

Unemployment and labor force participation in China: Long run trends and short run dynamics

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Outline

- 1 Introduction
 - Background
 - The case of China
- 2 Data
- 3 Long run trends
- 4 Labor market dynamics
- 5 Conclusions

Labor force status: definition and measurement issues

- By definition, anyone should fall into three distinct categories:
employed; unemployed; not-in-labor-force
- Employed: those with a job
- Unemployed: those without a job but want one
- Not-in-labor-force: those without a job and don't want one
(not actively searching)
- Usually based on survey of activities in the previous week
(month)

Who are employed?(CPS)

- all part-time and temporary work, as well as regular full-time, year-round employment. Persons also are counted as employed if they have a job at which they did not work during the survey week, whether they were paid or not, because they were:
- On vacation; ill; Experiencing child-care problems; Taking care of some other family or personal obligation; On maternity or paternity leave; Involved in an industrial dispute; Prevented from working by bad weather
- any person who worked without pay for 15 hours or more per week in a family-owned enterprise operated by someone in their household

Who are unemployed?(CPS)

Persons are classified as unemployed if **they do not have a job**, have **actively looked for work in the prior 4 weeks**, and are **currently available for work**. Actively looking for work may consist of any of the following activities:

- Contacting:
 - An employer directly or having a job interview
 - A public or private employment agency
 - Friends or relatives
 - A school or university employment center
- Sending out resumes or filling out applications
- Placing or answering advertisements
- Checking union or professional registers
- Some other means of active job search

Who are not-in-labor-force?(CPS)

Those who have no job and are not looking for one—are counted as “not in the labor force.” Many who are not in the labor force are **going to school** or are **retired**. **Family responsibilities** keep others out of the labor force.

- **Marginally attached** to the labor force: currently want a job, have looked for work in the last 12 months (or since they last worked if they worked within the last 12 months), and are available for work.

- **Discouraged workers**: are a subset of the marginally attached.

Discouraged workers report they are not currently looking for work for one of four reasons:

- They believe no job is available to them in their line of work or area.
- They had previously been unable to find work.
- They lack the necessary schooling, training, skills, or experience.
- Employers think they are too young or too old, or they face some other type of discrimination.

How to (partially) solve the problem

- Provide a bunch of alternative measures with different definitions (BLS)
- The latent variable approach (Feng & Hu, 2013)

Measuring unemployment accurately: The US story

- US unemployment rate :
 - June 2012: 8.2% (8.217%)
 - July 2012: 8.3% (8.254%)
- “Today’s increase in the unemployment rate is a hammer blow to struggling middle-class families,” Mitt Romney said in a statement.
- “The household survey showed that the unemployment rate ticked up to 8.3% in July (or, more precisely, the rate rose from 8.217% in June to 8.254% in July)---Acting BLS (Bureau of Labor Statistics) Commissioner John Galvin noted in his statement that the unemployment rate was ‘essentially unchanged’ from June to July.”
 - Alan Krueger, chairman of the Council of Economic Advisers.

What about China?

- No one believes the official unemployment rate.
- LFP rates not even reported in official statistics.
- No information by demographics.
- Difficult to find alternatives due to data limitations



What's wrong with the official U-rate?

- For reasons such as lacking local household registration (*Hukou*) status, many unemployed people are not qualified to register with local employment service agencies.
- Even qualified unemployed people may lack the incentive to register due to very low levels of unemployment benefits.
- Total number of registered unemployed people are aggregated bottom-up within the bureaucratic system, thus subject to aggregation errors and potential data manipulations.
- The total labor force which is the denominator in the calculation of unemployment rate, is also subject to error due to many reasons.

Outline

1 Introduction

2 Data

- The Urban Household Survey data
- Labor force status classifications in UHS

3 Long run trends

4 Labor market dynamics

5 Conclusions

Data - Urban Household Survey

- Administered by the Urban Survey Division of the Statistical Bureau since 1980s, micro data available since 1988
- Probabilistic sample covers the whole country (representative at the province level)
- Mainly covers people with local hukou (include also non-hukou people since 2002, but may not be representative of the migrant population as a whole)

Data - Urban Household Survey

- Include quite extensive information at the household and individual level.
- Various parts of the data have been accessible to outside researchers (most popular version is one that include 6 provinces).
- The unique features of the data that we use for this study:
 - 1) 1988-2009 all-province samples
 - 2) monthly sample for the 2004-2006 period

