Lec1: Overview of the Labor Market: Some Concepts and Statistics

Labor Economics,Fall 2024

Zhaopeng Qu

09/12/2024

Business School,Nanjing University

Main Content

1. Labor Supply by a demographic perspective
2. Basic Labor Market Statistics
    - Labor Force and Participation Rate
    - Unemployment and Employment
    - Job Opening
    - Labor Income
3. Labor Statistics in Reality

A Myth about Population

- A fundamental question: **how to view the role of population in economic development?**
  - One way to create wealth is by imputing factors with certain technology, thus capital and labor. More accurately

$$Y = F(K, L) \; or \; Y = AF(K, L)$$

- Therefore, the population is not only a burden but a resource for a country.

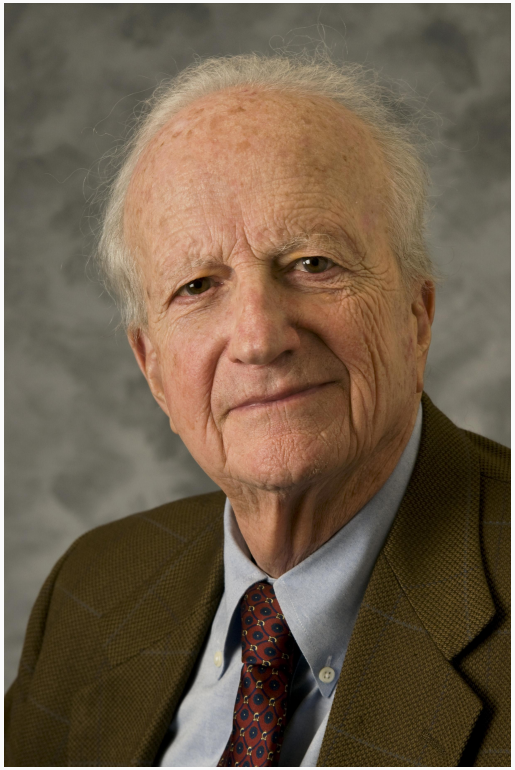
Introduction: Traditional Viewpoints

Thomas Malthus

(1766-1834)

- ***Malthusian Trap***
  1. An increase in a nation's food production improves the population's well-being.
  2. However, the improvement inevitably led to higher population growth.
  3. It, in turn, restored or even lowered the original per capita production level.
- Any improvement of production was *temporary* because of population growth.
- Policy implication: "The family size ought to be regulated such that families do not produce more children than they can support."
- eg. 政治经济学问题："中国的基本国情是什么？"
  - 人口多，底子薄，各地发展不平衡。

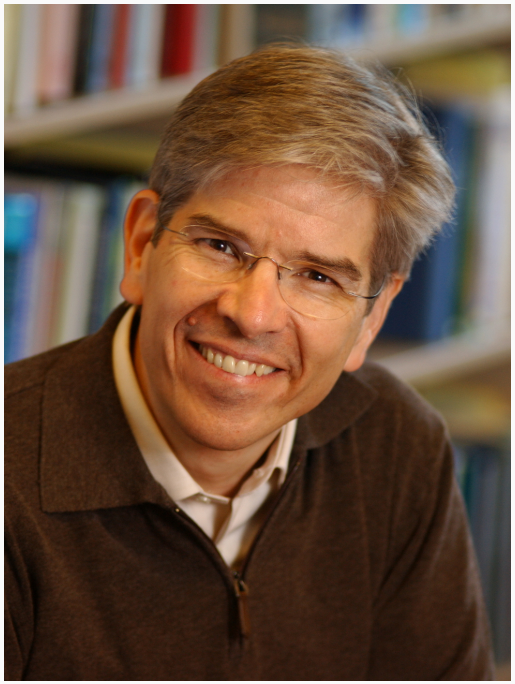
Introduction: Modern Viewpoints



Gary Becker (1930-2014)

- *Quantity- Quality of Children*
  1. child quantity and quality are close substitutions.
  2. a rise in income would eventually reduce fertility, substituting child quantity with quality.
- In summary, the relationship between income and fertility was not positive but negative.

Introduction: Modern Viewpoints

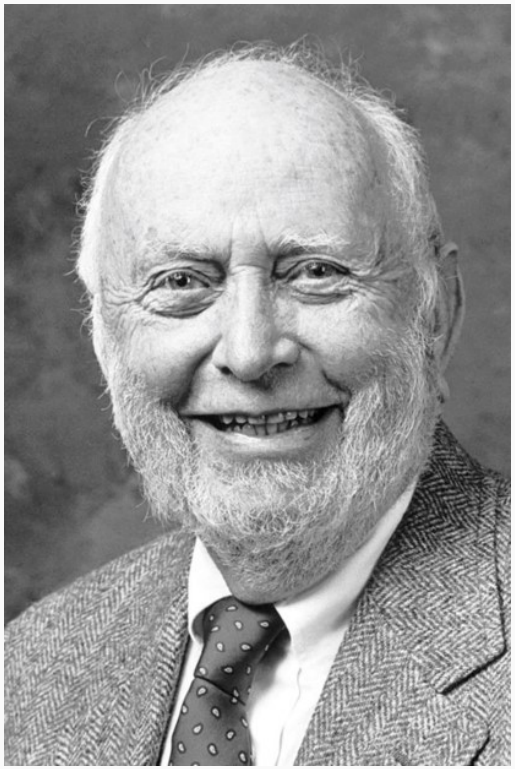


Paul Romer

(1955-present)

- ***Endogenous Growth***
  1. Technology Change
  2. Returns to Scale
- In summary, technological change results in increasing returns to scale economy, which overcomes people's consumption.
- Eg.“鹰吃鸡，鸡越来越少；而人吃鸡，鸡越来越多。”

Introduction: Institution is a key role

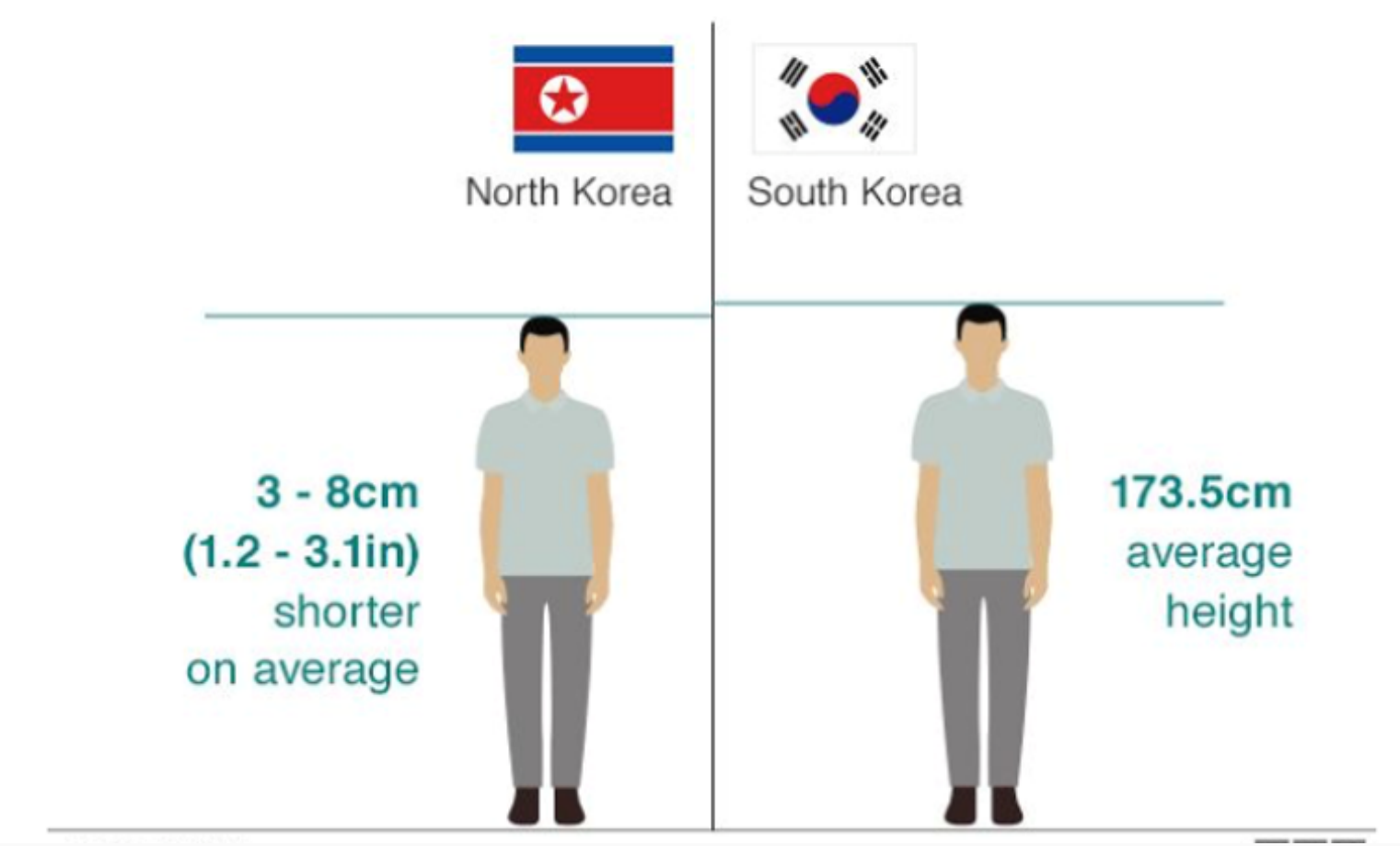


Douglas C. North

(1920-2015)

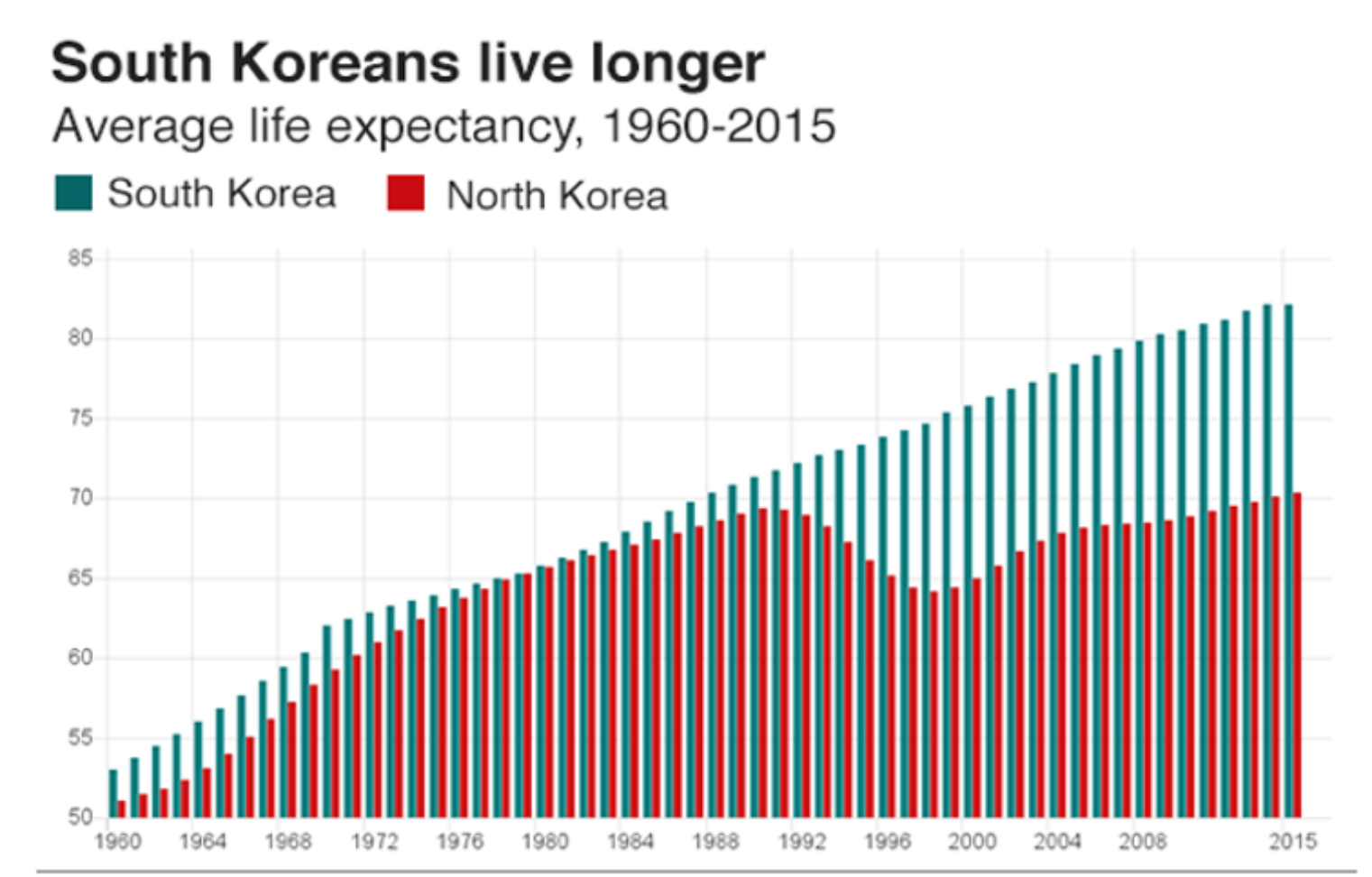
- What are the determinations for long-run economic growth?
- The most important one is the proper institutions(*Douglas North, 1981*)
- Institutions, thus the organization of society or "rules of the game"— are a major determinant of economic performance and a key factor in understanding the vast cross-country differences in prosperity.
- Some Cases
    1. North Korea and South Korea
    2. East Germany and West Germany
    3. Mainland and Taiwan

North v.s. South: Height



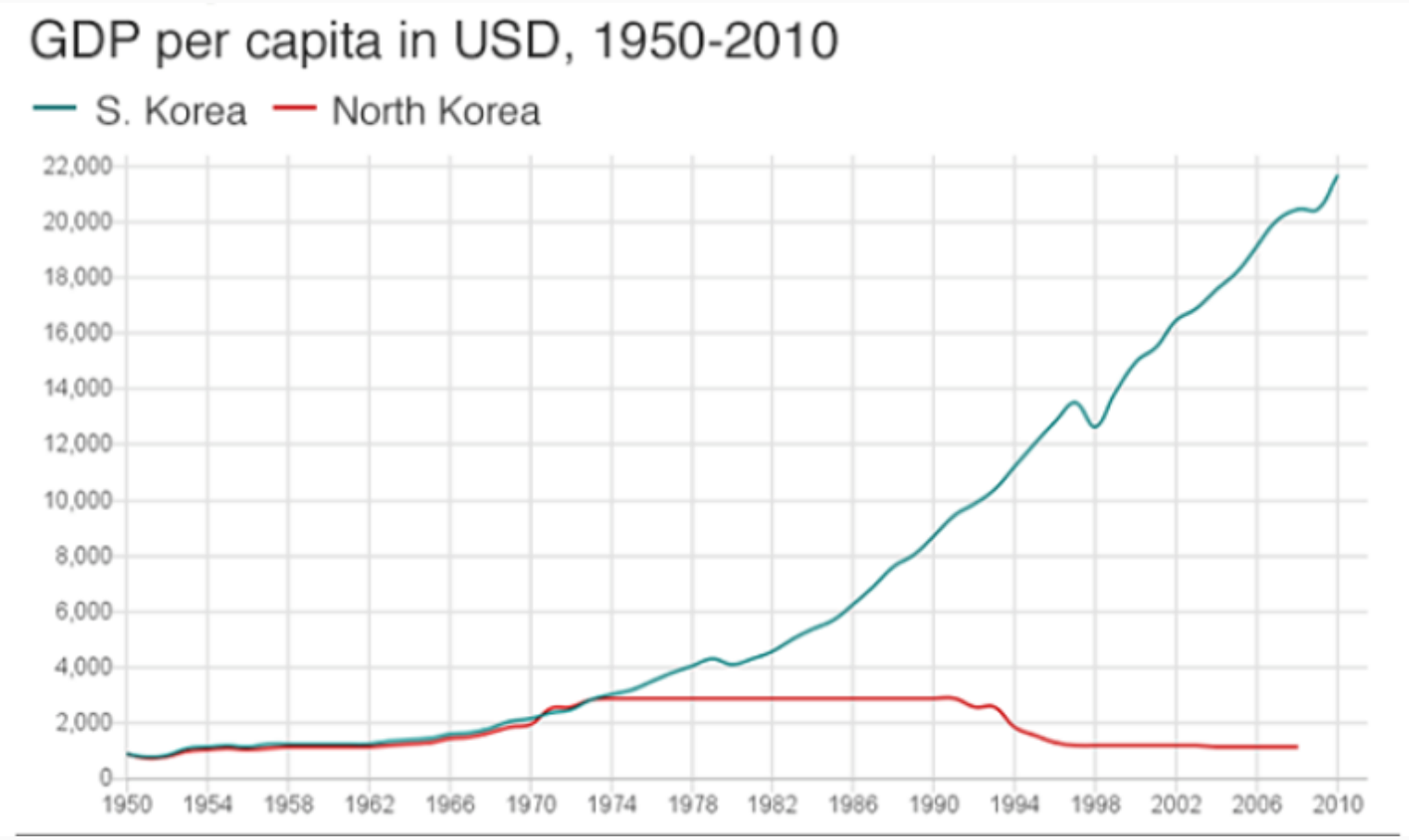
Source(Daniel J. Schwekendiek,2014)

North vs South: Life Expectancy



Source(World Bank)

North v.s. South: GDP



Source(The Maddison Project)

In Summary

- The most important one is the *proper institutions*, which includes
  - Competitive and open markets
  - Dependable legal system
  - Reasonable property protection
  - Political stability
  - and others…
- Population is not only a burden but a *resource* for a country.
- The quantity and quality of the Labor Force depends on the quantity, structure, and quality of the population in a country.

