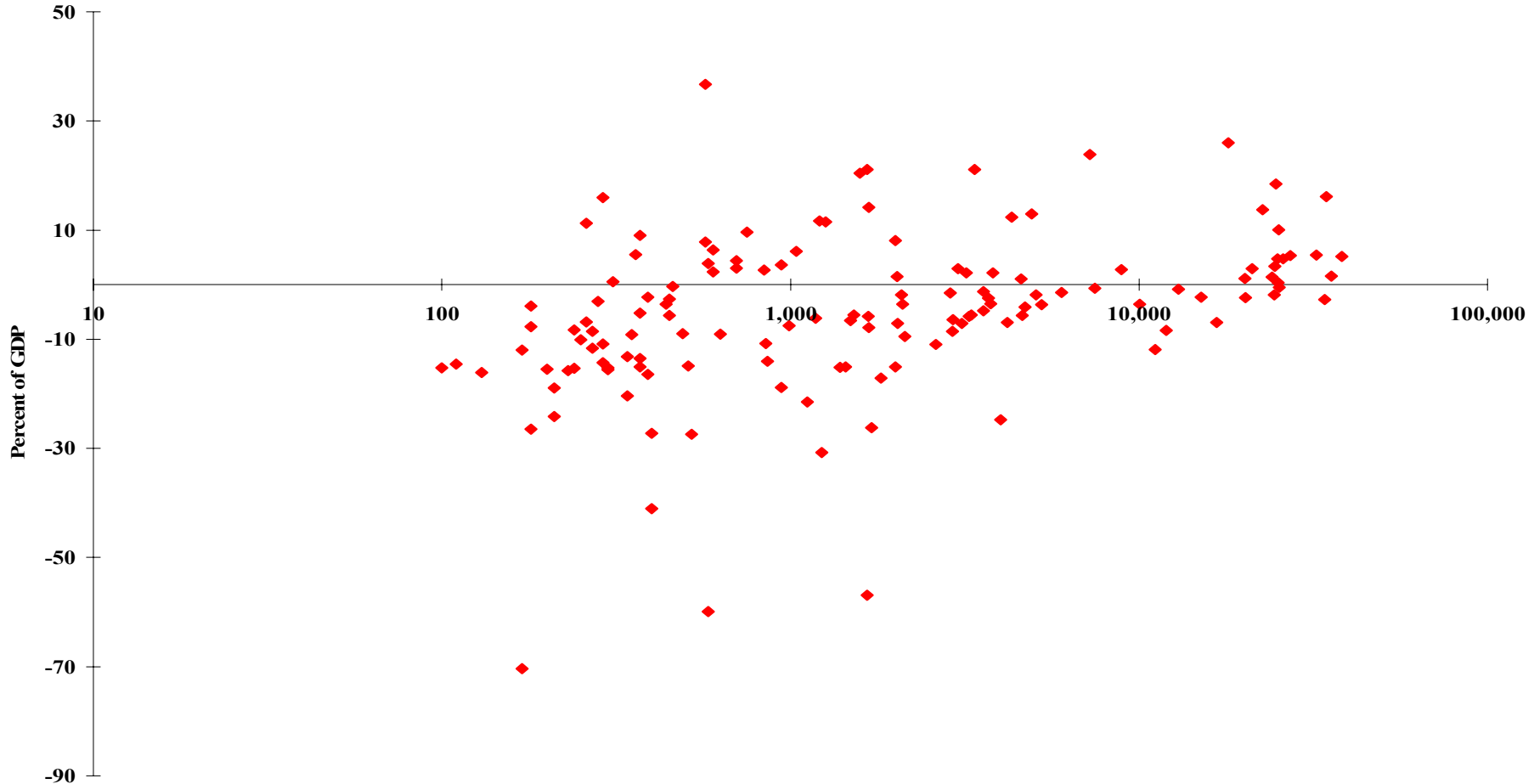
# Savings Gap as a Percent of GNP and GNP per Capita, 1995

Savings Gap as Percent of GNP and GNP per capita, 1995



# Savings Gap as a Percent of GNP and GNP per Capita, 2000

Savings Gap as Percent of GDP and GNP per Capita, 2000



# Predictability of Economic Development

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- ◆ Postwar experience--successes of unlikely countries and failures of apparently promising countries--has led to revision of the theory of economic development
- ◆ Latin America and even Africa was significantly ahead of East Asia in the 1950s
- ◆ Philippines and Sri Lanka were considered in the 1950s as the most likely developing economies to succeed
- ◆ Economic planning, balanced growth, and import substitution were popular strategies in the 1950s and 1960s
- ◆ Export orientation turned out to be a successful strategy
- ◆ The “adversity” theory
- ◆ Challenges to development economists--What policies can bring about economic development in Africa (and in Philippines)?

