Measuring Numbers Employed and Hours Worked in China，2008

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1

Outline

- **Background**
- **Sources of data**
- **Estimation of numbers employed**
- **Estimation of hours worked**
- **Future work**

Background

- Employment as the quantity base of labour input was used to calculate labor productivity index (LPI) prior to 1999. It then stopped because of difficulties in reconciling employment data of different sources.

- In the end of 2009, a Productivity Measurement Project (PMP) was launched, as a collaboration between NBS and The Conference Board China Center, to start to measure China's productivity in a standard framework.

- The first goal of the PMP is to get the measure of labor productivity correct at industry level.

Background…

- **And, instead of using numbers employed as in the past, the PMP targets a proper labor productivity measure that is based on hours worked.**

- **This is a huge challenge as the available data collected by the usual Labor Force Survey (LFS) do not satisfy the standard requirement.**
  - **Employment by industry cannot be summed up to the "total"**
  - **Survey on hours worked is unsystematic and incomplete**

- **The 2008 Economic Censes provides a new set of employment data by industry, which can be used to compare with the LFS data.**

Data sources（1）

- **Labour Force Survey(LFS) for 2008**
  - **1‰ Sample Survey，1.3m persons**
  - **Reference Week：25-31, October, 2008**
  - **Definition ：following ILO recommendations, employed persons are defined as those who are 16 years of age and above, are engaged in economic activities, receive remuneration for their work or earn income and have worked for one or more hours in the reference week. Those who have temporarily left their working place (for training, holiday, vacation or other such reasons) are also considered as employed.**

Data sources （2）

- **The 2nd National Economic Census (EC) for 2008**
  - **It covers economic entities and individuals engaging in the secondary and tertiary industries, excluding those with unfixed working places or hired by households**
  - **Reported 7.1 ml legal units and 28.7 ml registered individual business (unincorporated, self-employed)**
  - **Employment in legal units is defined as those who work in an economic entity and receive wages or other forms of payments; including fully-employed staff and workers, re-employed retirees, foreigners and Chinese compatriots from Hong Kong and Macao Special Administrative Regions and Taiwan Province of China. Those who have temporarily left their working place (for training, holiday, vacation or other such reasons) are also considered as employed).**

Measuring Numbers Employed by Industry

- Set up the benchmark as "control totals", which are published in three (broad) industrial sectors, i.e. primary, secondary and tertiary

- Redistribute the numbers employed by three industrial sectors according to the employment structure (2-digit) as in the 2008 LFS.