Labor Supply by Demographic View

Labor Supply by Demographic View

- 总人口 = 出生人口-死亡人口 + 净迁移人口
- The Structure of Population
    1. Age structure
    2. Gender structure

Labor Supply by Demographic View

- Demographic Dividend(人口红利)
- A rise in economic growth rate due to a rising share of working-age people in a population.
- This usually occurs late in the demographic transition(人口转型) when the fertility rate falls and the youth dependency rate declines.

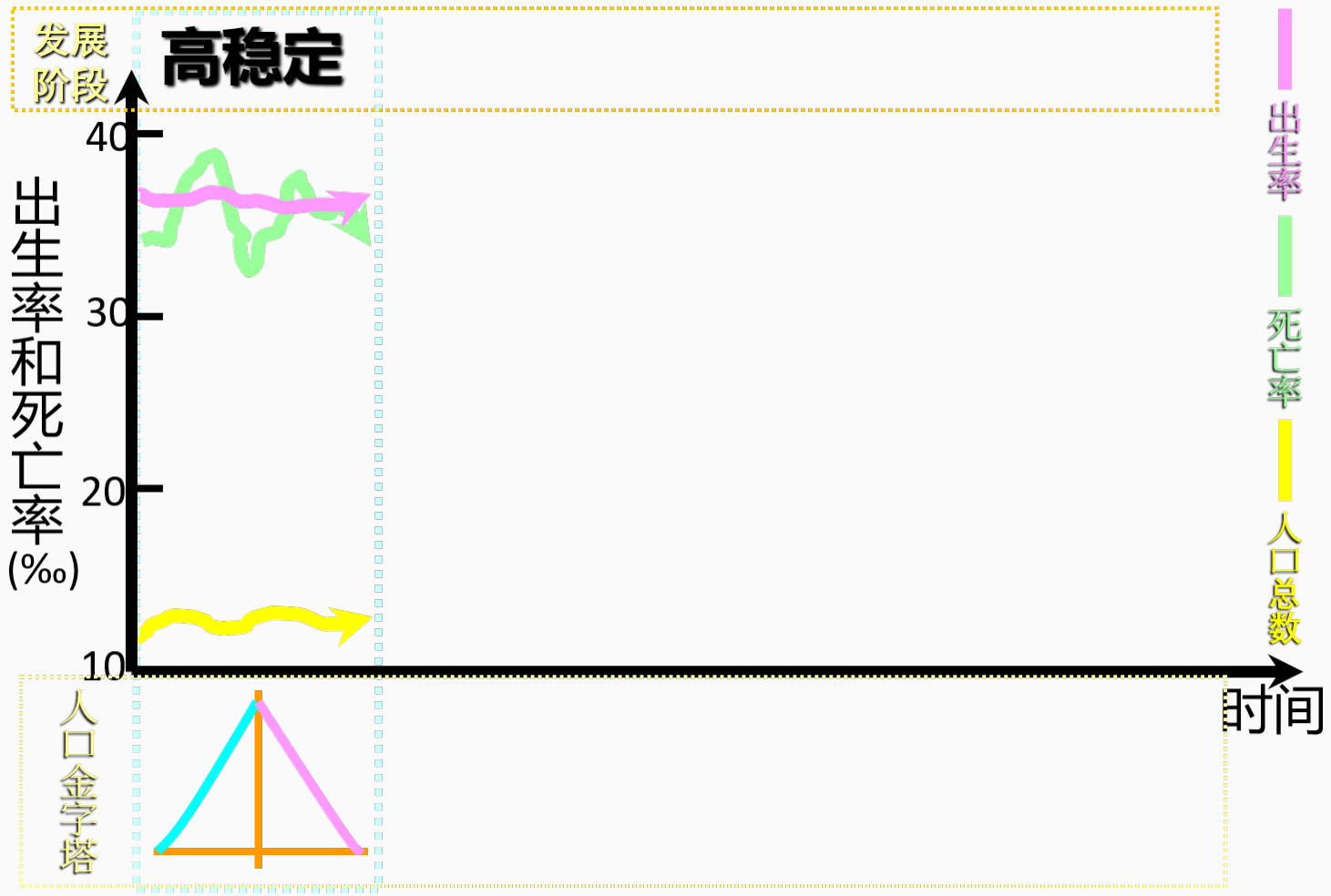
Labor Supply by Demographic View

- The Population =
  - The elderly（>=65 years old)
  - The children（0-14 years old）
  - Working age population（15-64 years old)

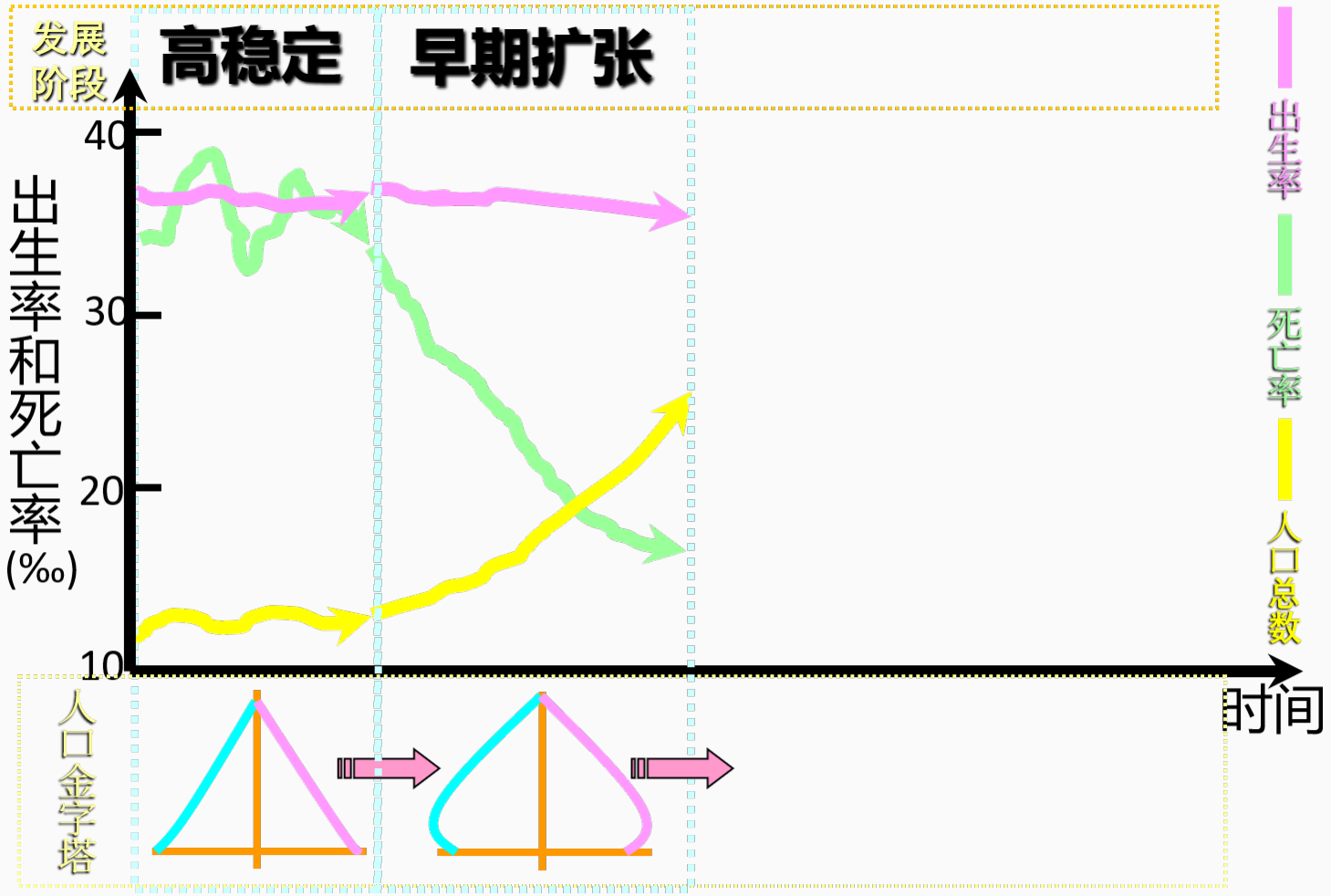
$$\text{总抚养比} = \frac{\text{非劳动年龄人口}}{\text{劳动年龄人口}} = \frac{\text{少年儿童人口}}{\text{劳动年龄人口}} + \frac{\text{老年人口}}{\text{劳动年龄人口}} = \text{少年儿童抚养比} + \text{老龄人口抚养比}$$