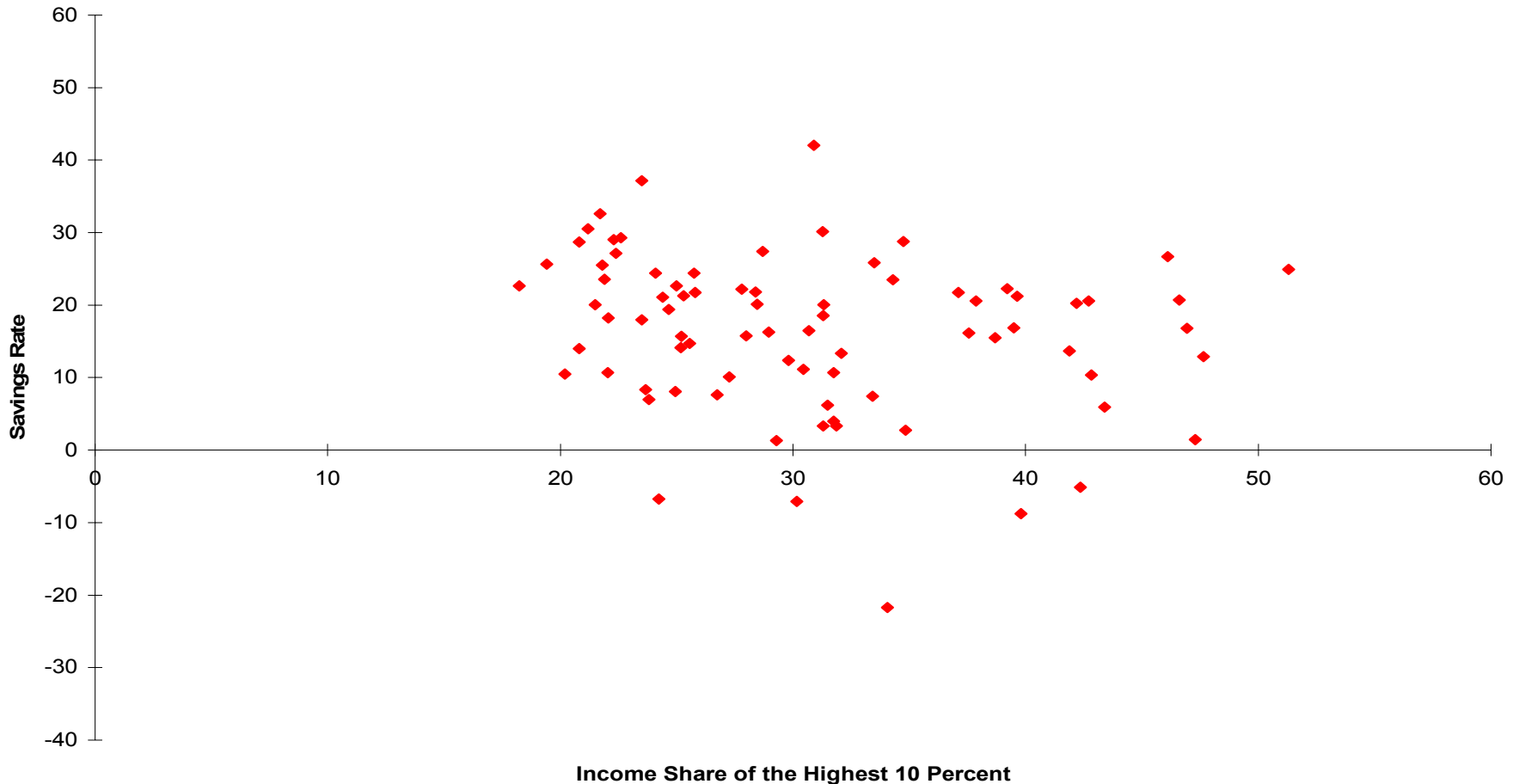
# Is There a “Late-Comer’s” Advantage?