Measurement of Labor force status in UHS

- Year-end information (December)
- No information about search behaviors (no labor market in early stages). Might be some ambiguities regarding unemployment and NILF.
- Fairly consistent over time

LFS questions in UHS - Employed

1 Staff and workers in state owned economic units

- 国有经济单位员工。

2 Staff and workers in Urban collectively owned economic units

- 城镇集体经济单位职工。

3 Staff and workers in units of other economic type

- 其它各种经济类型单位职工。

4 Urban self-employed individuals or owners of private enterprises

- 城镇个体经营者。

LFS questions in UHS - Employed

5 Persons employed by Urban self-employed individuals or owners of private enterprises

- 城镇个体被雇者。

6 Retired staff and veteran cadres who are reemployed

- 离退休再就业人员。

7 Other employees

- 其它就业者。

LFS questions in UHS - Unemployed

11 People waiting for employment

- 待业人员

12 People waiting for assignment

- 待分配者。

15 Other non-employed persons

- 其它非就业者

(refer to persons under 16 year-old who are not school students, and persons above 60 year-old for men or 55 year-old for women who are not reemployed after retirement)

LFS questions in UHS - NILF

8 Retired staff and veteran cadres

- 离退休人员。

9 Persons who lose the ability to work

- 丧失劳动能力者。

10 Persons who take care of the home (housewife)

- 家务劳动者。

13 Students at school

- 在校学生。

14 Persons waiting for entering higher levels of schools

- 待升学者。

- Caveats:
 - 1: lack of coverage for non-Hukou population
 - 2: LFS measures not strictly following international standards
- Despite these,

If one wants to know something about the historical trends regarding Chinese labor market, this is the **ONLY** source of information available.

Outline

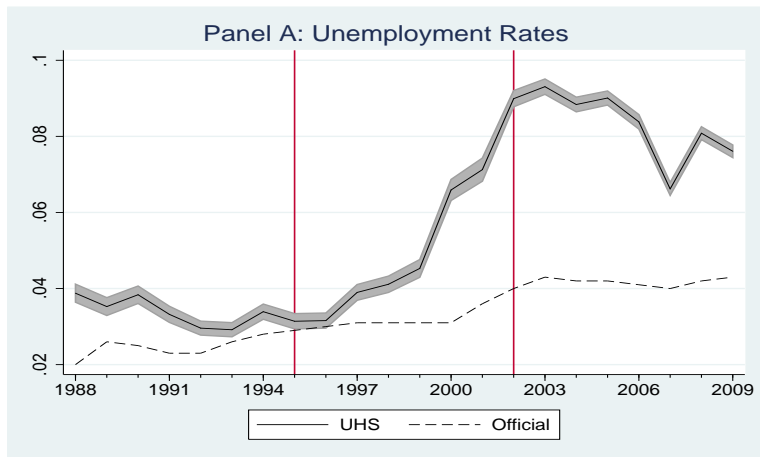
- 1 Introduction
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long run trends in unemployment and LFP (1988-2009)

- Sample: 16-60 males, 16-55 females, only including people with local Hukou.
- Use annual sample of UHS
- Divide the sample into 8 demographic groups by sex (male — female), age (≤ 40 | > 40) and education (college | noncollege).

Sample Size

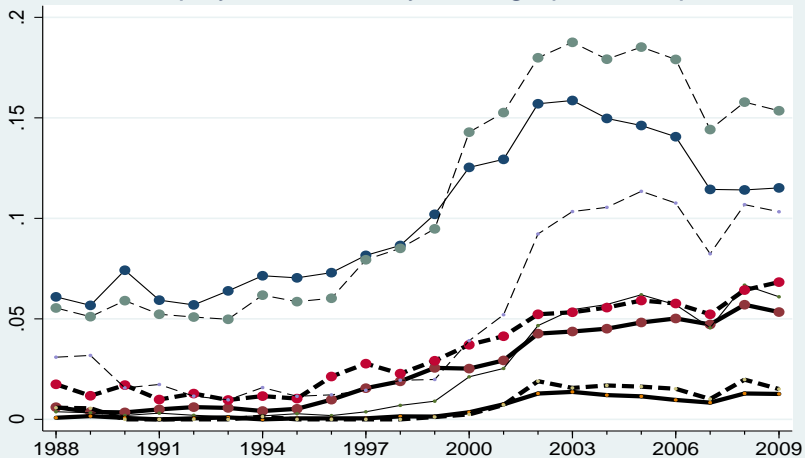
National Unemployment Rates: 1988-2009.