Source: 李柏翰

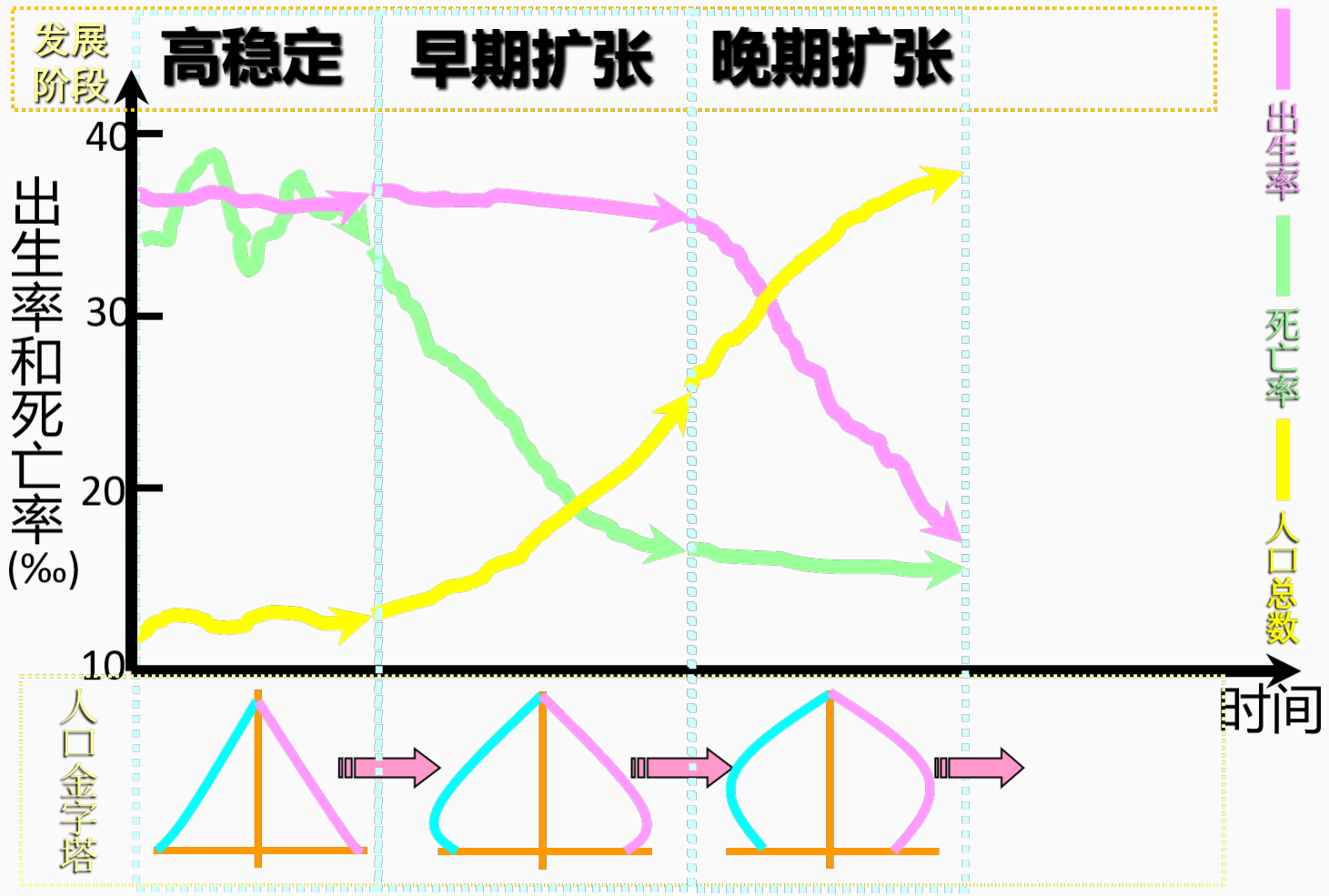
Source: 李柏翰



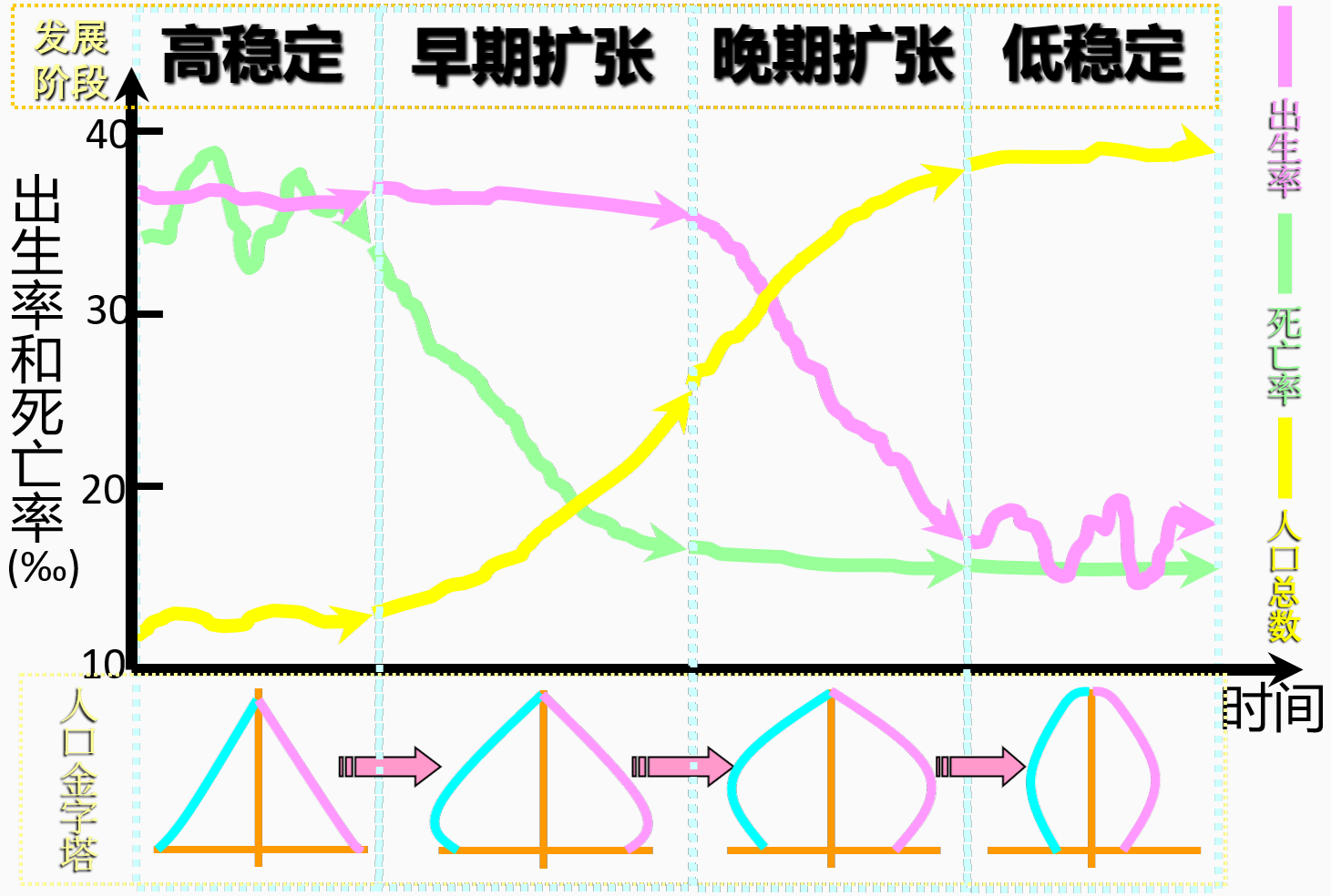
Source: 李柏翰



Source: 李柏翰

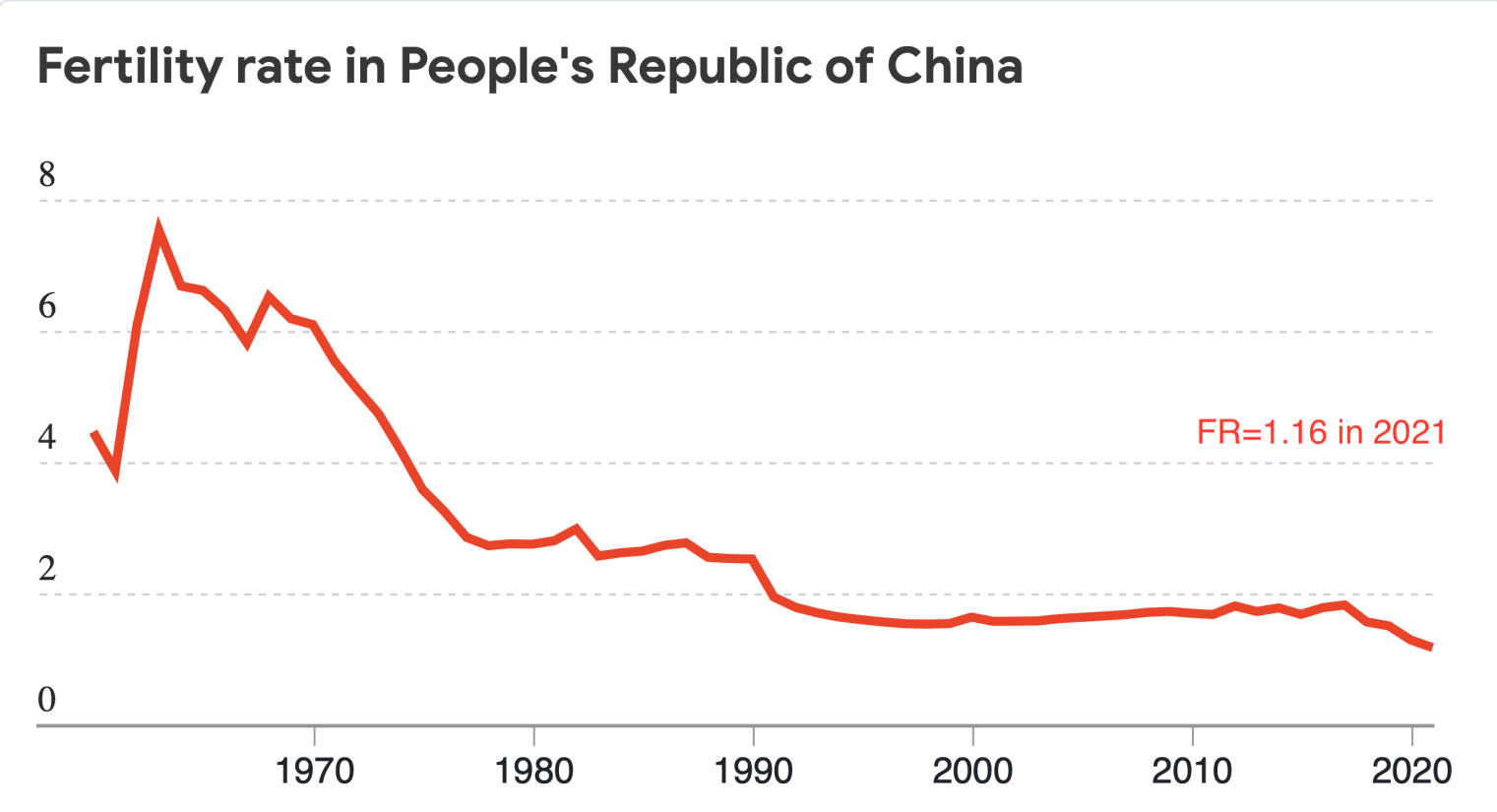


Source: 李柏翰


发展阶段
高稳定
早期扩张
晚期扩张
低稳定
出生率和死亡率(‰)
40
30
20
10
时间
出生率
死亡率
人口总数
人口金字塔

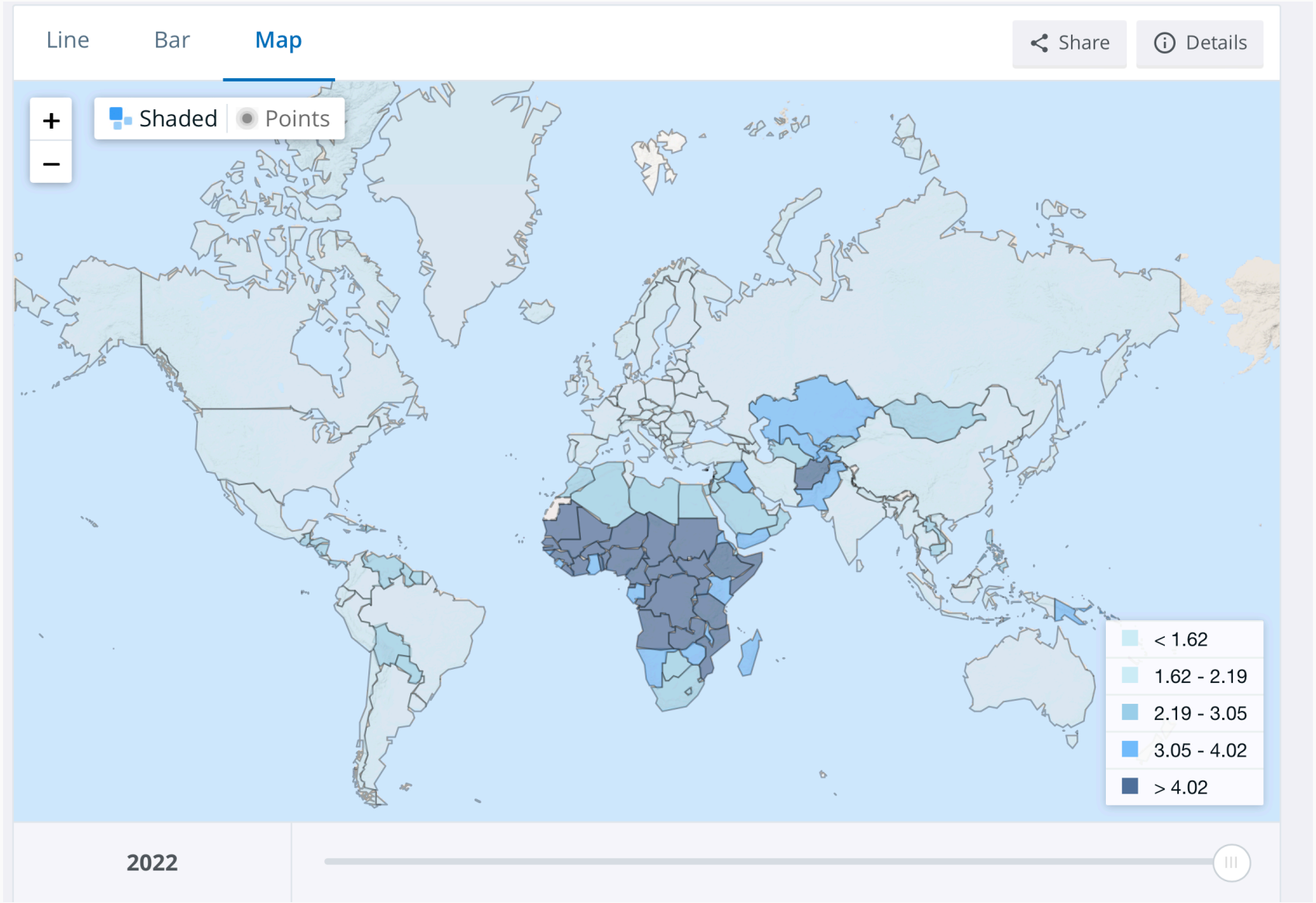
Source: 李柏翰

Fertility rate in China



Worldbank(2021)

Fertility rate worldwide

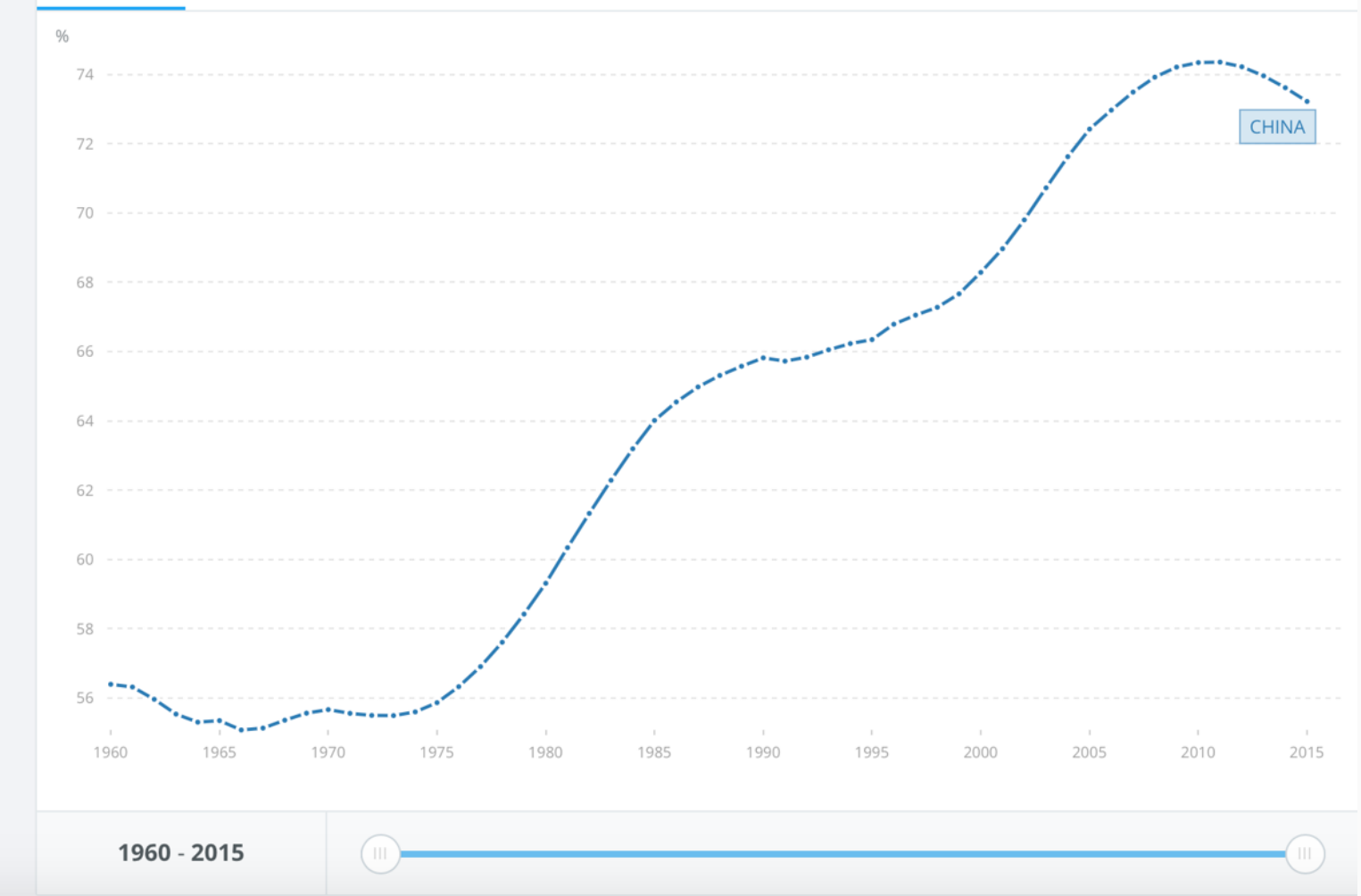


Worldbank(2022)

The lowest fertility rate countries/regions

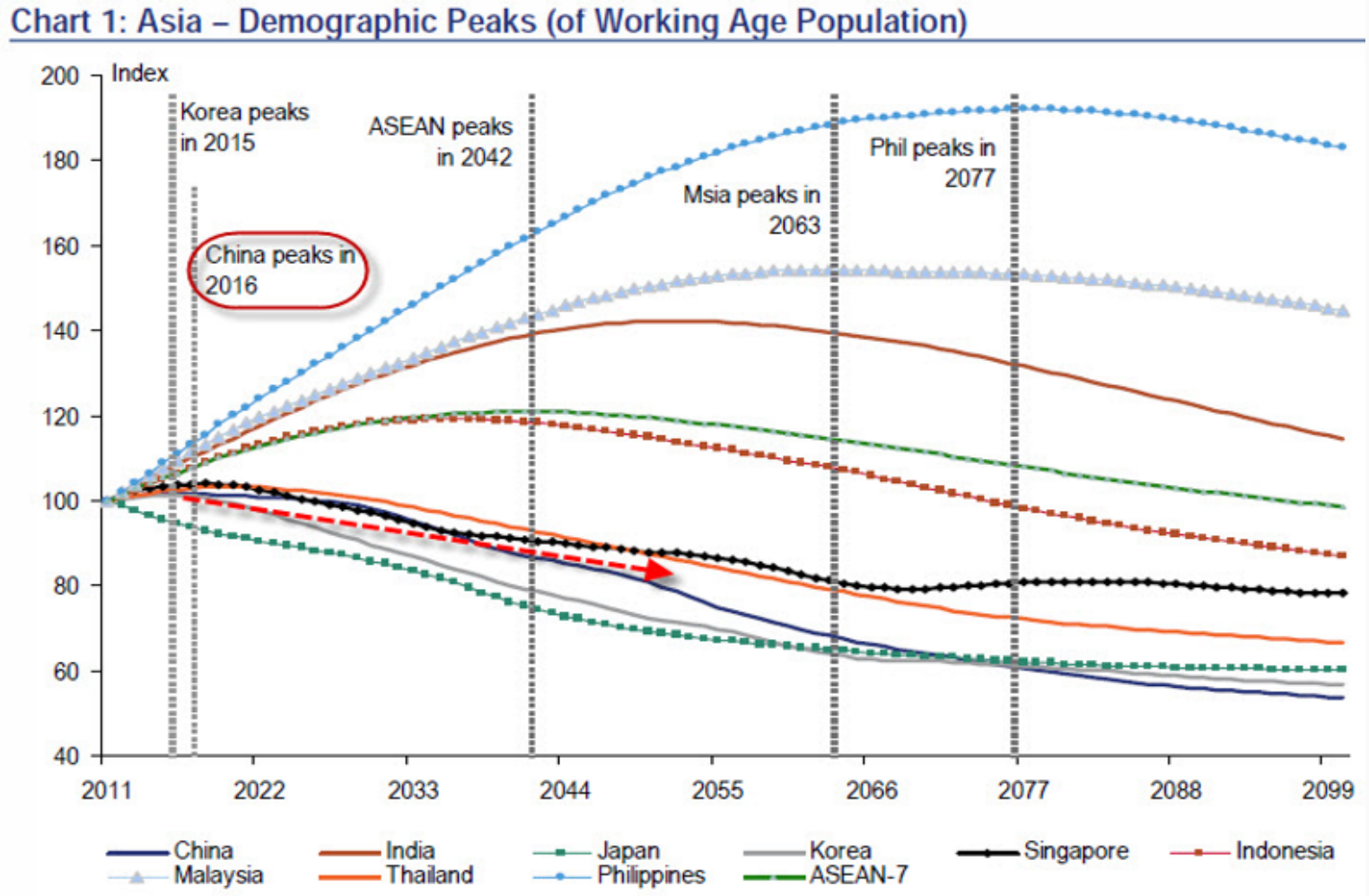
Hong Kong SAR, China	2022	0.7
Korea, Rep.	2022	0.8
Palau	2020	0.8
Puerto Rico	2022	0.9
British Virgin Islands	2022	1.0
Singapore	2022	1.0
Macao SAR, China	2022	1.1
Malta	2022	1.1
Spain	2022	1.2
China	2022	1.2
Aruba	2022	1.2
Italy	2022	1.2
Japan	2022	1.3
San Marino	2012	1.3