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- ◆ An increased stock of knowledge and technology (but complementary investment is required)
- ◆ A larger group of potential investors, suppliers, and customers (an established global investment and trading system)
- ◆ The possibility of leap-frogging; there can be “creation without destruction”; e.g. mobile vs. fixed line telephones; CDs vs. videotapes; debit cards vs. checks
- ◆ Learning from past mistakes
- ◆ However, the distribution of benefits from technical progress favors the innovators; e.g. the notebook computer; the camera; OEM manufacturers; appropriation of the benefits of learning-by-doing

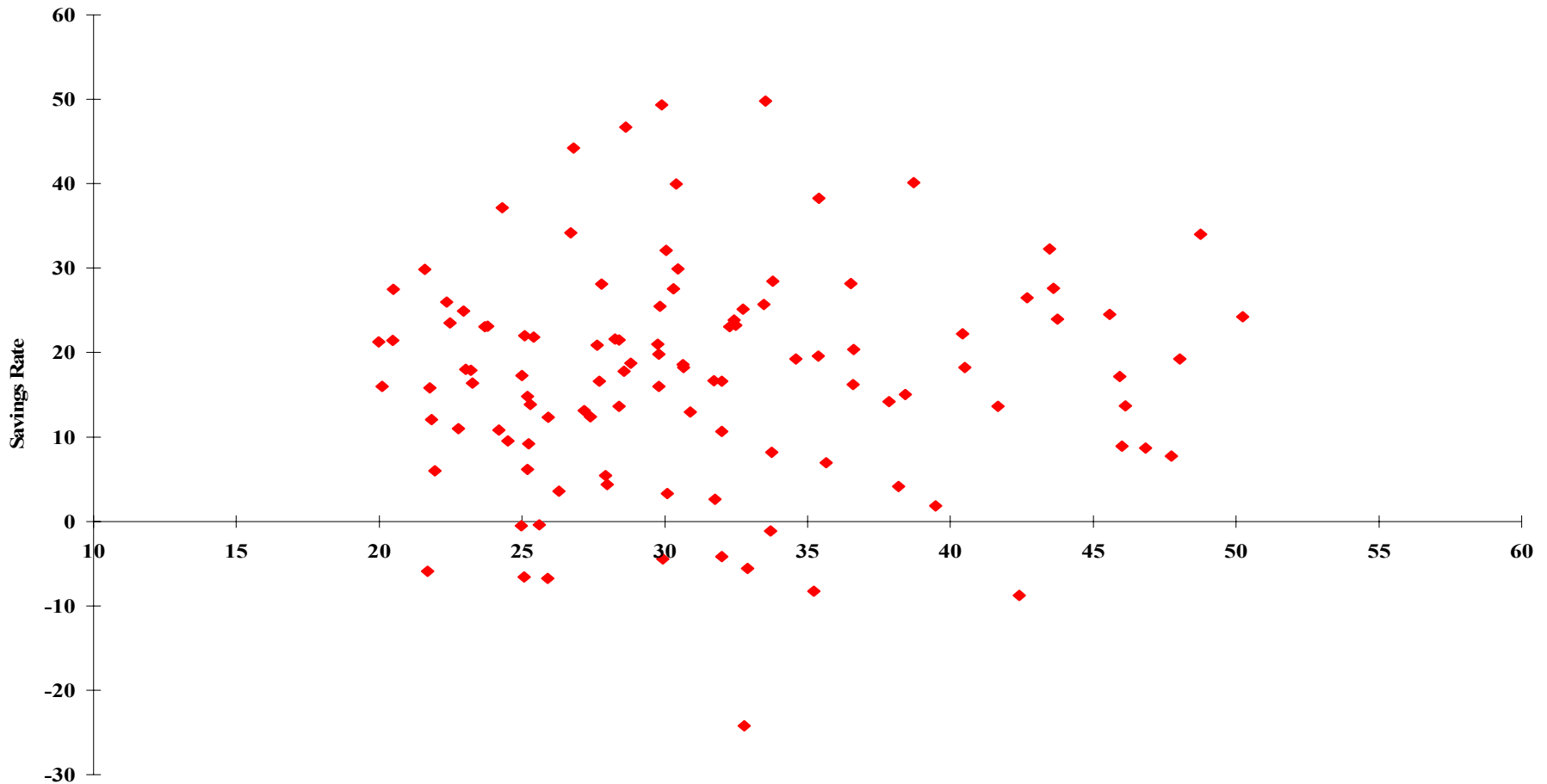
# Savings Rate and the Degree of Income Inequality, 1995 (1)