- To adjust the estimates across industries so that the gaps between LFS and EC can be removed, we need to identify the nature of discrepancies .
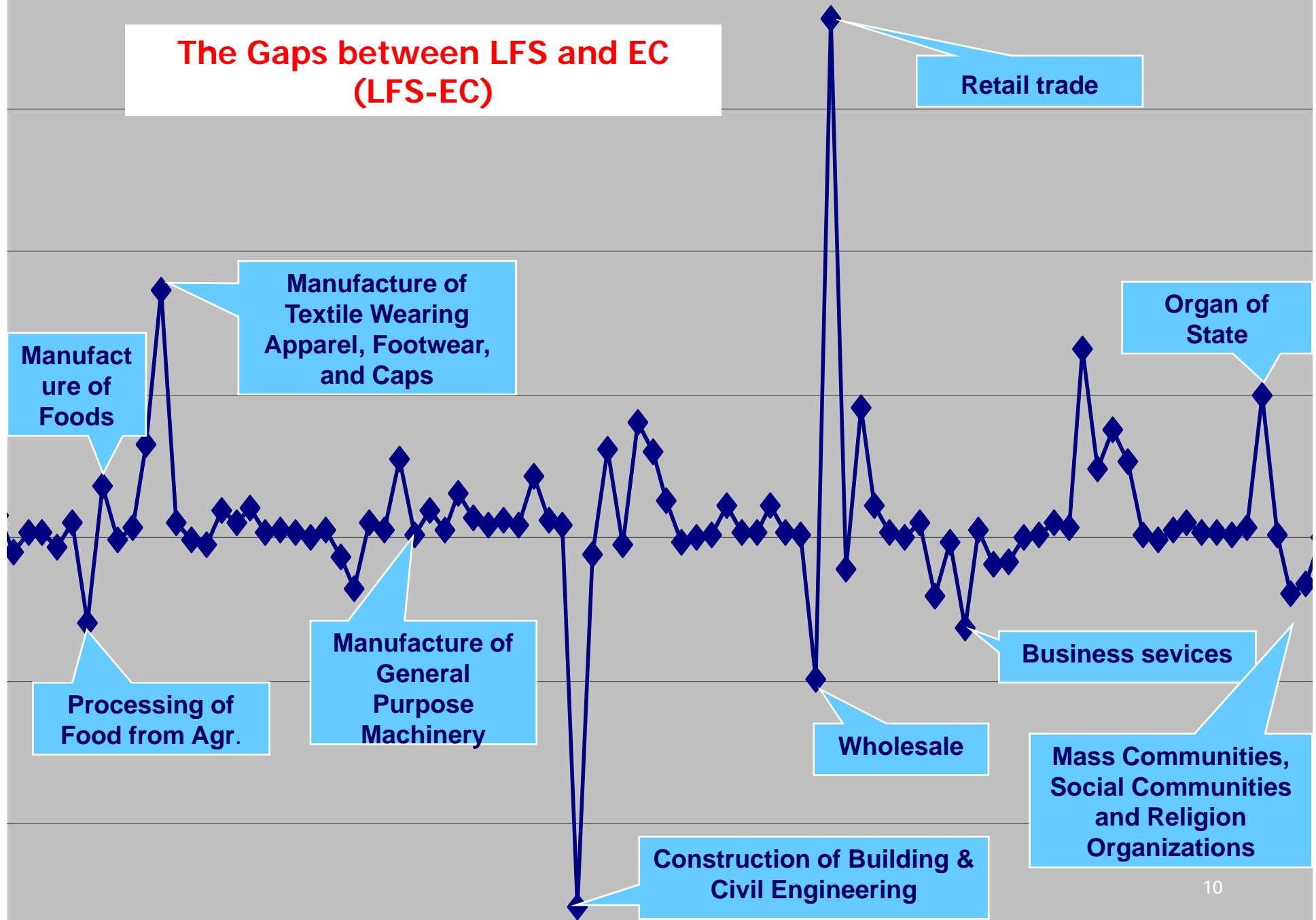
Measuring Numbers Employed…

- **There are three types of results from the LFS-EC comparison, namely, proper estimation, under-estimation by LFS and over-estimation by LFS (assuming EC data are correct)**

- Proper estimation
    - **The numbers from LFS are greater**
    - **The LFS definition is broader**
    - **Three quarter sectors**

Measuring Numbers Employed…

- Under-estimated by LFS：
  - Construction of Building & Civil Engineering, Wholesale, Processing of Food from Agricultural Products, Accommodation, Real Estate, Mass Communities, Social Communities and Religion Organizations

  - Sample bias, report-base unit differ, response error , coding error,
- Over-estimated by LFS:
  - Retail trade, Manufacture of Foods, Organ of State
  - report-base unit differ, response error, coding error,

The Gaps between LFS and EC (LFS-EC)

Retail trade

Manufacture of Textile Wearing Apparel, Footwear, and Caps

Manufacture of Foods

Organ of State

Processing of Food from Agr.