Working-age population in China



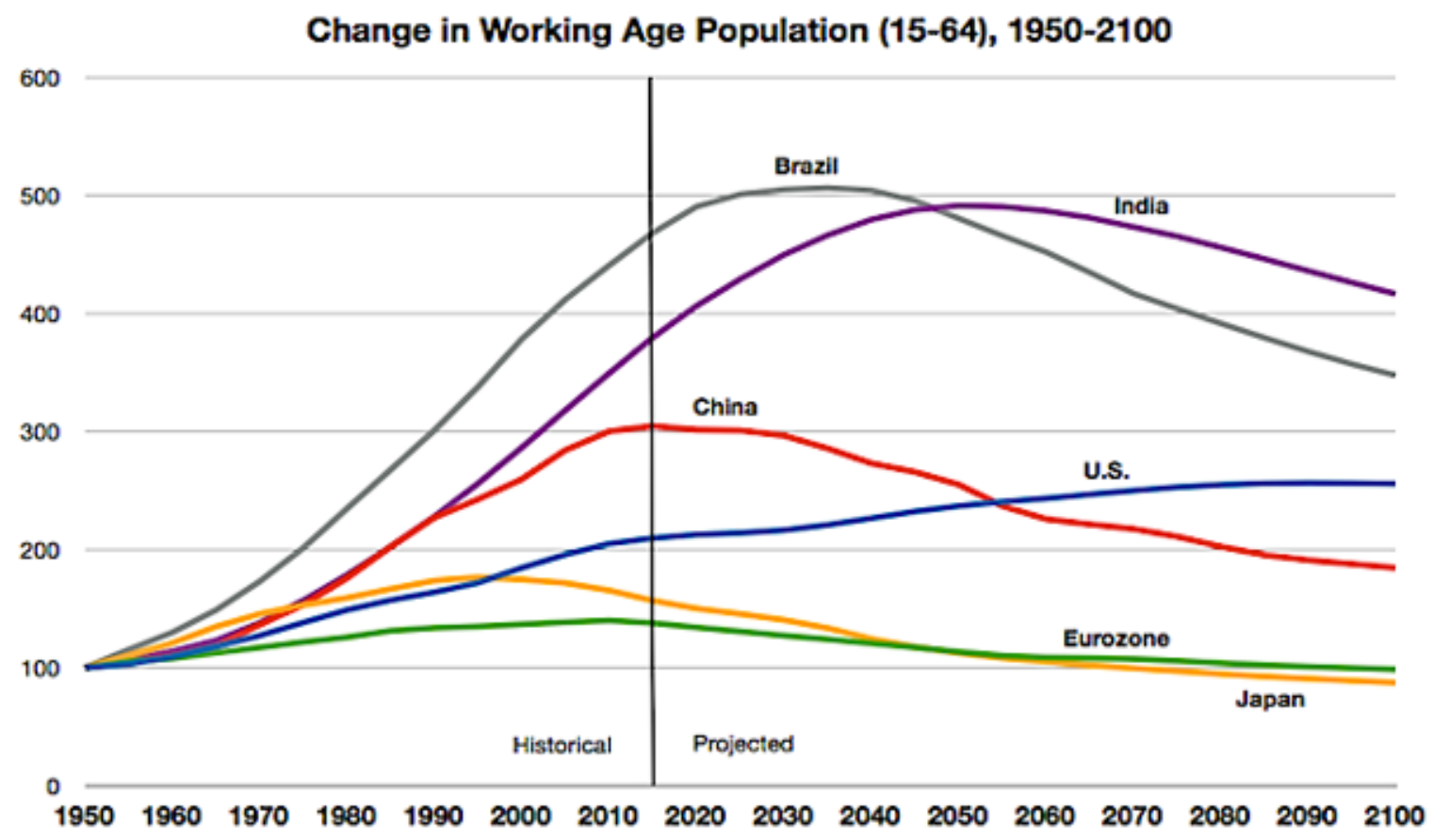
IMF(2017)

Working-age population in Asia



ADB(2012)

Working-age population in the World



ADB(2012)

Demographic View: Gender

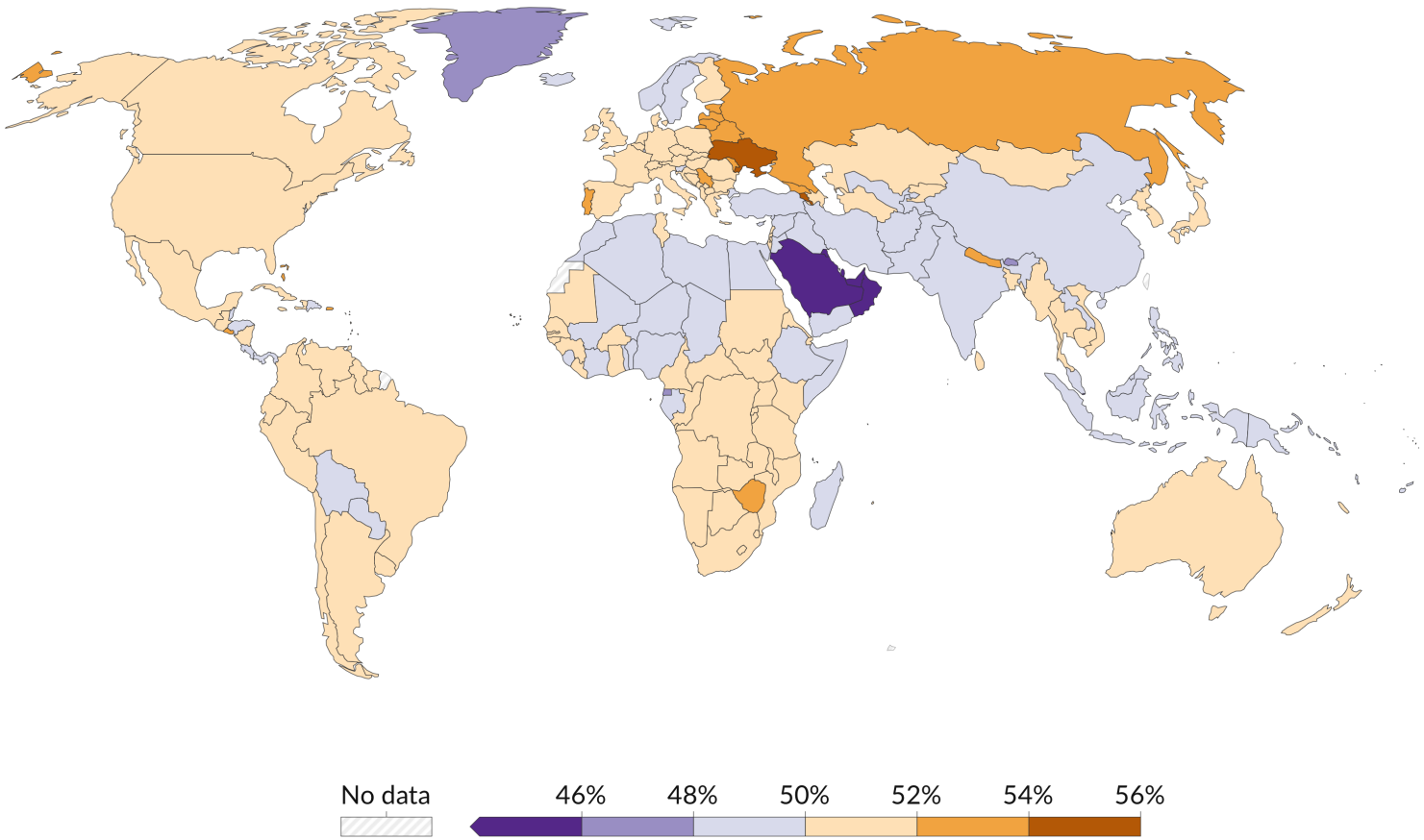
$$\text{性别比} = \frac{\text{男性人口}}{\text{女性人口}} \times 100$$

- **Sex Ratio at Birth**(出生性别比)：出生婴儿的性别比

Female Share of the population

Share of the population that is female, 2022

Our World in Data

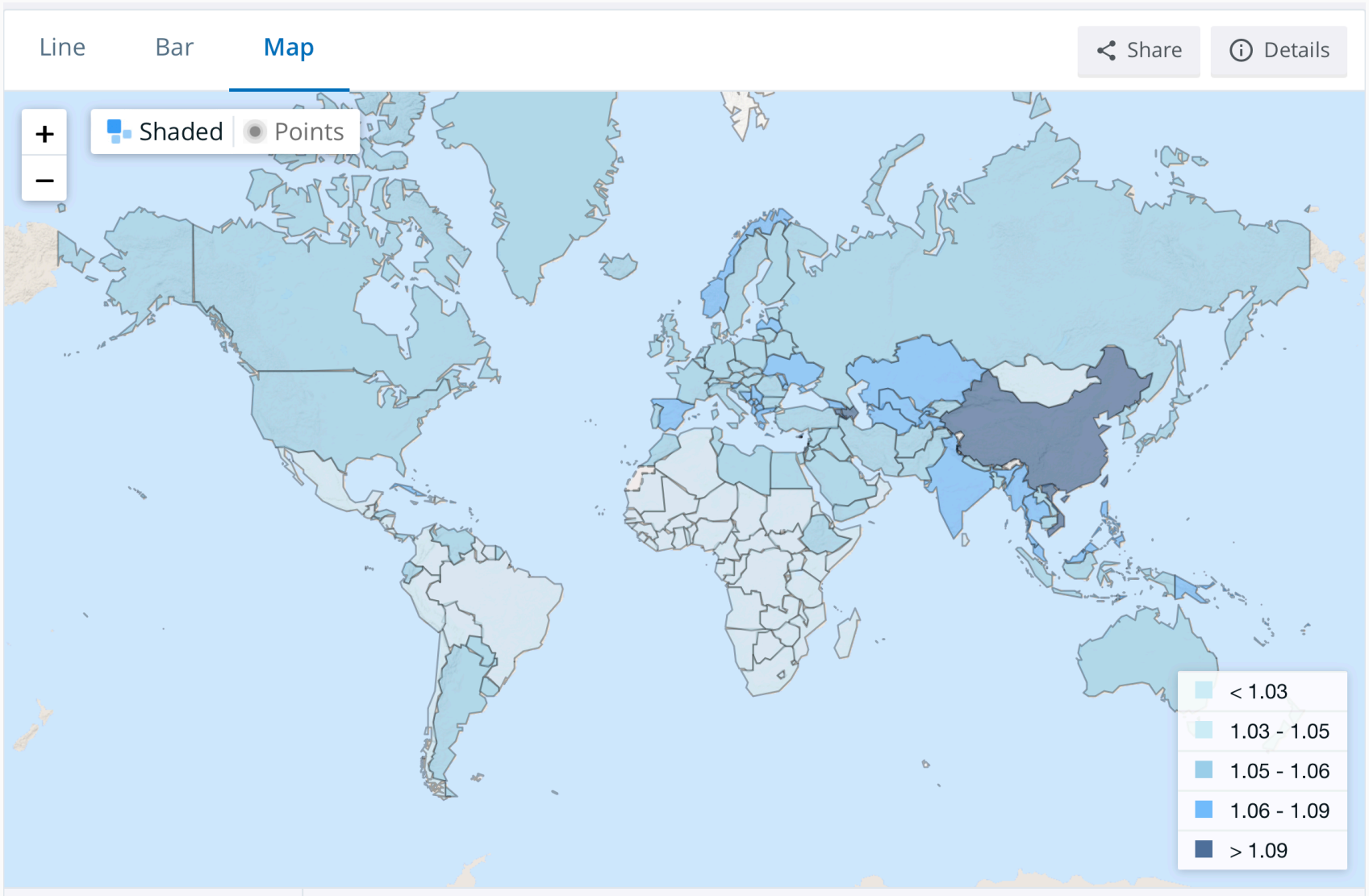


Data source: Multiple sources compiled by World Bank (2024)

OurWorldInData.org/gender-ratio | CC BY

Note: Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.

Sex Ratio at Birth across the world



Worldbank(2022)

Basic Labor Market Statistics

Labor Force Status

- Population aged 16 and over (劳动力资源)
- Labor force; economically active (经济活动人口)
- Not in the labor force
    a) Student
    b) Housewife
    c) Retired
    d) Sick
    e) Other

Labor Force Participation Rate

$$\text{劳动参与率} = \frac{\text{经济活动人口}}{\text{潜在劳动力人口}} = \frac{\text{就业人数} + \text{失业人数}}{\text{潜在劳动力人口}} \times 100\%$$

- 潜在劳动力人口是指劳动年龄人口减去丧失劳动能力的残疾人和服刑犯人的数量。
- 在实际计算中，常常以 **16** 岁以上的人口数来代替潜在劳动力人口指标。
- 劳动参与率衡量的是一个社会中从事经济活动的人口的相对规模，从总体上反映了该社会中人们工作意愿的强度，进而衡量了劳动力市场的活动状况。

Labor Force Participation Rates of Men, 1900-2000, USA

TABLE 2-1 Labor Force Participation Rates of Men, 1900–2000

Sources: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Years to 1970,* Washington, DC: Government Printing Office, 1975; U.S. Bureau of the Census, *Statistical Abstract of the United States,* Washington, DC: Government Printing Office, various issues.

Year	All Men	Men Aged 25–44	Men Aged 45–64	Men Aged over 65
1900	80.0	94.7	90.3	63.1
1920	78.2	95.6	90.7	55.6
1930	76.2	95.8	91.0	54.0
1940	79.0	94.9	88.7	41.8
1950	86.8	97.1	92.0	45.8
1960	84.0	97.7	92.0	33.1
1970	80.6	96.8	89.3	26.8
1980	77.4	93.0	80.8	19.0
1990	76.4	93.3	79.8	16.3
2000	74.7	87.9	78.3	17.5

Labor Force Participation Rates of Men, 1900-2000, USA

TABLE 2-1 Labor Force Participation Rates of Men, 1900–2000

Sources: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Years to 1970,* Washington, DC: Government Printing Office, 1975; U.S. Bureau of the Census, *Statistical Abstract of the United States,* Washington, DC: Government Printing Office, various issues.

Year	All Men	Men Aged 25–44	Men Aged 45–64	Men Aged over 65
1900	80.0	94.7	90.3	63.1
1920	78.2	95.6	90.7	55.6
1930	76.2	95.8	91.0	54.0
1940	79.0	94.9	88.7	41.8
1950	86.8	97.1	92.0	45.8
1960	84.0	97.7	92.0	33.1
1970	80.6	96.8	89.3	26.8
1980	77.4	93.0	80.8	19.0
1990	76.4	93.3	79.8	16.3
2000	74.7	87.9	78.3	17.5

Labor Force Participation Rates of Women, 1900-2000, USA

TABLE 2-2 Labor Force Participation Rates of Women, 1900–2000

Sources: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Years to 1970,* Washington, DC: Government Printing Office, 1975, p. 133; and U.S. Department of Commerce, *Statistical Abstract of the United States, 2002,* Washington, DC: Government Printing Office, 2002, Table 569.