Savings Rate and the Degree of Income Inequality



# Savings Rate and the Degree of Income Inequality, 2000 (1)

Savings Rate and the Degree of Income Inequality, 2000

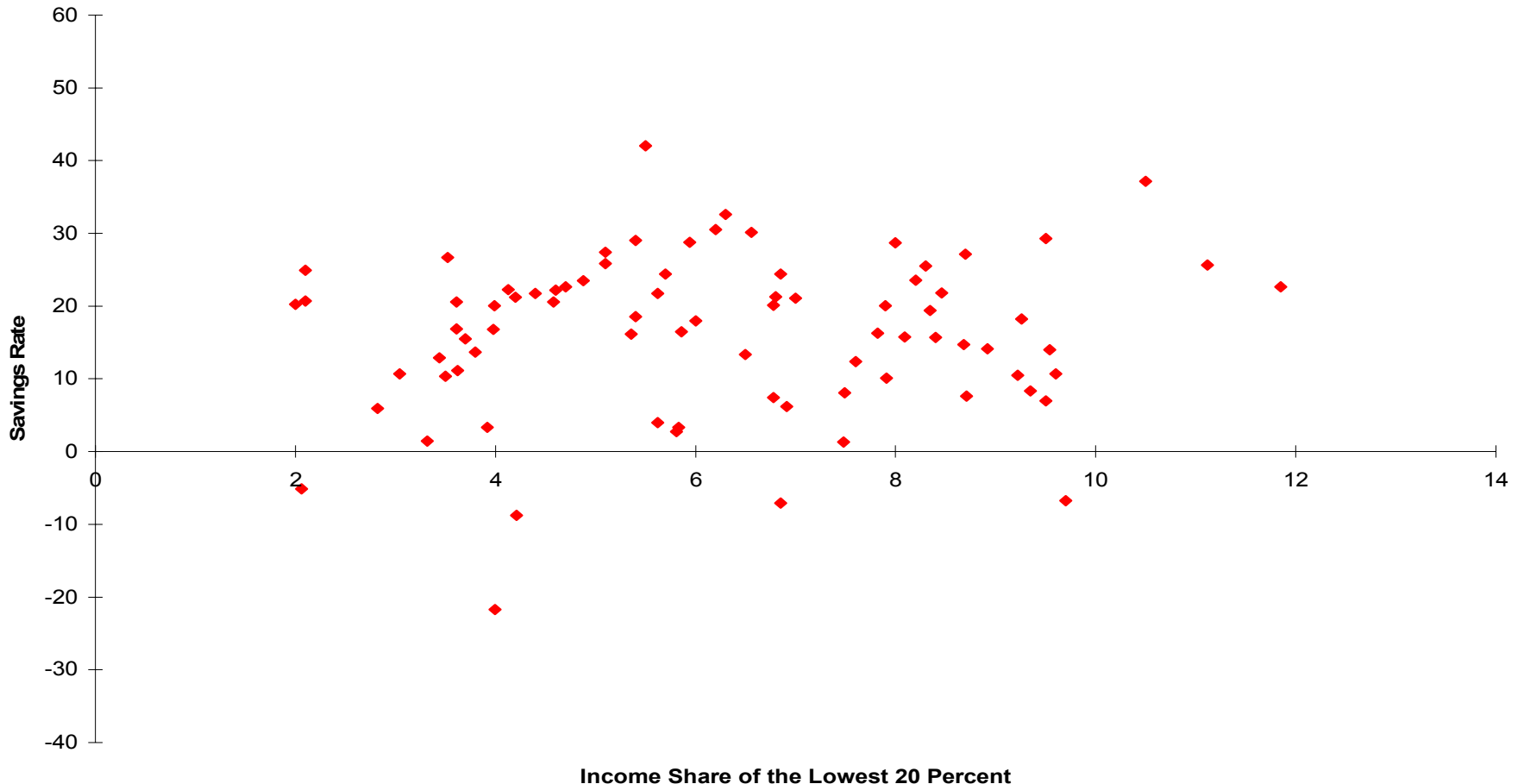


Income Share of the Highest 10 Percent  
Lawrence J. Lau, Stanford University



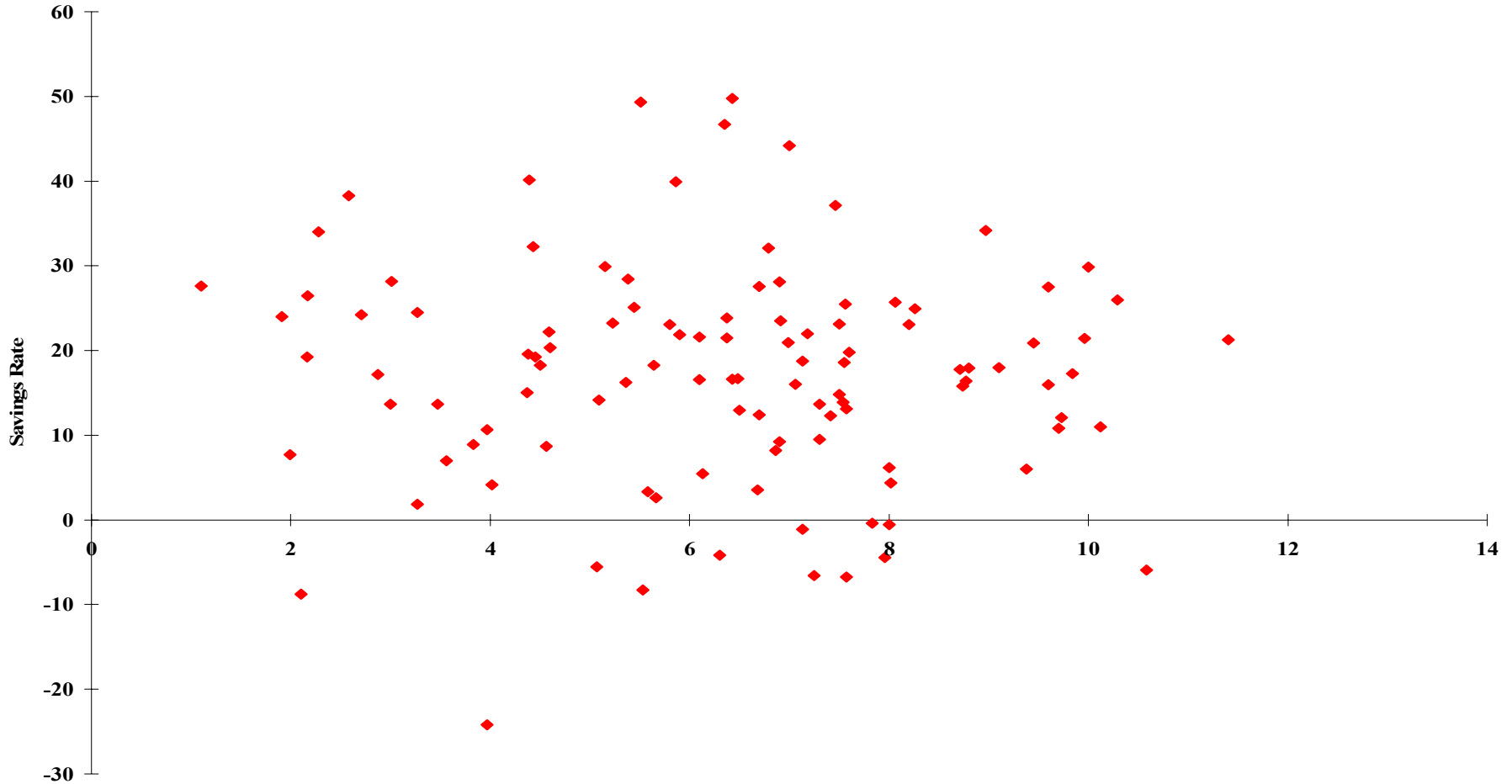
# Savings Rate and the Degree of Income Inequality, 1995 (2)

Savings Rate and the Degree of Income Inequality



# Savings Rate and the Degree of Income Inequality, 2000 (2)

Savings Rate and the Degree of Income Inequality, 2000



Income Share of the Lowest 20 Percent  
Lawrence J. Lau, Stanford University