Manufacture of General Purpose Machinery

Wholesale

Business sevices

Mass Communities, Social Communities and Religion Organizations

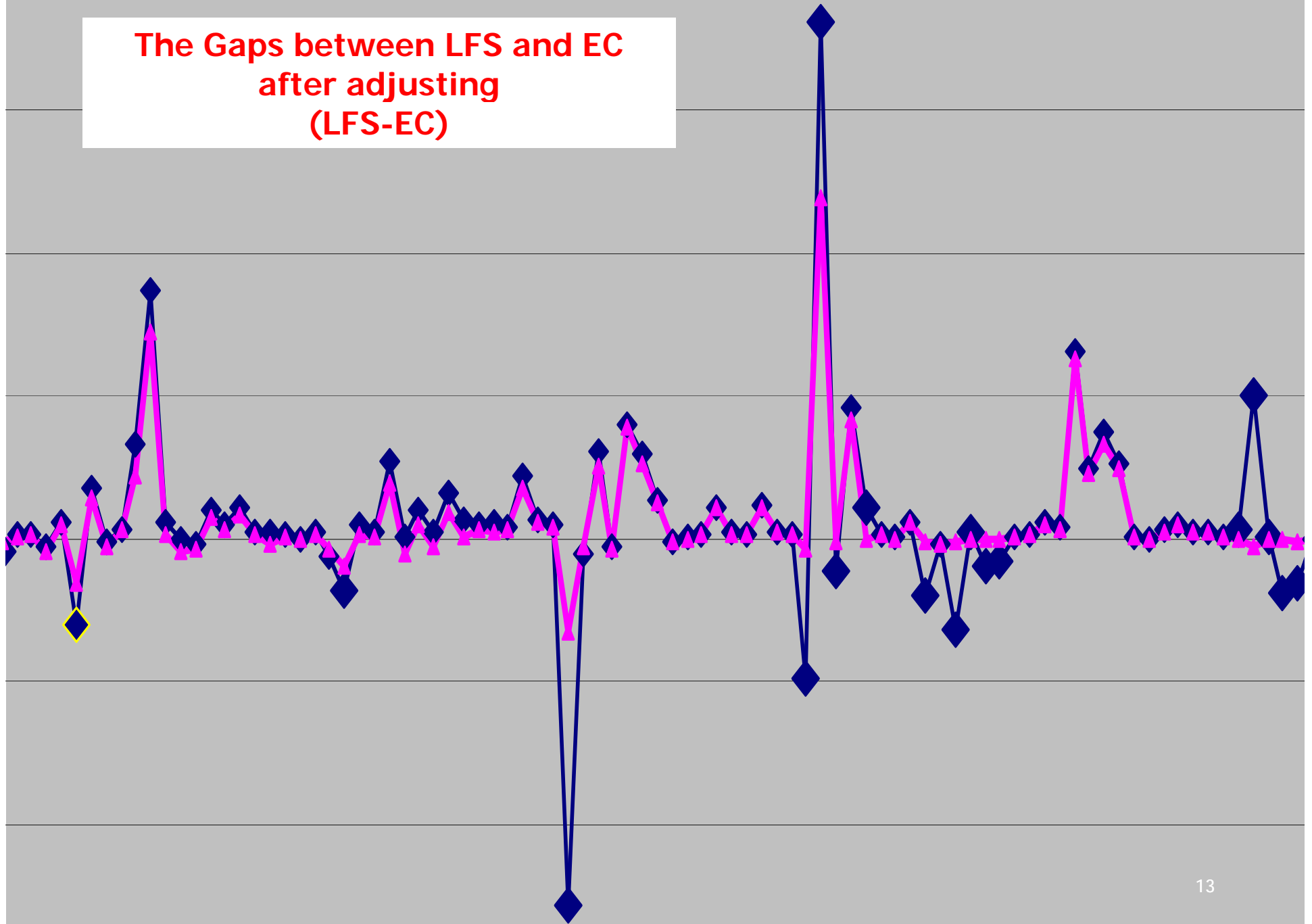Construction of Building & Civil Engineering