Year	All Women	Single Women	Married Women	Widowed, Divorced, or Separated
1900	20.6	43.5	5.6	32.5
1910	25.4	51.1	10.7	34.1
1930	24.8	50.5	11.7	34.4
1940	25.8	45.5	15.6	30.2
1950	29.0	46.3	23.0	32.7
1960	34.5	42.9	31.7	36.1
1970	41.6	50.9	40.2	36.8
1980	51.5	64.4	49.9	43.6
1990	57.5	66.7	58.4	47.2
2000	60.2	69.0	61.3	49.4

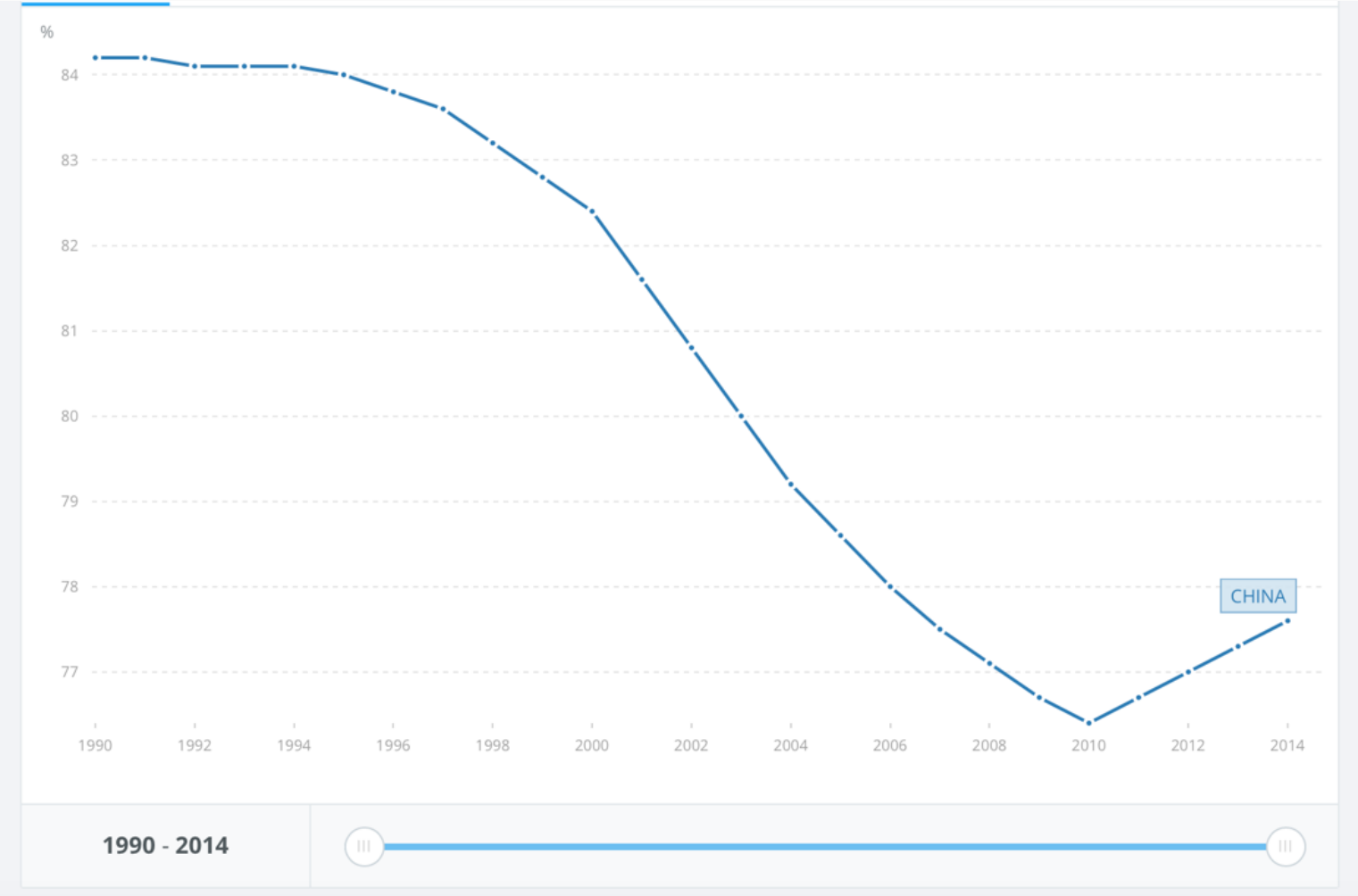
Labor Force Participation Rates of Women, 1900-2000, USA

TABLE 2-2 Labor Force Participation Rates of Women, 1900–2000

Sources: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Years to 1970,* Washington, DC: Government Printing Office, 1975, p. 133; and U.S. Department of Commerce, *Statistical Abstract of the United States, 2002,* Washington, DC: Government Printing Office, 2002, Table 569.

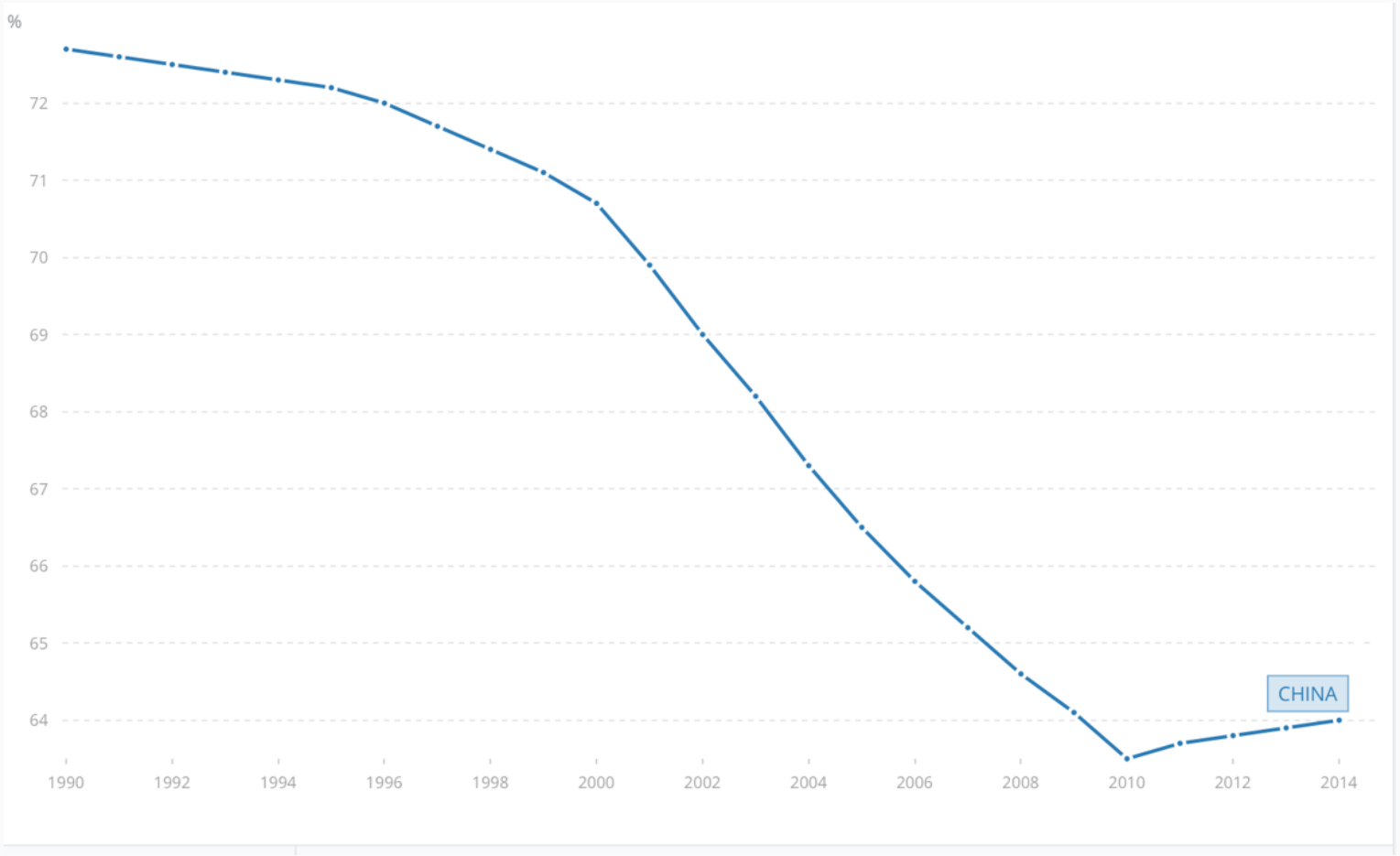
Year	All Women	Single Women	Married Women	Widowed, Divorced, or Separated
1900	20.6	43.5	5.6	32.5
1910	25.4	51.1	10.7	34.1
1930	24.8	50.5	11.7	34.4
1940	25.8	45.5	15.6	30.2
1950	29.0	46.3	23.0	32.7
1960	34.5	42.9	31.7	36.1
1970	41.6	50.9	40.2	36.8
1980	51.5	64.4	49.9	43.6
1990	57.5	66.7	58.4	47.2
2000	60.2	69.0	61.3	49.4

Labor Force Participation Rates, Total 1990-2014, China



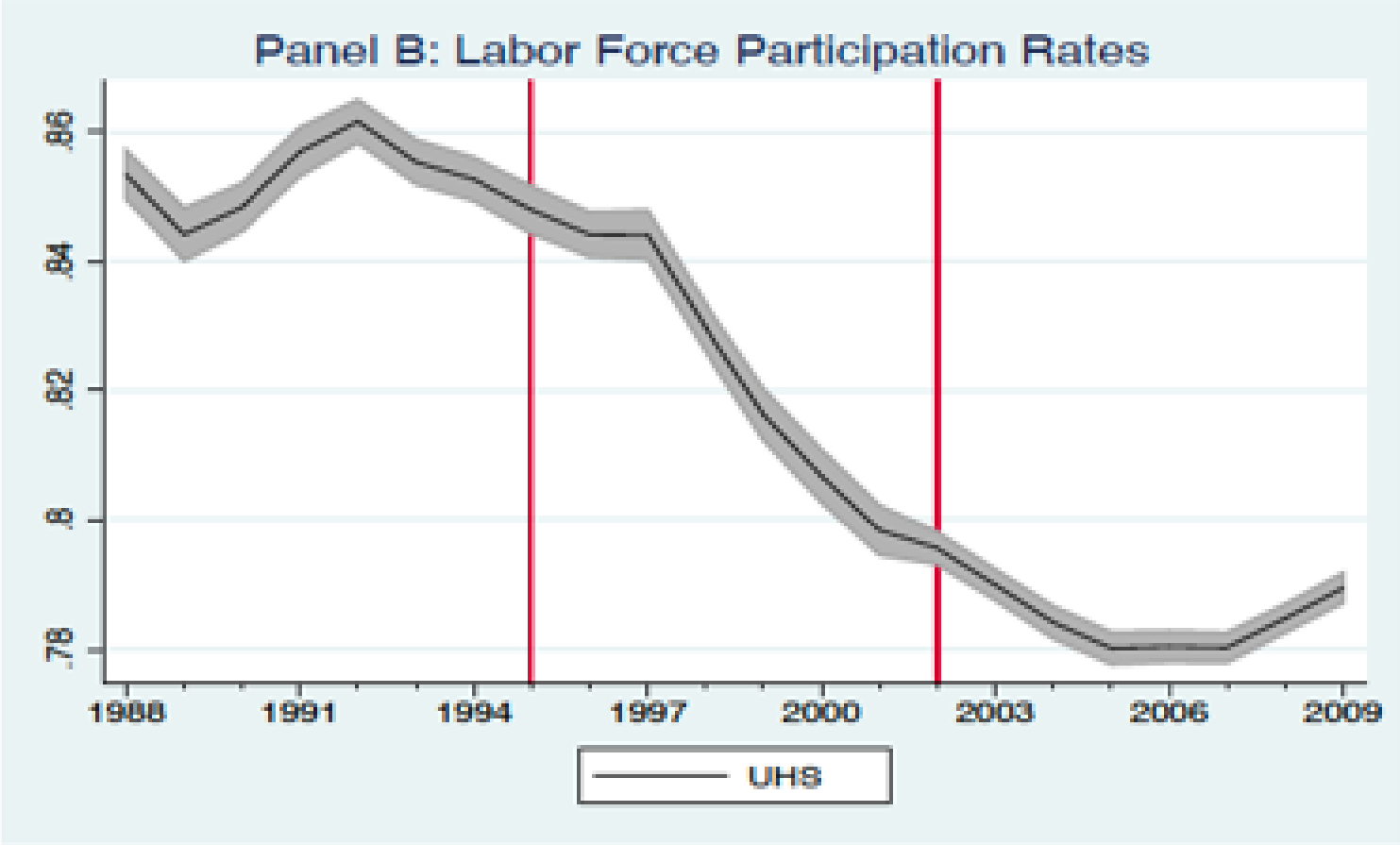
IMF(2015)

Labor Force Participation Rates, Women,1990-2014, China



IMF(2015)

Feng, Hu, and Moffitt(2015)



Labor Force and Employment

- The labor force includes non-institutionalized individuals age 16 and above who are presently employed and those who are not presently employed, but are actively seeking work.
- Labor Force = Employed + Unemployed

Labor Force and Unemployment

- 根据国际劳动组织 (ILO) 的标准定义，判定一个人是否失业有三条标准：
  - 没有工作，既没有被别人雇佣，也没有自我雇佣；
  - 当前准备工作，在相应的时期愿意被雇或者自我雇佣；
  - 正在寻找工作，近期内正在积极的寻找被雇和自我雇佣的机会。
- 如果把这三条总结成一句话的话，那就是在一定时期内，失业者没有工作，但准备找工作，而且正在找工作。

Employment and Unemployment

$$\text{就业率} = \frac{\text{就业人口}}{\text{潜在劳动力人口}} \times 100\%$$

$$\text{失业率} = \frac{\text{失业人口}}{\text{经济活动人口}} \times 100\% = \frac{\text{失业人口}}{\text{失业人口} + \text{就业人口}} \times 100\%$$

Employment and Unemployment

$$\text{就业率} = \frac{\text{就业人口}}{\text{潜在劳动力人口}} \times 100\%$$

$$\text{失业率} = \frac{\text{失业人口}}{\text{经济活动人口}} \times 100\% = \frac{\text{失业人口}}{\text{失业人口} + \text{就业人口}} \times 100\%$$

就业率 + 失业率 =1?

Unemployment Rates in China

1. 城镇登记失业率

a) 非农业户口，失业，在劳动年龄 (16 岁以上及男 60 岁以下、女 55 岁以下)

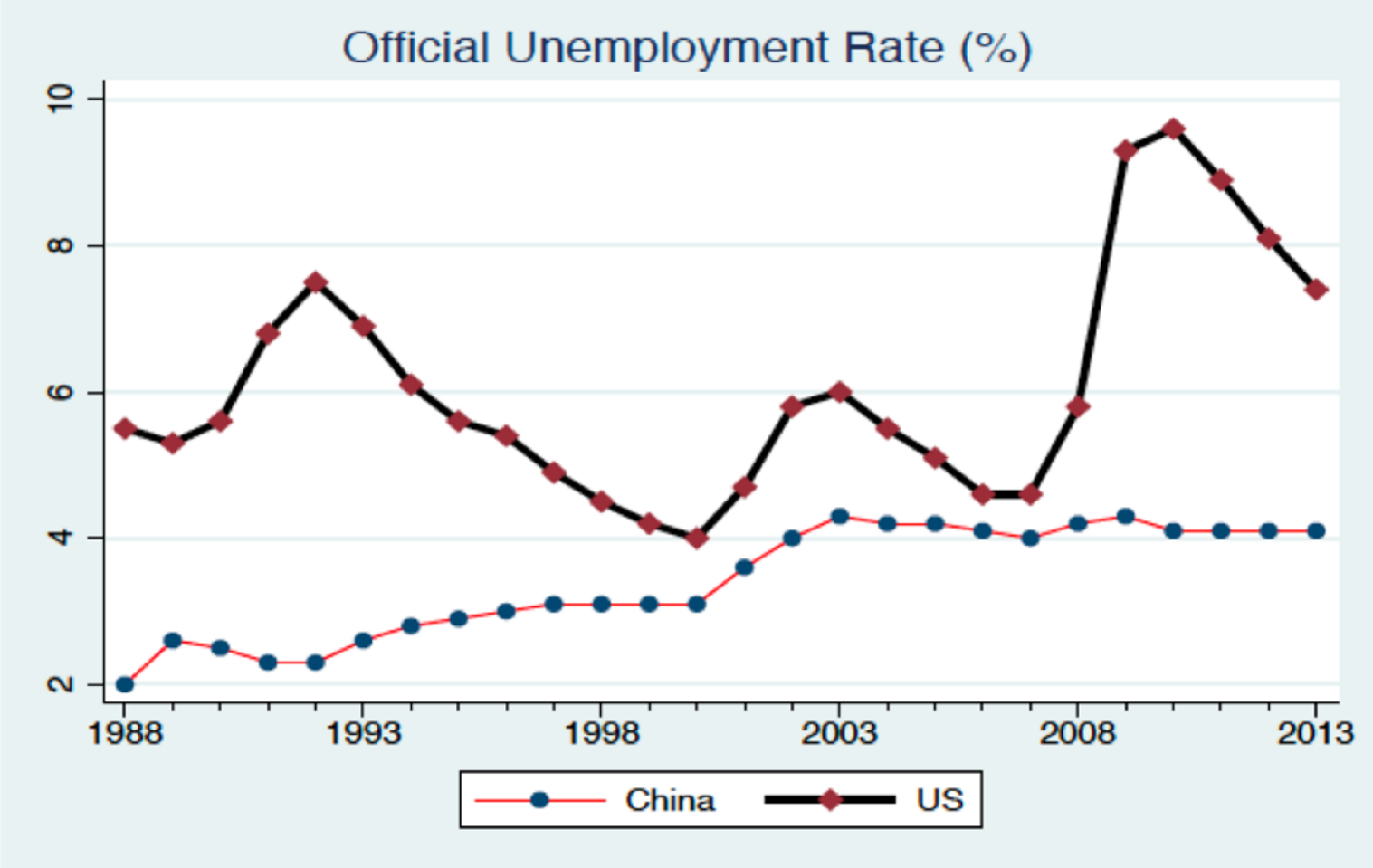
b) 并在当地就业服务机构进行求职登记的人员。

c) 不包括毕业生（6 个月之后），也不包括未达到退休年龄但已经办理退休、退职手续的人员，例如下岗、内退人员。

$$\text{城镇登记失业率} = \frac{\text{城镇登记失业人数}}{\begin{array}{l}(\text{城镇单位就业人员}-\text{使用的农村劳动力}-\text{聘用的离退休人员}-\text{聘}\\ \text{用的港澳台及外方人员})+\text{不在岗职工}+\text{城镇私营业主}+\text{城镇个}\\ \text{体户主}+\text{城镇私营企业及个体就业人员}+\text{城镇登记失业人数}\end{array}}$$

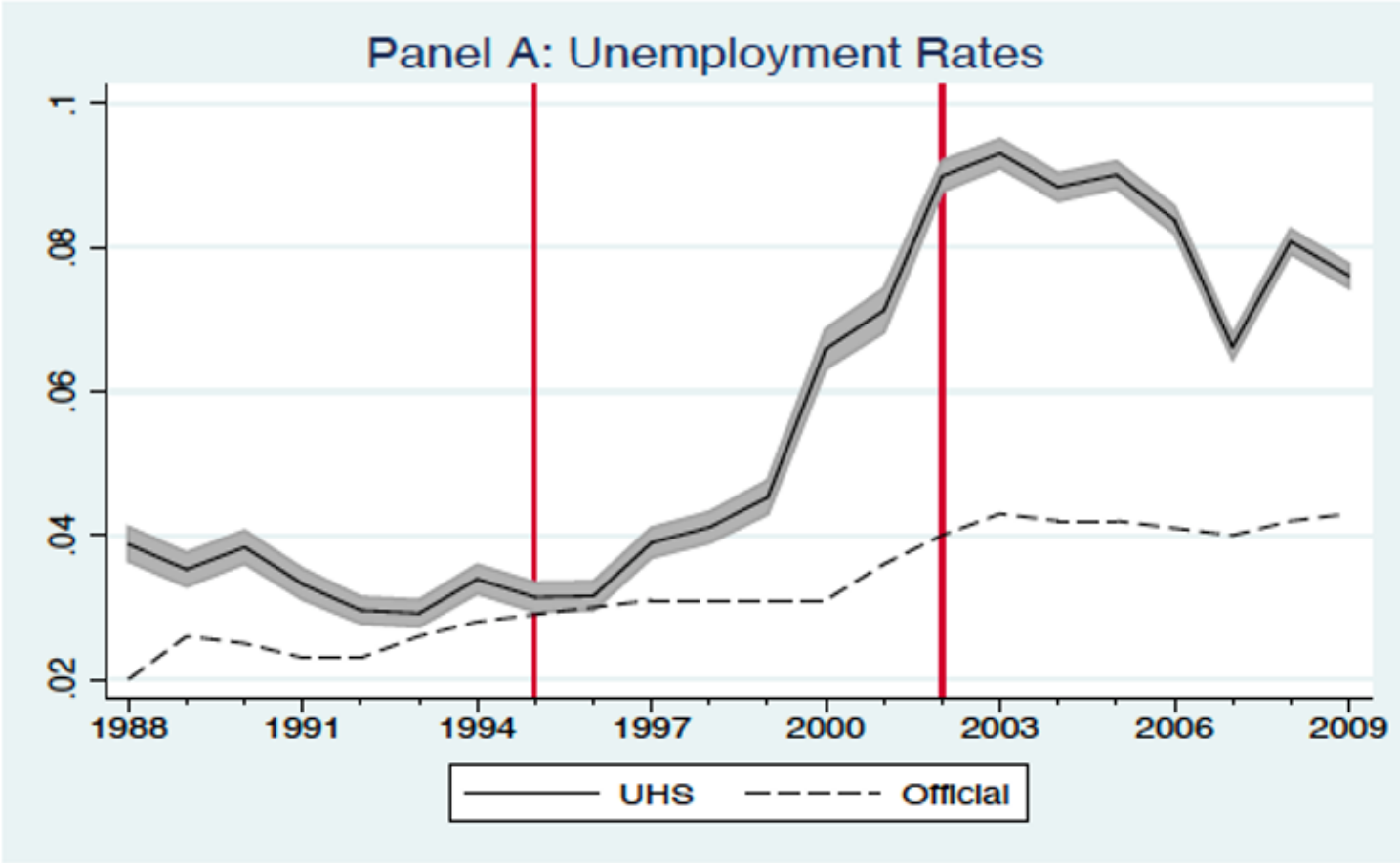
China v.s. Others(2003-2015)

UR: China v.s. US(1988-2013)



Source: Feng, Hu, and Moffitt(2015)

Feng, Hu and Moffitt(2015)

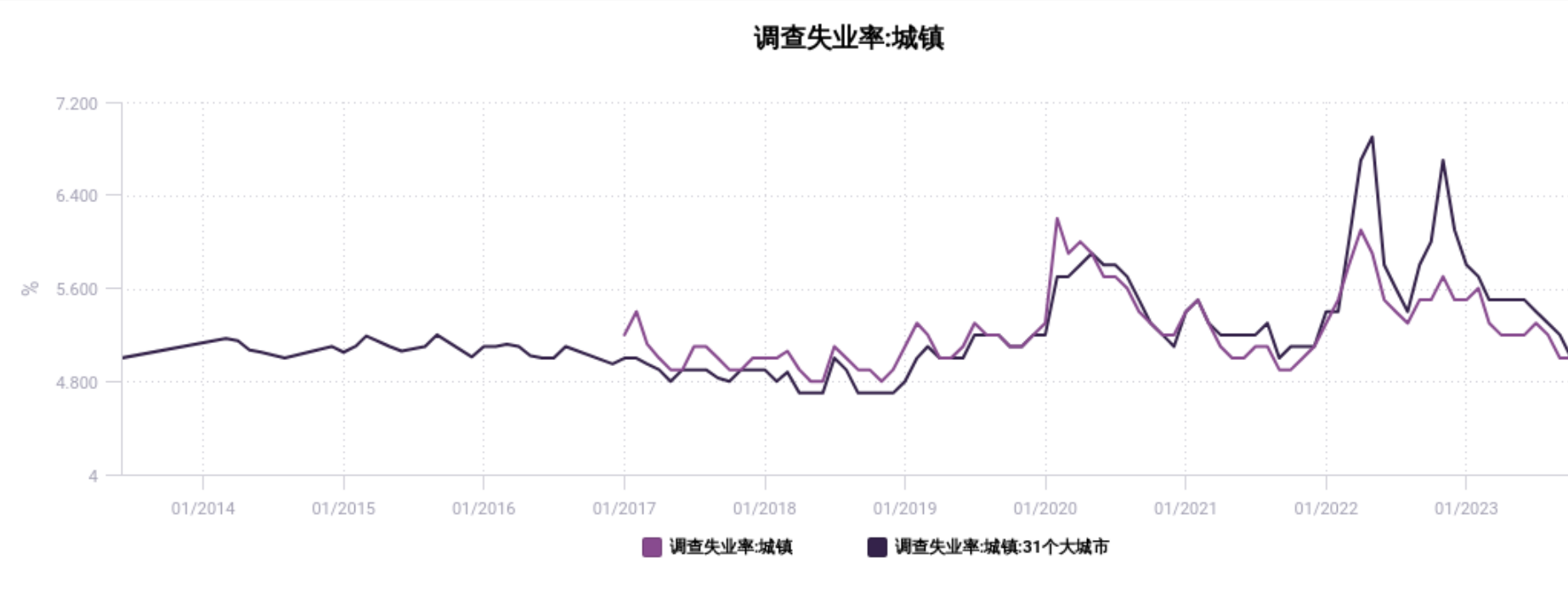


Unemployment Rates in China

2. 城镇调查失业率

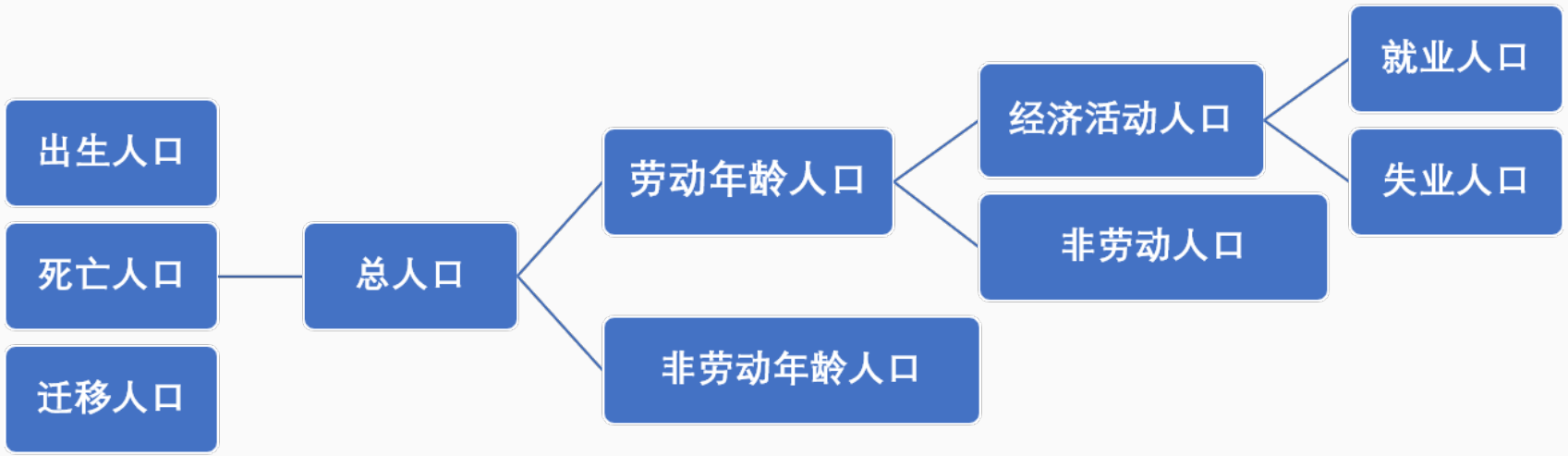
- 劳动部门定期对样本家庭进行调查而获得的。
    - 就业人口是指 16 周岁及以上，在调查参考期内（通常指调查时点前一周），为了取得劳动报酬或经营收入而工作了至少 1 小时的人，也包括休假、临时停工等在职但未工作的人口。
    - 失业人口是指 16 周岁及以上，没有工作但近 3 个月在积极寻找工作，如果有合适的工作能够在 2 周内开始工作的人。
- 从 2005 年开始，每年调查 2 次。2009 年在 31 个大城市每月进行调查。从 2016 年开始覆盖全国所有的地级市，并从 2018 年 4 月开始，正式对外发布 (新闻链接：城镇调查失业率数据首次公布)
- 缺陷：抽样样本最初是局限在具有本地户籍的居民，从 2008 年开始已经扩展为常驻人口，即已经包含外地户籍居民，但仍然没有纳入“乡村就业人员”。

城镇调查失业率 (2014-2024)