10

Measuring Numbers Employed…

- **Three way to adjust the LFS estimated numbers according to the results of the 2008 EC**
  - If $E^{ec} - E^{lfs} > 480t$ than $E^{adj} = E^{ec}$
  - If $E^{ec-ib} = 0$ and $E^{lfs} > E^{ec}$ than $E^{adj} = E^{ec}$
  - Deduction is took into account if signs of the gaps for two similar industries is different.
    - Wholesale
    - Retail trade
    - Processing of Food from Agricultural Products

	E^{lfs}	E^{ec}	E^{ec-ib}	G^{l-e}	E^{adj}	P^{adj}	E
The Secondary Industries	**21109**				**22934**	**100**	**21109**
Mining and Washing of Coal	665	585	6	80	665	2.90	612
Extraction of Petroleum and Natural Gas	65	113	0	-48	113	0.49	104
Construction of Building & Civil Engineering	2848	4130	887	-1283	4130	18.01	3802
Architectural Installation	320	375	52	-55	375	1.64	345
Architectural Decoration	661	352	165	309	661	2.88	609
Other Construction	176	200	46	-24	176	0.77	162
The Tertiary Industries	**25717**				**26191**	**100**	**25717**
Wholesale	1349	1843	788	-494	1843	7.04	1809
Retail Trade	7301	5491	4654	1810	6807	25.99	6684
Accommodation	279	391	124	-112	391	1.49	384
Restaurants	2027	1571	1252	456	2027	7.74	1990
Business Service	507	823	74	-316	823	3.14	808
Organ of State	1972	1473	0	500	1473	5.62	1446
Mass Communities, Social Communities and Religion Organizations	59	254	0	-195	254	0.97	250
The Grass-root Self-rule organization	274	431	0	-157	431	1.64	423

The Gaps between LFS and EC
after adjusting
(LFS-EC)

Measuring Hours Worked

- **Data Source: Labour Force Survey for 2008**
- **Definition:**
  - The hours actually worked in the reference week
  - Including hours worked for all economic activities, but it can't be separated for main job and others.
  - no daily working hours restriction jobs : the hours worked treated as 40 per week for this kind of jobs such as Educators , Researchers, Journalists.

Measuring Hours Worked…

- **potential problems- Over-estimated**
  - **The sectors which has no daily working hours restriction**
  - **Hours worked in main job**
  - **Long working time workers tend to report long hours such as some own-account workers in service sectors and family worker**
  - **under-report short time absences**

Weekly Actual Hours Worked in some industriee(LFS,2008)

Air Transport	39.64
Organ of State	41.13
Education	41.18
Journalism and Publishing Activities	41.22
Bank	42.18
Culture and Art	42.68
Sanitation	44.1
Manufacture of Beverage	45.64
Wholesale	47.73
Construction of Building & Civil Engineering	47.77
Computer Services	47.84
Accommodation	47.86
Manufacture of Foods	48.3
Printing,Reproduction of Recording Media	48.38
Resident Services	48.41
Retail Trade	49.11
Entertainment	49.59
Manufacture of Textile	49.68
Restaurants	50.06
Urban Public Traffic	50.64

Measuring Total Hours Worked

- **Holiday adjusted**
  - Public holiday: 11 days
  - Weekend: 104 days
  - orkday: 250 days
  - Adjusted factor= 11/250=0.956
- $H^{total} = H^{weekly} * E * 0.956$

Total yearly hours worked

(1000000 hours)

Retail Trade	163531
Construction of Building & Civil Engineering	90470
Restaurants	49627
Transport Via Road	44007
Education	43399
Wholesale	43019
Manufacture of Textile Wearing Apparel,Footware,and Caps	41164
Resident Services	35322
Manufacture of Textile	30872
Organ of State	29626

Future work

- **Adjust the employment by sectors including**
  - 2000 population census
  - 2004 economic census
  - 2005 1% population survey
  - 2008 economic census
  - 2010 population census
  - Labour force survey
- **Estimate the sectors employment data from 2000**

Looking forward to any recommendation and Suggestion!

Thank you!