Source: CEIC from NBS

A Framework of Population and Labor Statistics

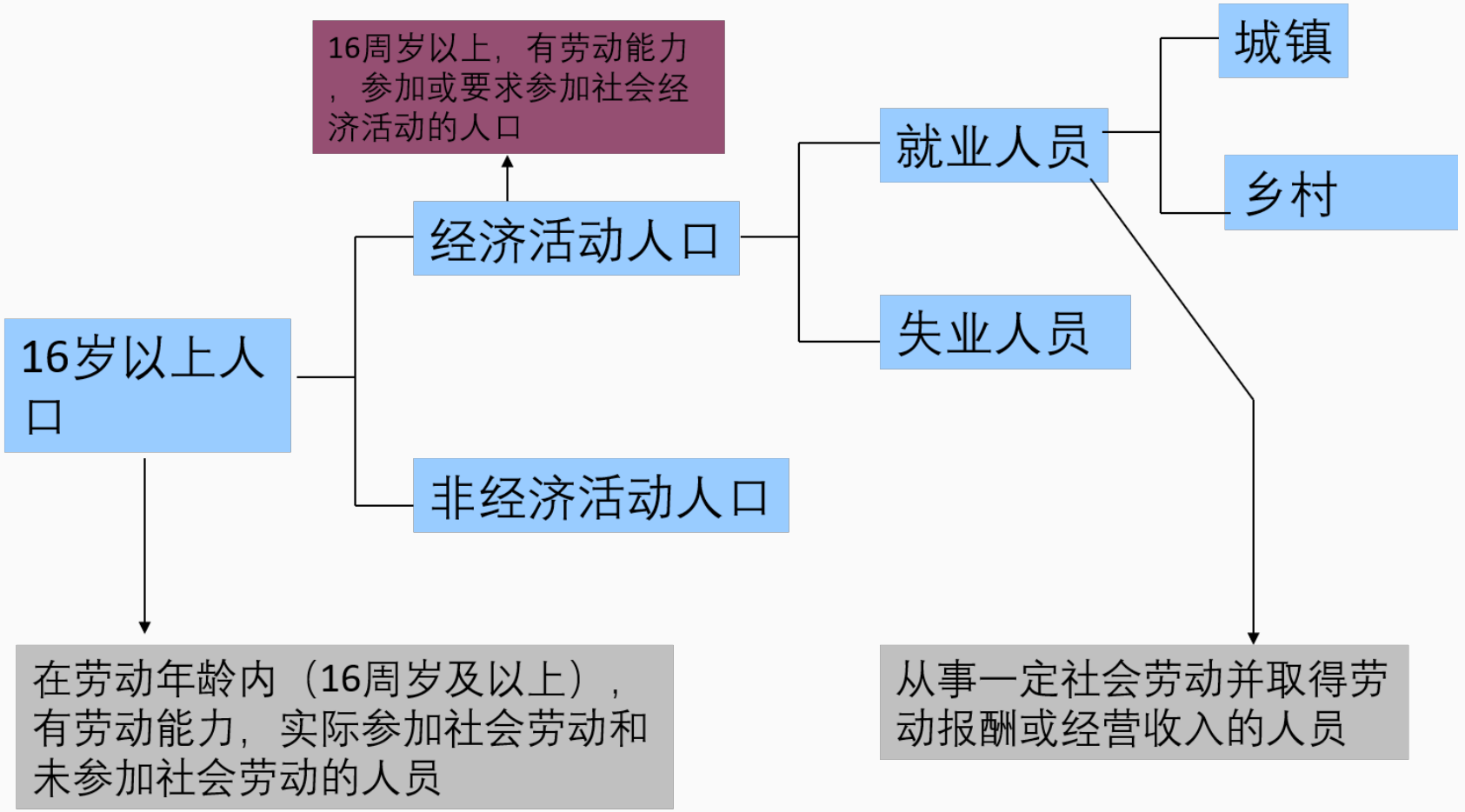


National Labor Statistics in China

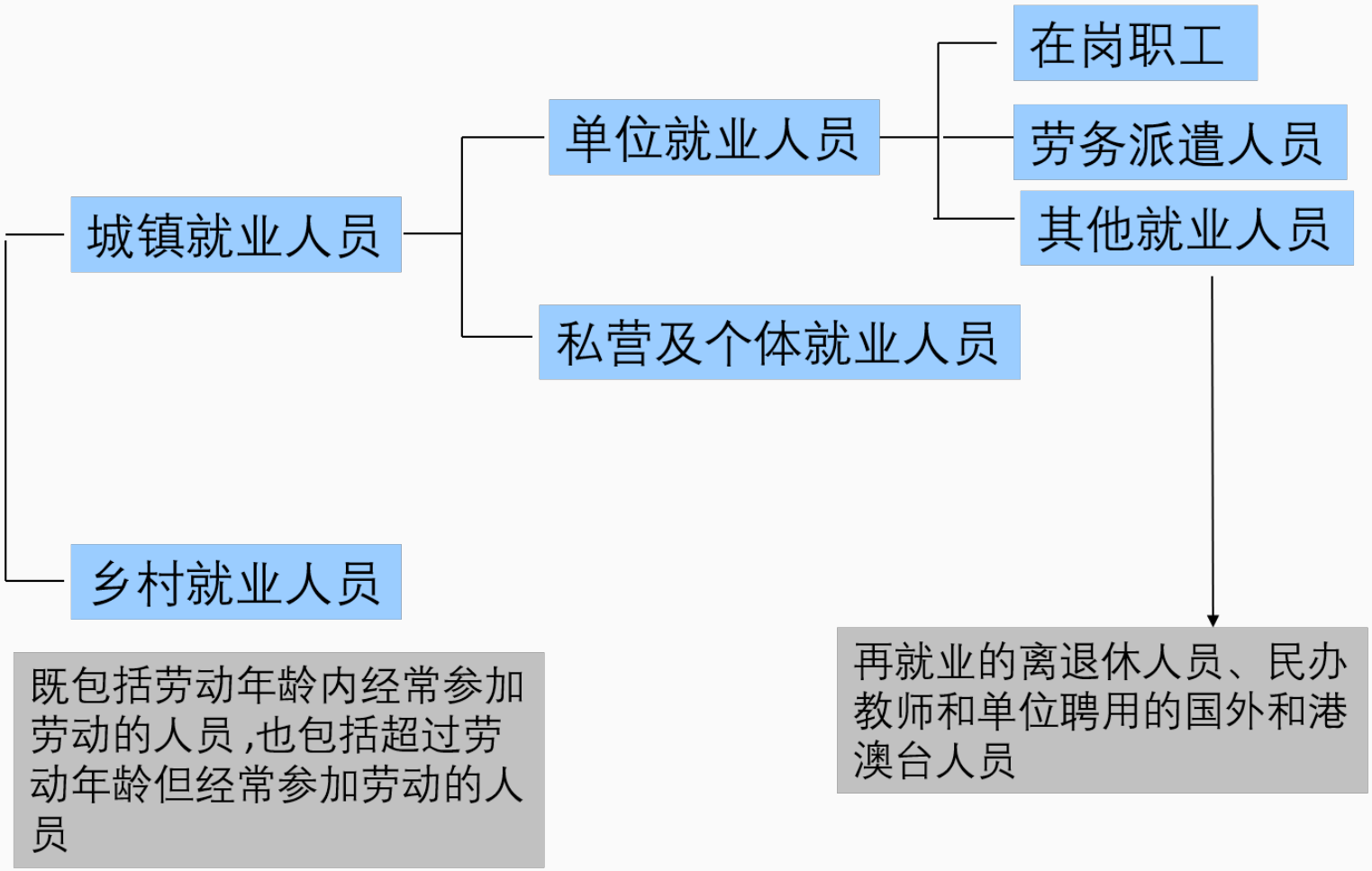
总人口(万人)	Total Population (10000 persons)	**132129**
16岁以上人口数(万人)	Population Above 16(10000 persons)	**104585**
经济活动人口(万人)	Economically Active Population(10000 persons)	**78645**
全国就业人员年末人数(万人)	Employment (end of year, 10000 persons)	**76990**
城镇就业人员	Urban Employment	29350
单位就业人员	Unit Employment	12024
#国有单位	State-owned Units	6424
集体单位	Collective-owned Units	718
其他单位	Other Ownership Units	4882
在岗职工(万人)	Number of Staff and Workers (10000 persons)	**11427**
#国有单位	State-owned Units	6148
集体单位	Collective-owned Units	684
其他单位	Other Ownership Units	4595
城镇私营和个体就业人员	Employment in Urban Private Enterprises and Individuals	7891
乡村就业人员	Rural Employment	47640

资料来源：中国劳动统计年鉴，2008

National Labor Statistics in China



National Labor Statistics in China



Labor Demand in Statistics

Labor Demand

- Labor demand measures employers' willingness to employ workers relative to wage level.
- Relatively harder to measure.
- Measurements
  - Job vacancies
  - Job advertisements
  - employment intentions of firms

Measurement of Labor Demand in U.S.

- Job Openings and Labor Turnover Survey(JOLTS) by The Bureau of Labor Statistics(BLS).
- JOLTS collects monthly data from a sample of 16,000 business establishments.
- Job openings are defined in JOLTS as the total number of positions open on the last business day of the month.

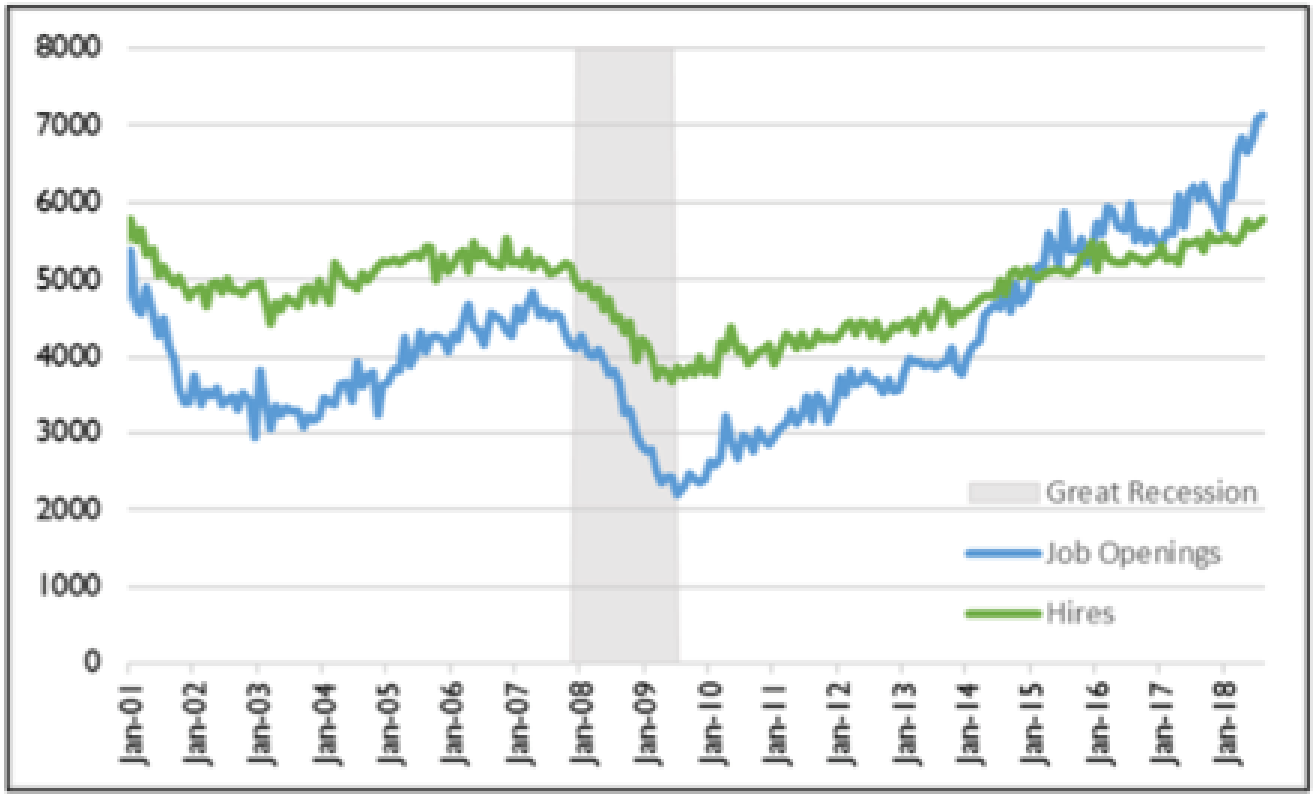
Measurement of Labor Demand in U.S.

- A job opening exists if
  - a specific position exists, and there is work available for that position
  - the job could start within 30 days
  - the establishment is actively recruiting outside workers

Job Openings and Hires in the U.S

Figure 1. Total U.S. Nonfarm Job Openings and Hires

(In thousands)



Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey (JOLTS)

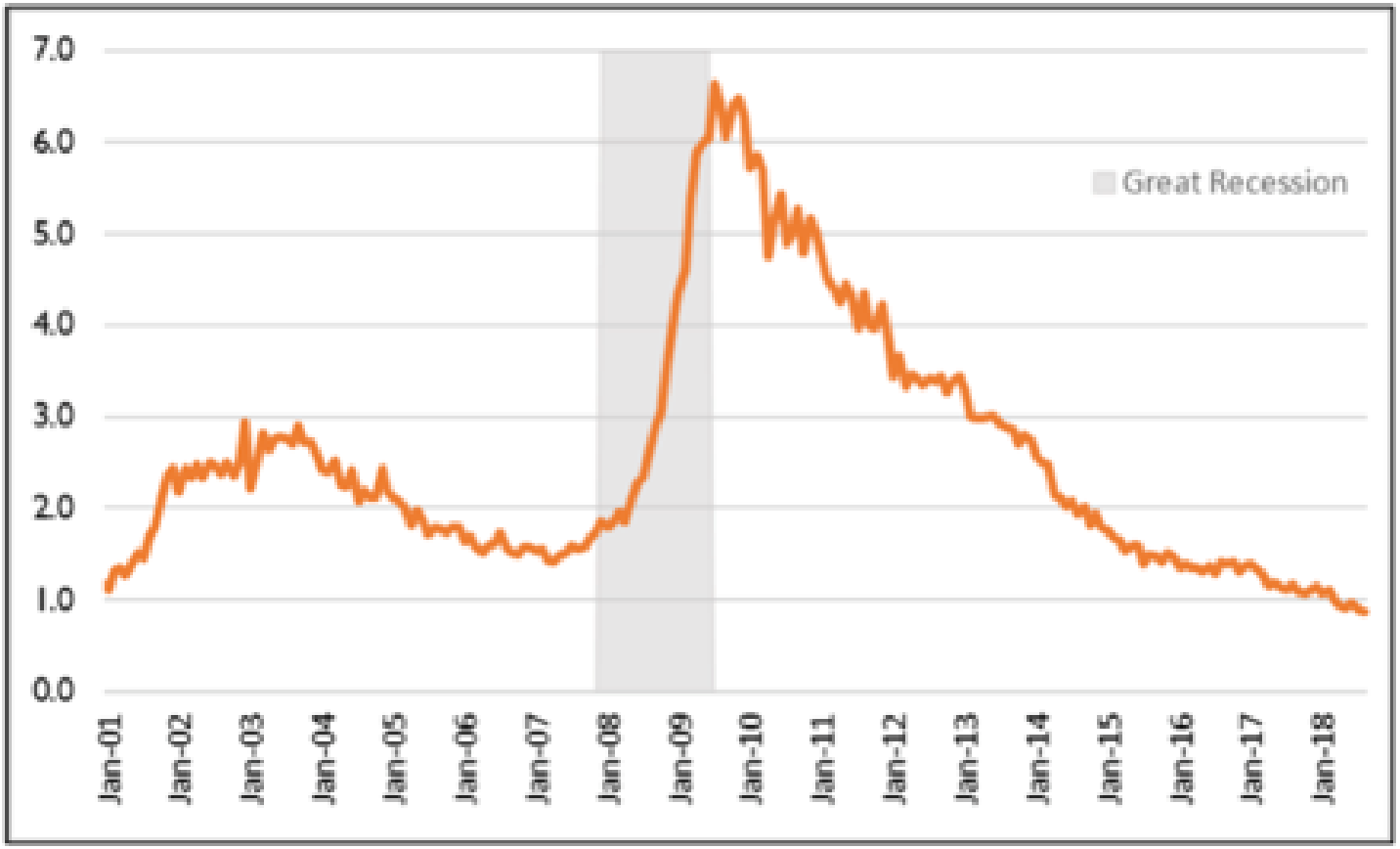
Measurement of Labor Demand in the U.S.

- The job opening rate is the ratio of the number of job openings to the sum of the number of nonfarm employees and the number of job openings.

- The unemployment to job openings ratio is the number of unemployed persons divided by the number of job openings.

Job Openings and Hires in the U.S

Figure 2. Unemployed Persons per Job Opening



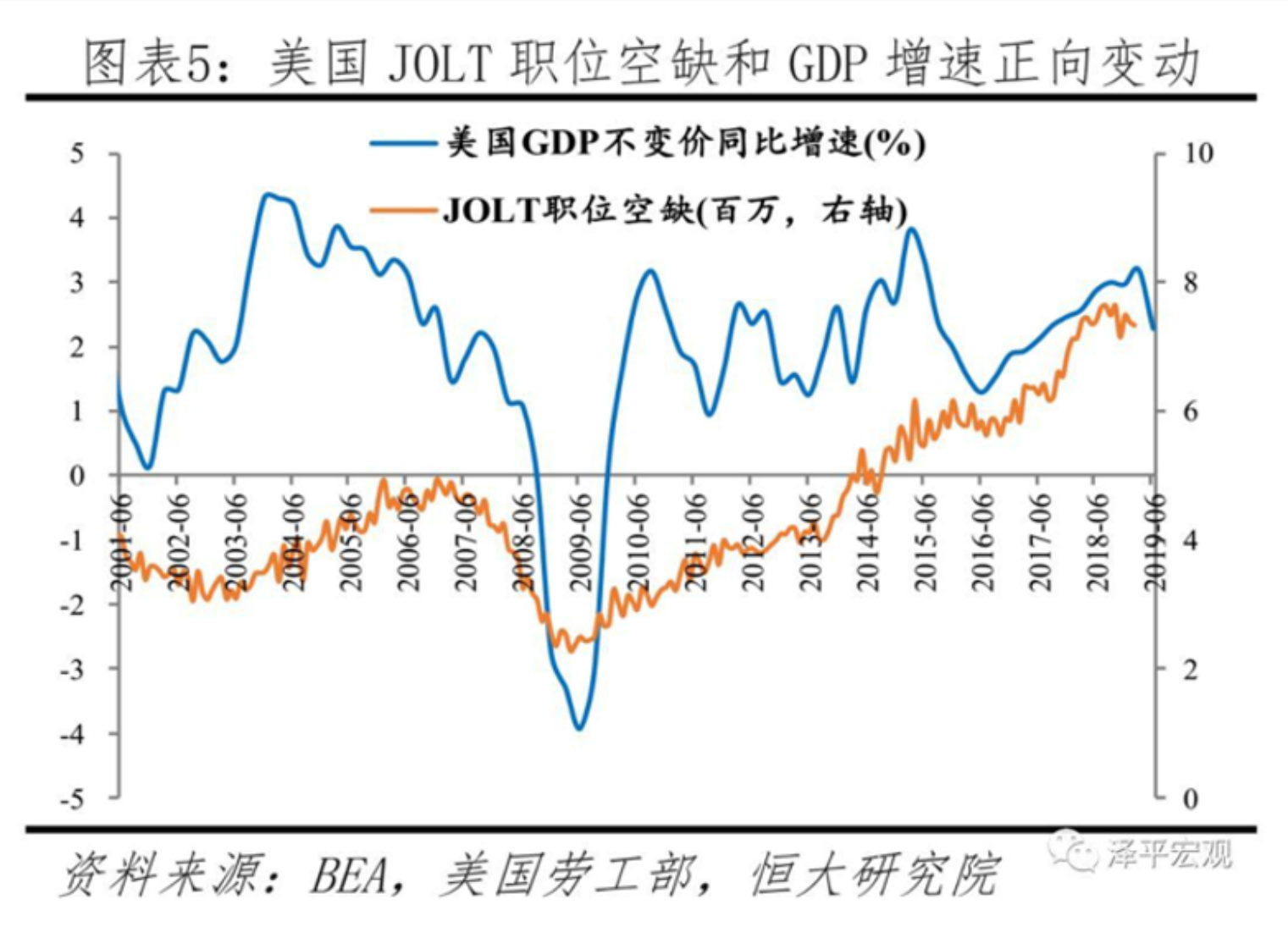
Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey (JOLTS), and Current Population Survey (CPS)

Measurement of Labor Demand in China

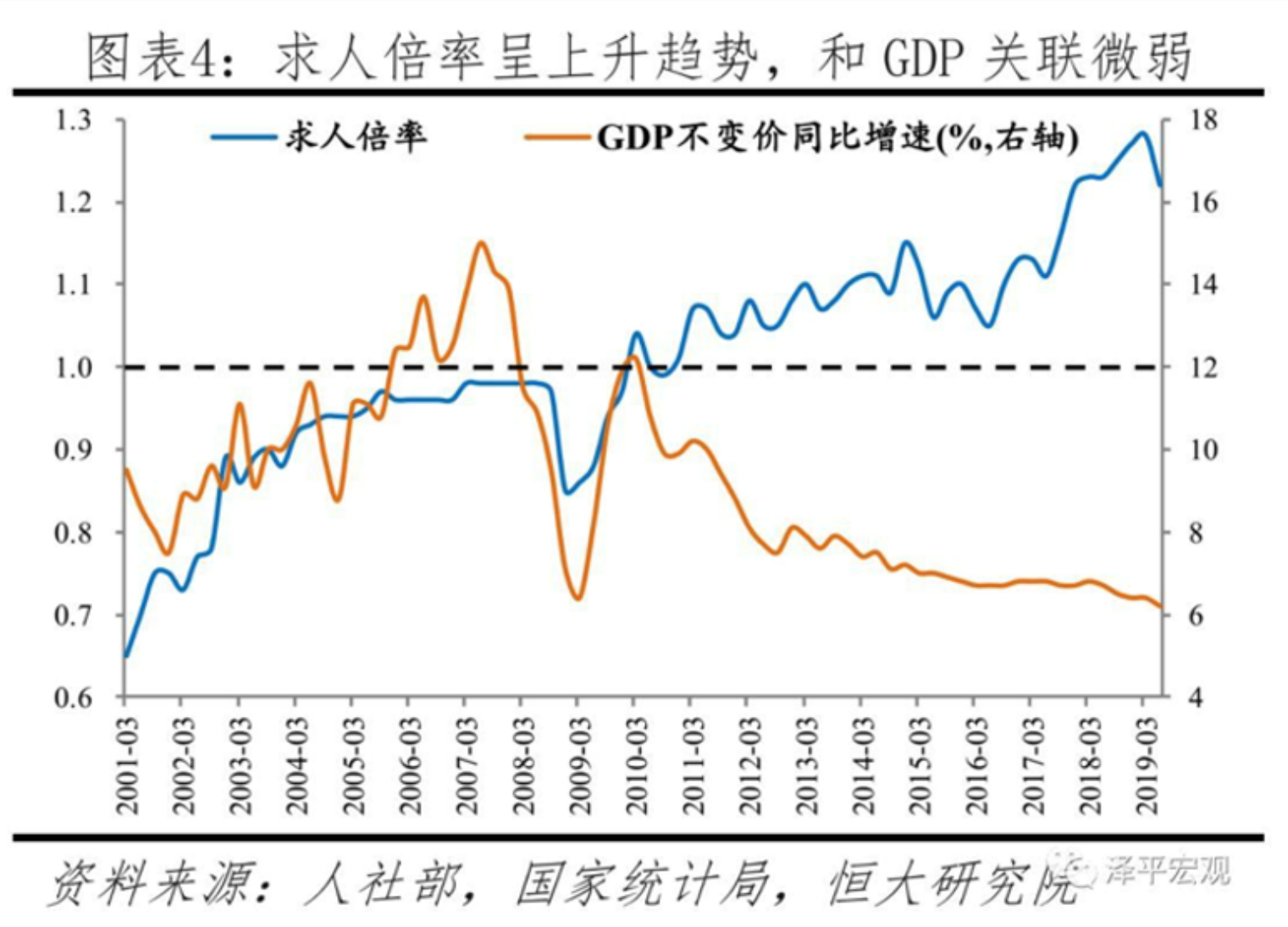
- 求人倍率 = 岗位空缺/求职人数

- 数据来自人力资源和社会保障部的 100 个城市的公共就业服务机构。
- 在劳动年龄内、有劳动能力、有就业要求的城乡劳动者可持居民身份证等相关证件在常住地公共就业服务机构申请公共就业服务；用人单位可向公共就业服务机构咨询、申请招聘用工服务。

Labor Demand and GDP Growth



Labor Demand and GDP Growth

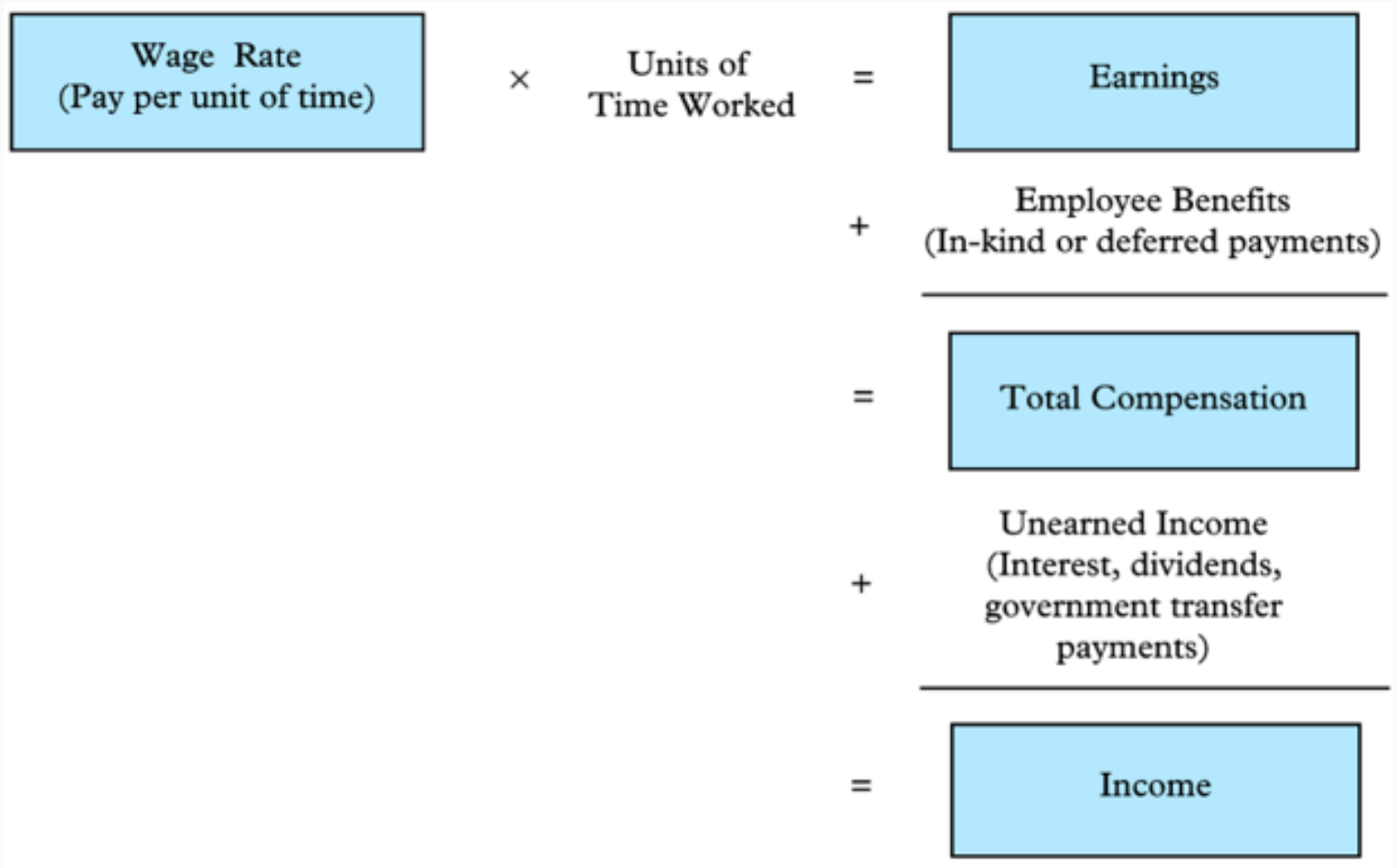


Labor Income

Measurement

- Different forms
    - Wage
    - Earnings
    - Compensation
    - Income
- Different Term
    - Annual
    - Monthly
    - Weekly
    - Hourly
- Real vs Nominal

Relationship between Wages, Earnings, Compensations, and Income



Nominal and Real Earnings

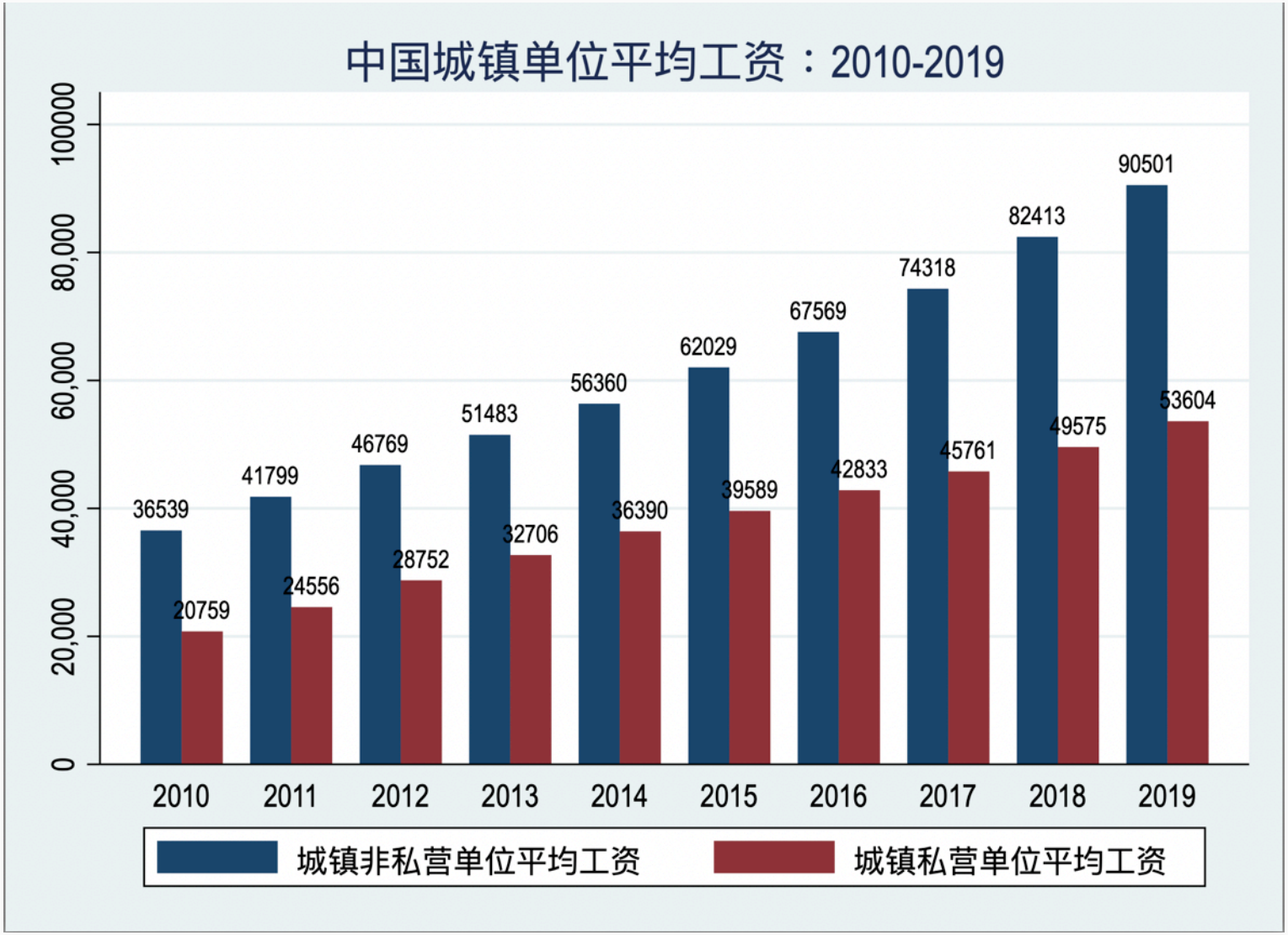
Nominal and Real Hourly Earnings, US Non-supervisory Workers in the Private Sector, 1977-1997

	1977	1987	1997
Average hourly earnings (current price) (A)	$5.25	$8.98	$12.26
CPI using 1982-84 as a base (B)	63.2	113.6	160.5
Average hourly earnings. 1982-1984 dollars (using CPI) (C)=(A)/(B)*100	$8.31	$7.90	$7.64
Average hourly earnings. 1997 dollars (using CPI) (D)=(A)/[(B)/160.5]	$13.33	$12.69	$12.26
Average hourly earnings. 1997 dollars (using CPI inflation less 1% per year)	$11.00	$11.51	$12.26

中国的工资统计

- 法人单位以年度为单位向统计局汇报。根据所有制性质分成两部分：
  - 城镇非私营单位：国有企业事业单位、城镇集体、股份公司、合资和外资企业。所有单位都要报送。
  - 城镇私营单位：私营企业和个体工商户。只需要抽样单位报送数据。
- 工资总额指直接支付给本单位全部从业人员的劳动报酬总额。包括计时工资、计件工资、奖金、津贴和补贴、加班加点工资、特殊情况下支付的工资（包含实物形式）。具体包括基本工资、绩效工资、工资性津贴和补贴等。
- 工资总额是税前工资，包括单位从个人工资中直接为其代扣或代缴的个人所得税、社会保险基金和住房公积金等个人缴纳部分，以及房费、水电费等。
- 缺陷：不包括农村就业人员以及自由职业者。

中国的工资统计：2010-2019



Earnings and Income: Survey

CHIP 2007

16. 在当前主要工作中，您平均每周工作多少小时?(小时/周)	C16					
17. 从当前这份主要工作中,您一般平均每月得到的收入共计为多少元?（元/月,可以出现 0 或负值） （工资性工作者的工资,奖金,津贴和实物折现；自我经营者的净收入）	C17					
18. 除当前主要工作外,您是否有兼职工作(包括家庭帮工)? ①是 ②否(跳到问题 21)	C18					
19. (问 C18=1)所有有报酬的工作(包括自我经营)加在一起,您平均每周工作多少小时?(小时/周)(C19≥C16)	C19					

20. (问 C18=1)从所有有报酬的工作(包括自我经营)中,一般平均每月得到的总收入为多少元?(元/月) （工资性工作者的工资,奖金,津贴和实物折现；自我经营者的净收入）（C20≥C17）	C20					
21. 您目前是否还在积极寻找另一份工作？如果是，主要原因是什么? ①否 ②想工作时间长一点 ③想要高一点的报酬 ④不喜欢现在的雇主 ⑤不喜欢现在的工作环境 ⑥其他(请说明)	C21					
22. 您当前这份主要工作是? ①固定工 ②长期合同工(一年及以上) ③短期合同工(一年以下) ④无合同的临时工 ⑤ 不领工资的家庭帮工(检查 C06=2 跳到下一人/表) ⑥自我经营(跳到问题 25) ⑦打零工 ⑧其他(请注明)	C22					
23. 您的主要工作单位如果提供工作餐或伙食补贴，平均每月估计折算多少钱?(元/月,没有填 0)	C23					
24. 您的主要工作单位如果提供住宿或住宿补贴，平均每月估计折算多少钱?(元/月,没有填 0)	C24					

In General

- Employment statistics are key in assessing the economy's business cycle.
- It won't be easy to get the "real" number of labor statistics.