Unemployment rates by by Demographic Groups(%)

	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Unemployment Rate						
Nation	3.4	-0.1	5.2	0.8	8.4	-0.2
-by subgroup						
Male/Young/Non-col	6.4	0.1	10.3	1.2	13.7	-0.6
Male/Young/Col	0.5	-0.0	2.2	0.5	4.8	0.2
Male/Old/Non-col	0.3	-0.0	1.5	0.6	5.6	0.2
Male/Old/Col	0.1	-0.0	0.4	0.2	1.2	-0.0
Female/Young/Non-col	5.5	0.0	10.7	1.7	17.1	-0.4
Female/Young/Col	1.3	-0.1	3.0	0.6	5.8	0.2
Female/Old/Non-col	1.8	-0.3	3.3	1.2	10.2	0.2
Female/Old/Col	0.2	-0.1	0.4	0.3	1.6	-0.1

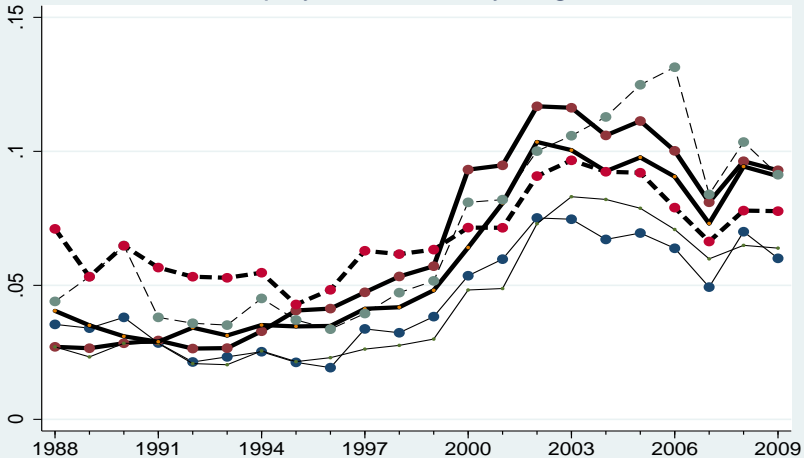
Unemployment Rates by Demographic Group



Unemployment rates by Region(%)

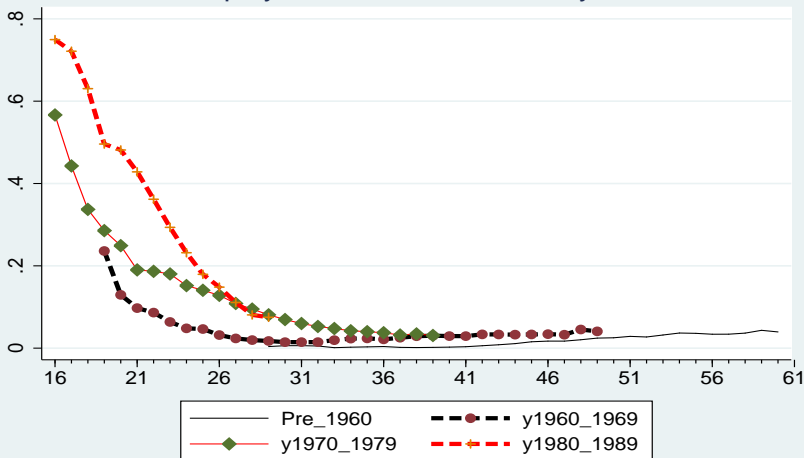
	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Unemployment Rate						
Nation	3.4	-0.1	5.2	0.8	8.4	-0.2
-by region						
North	2.8	-0.2	4.2	0.8	6.6	-0.2
Northeast	3.0	0.2	6.8	1.1	10.3	-0.3
East	2.4	-0.1	3.7	0.7	7.2	-0.1
South Central	3.4	-0.1	5.6	1.0	9.3	-0.2
Southwest	4.4	-0.1	5.9	0.9	10.7	-0.1
Northwest	5.6	-0.4	6.4	0.7	8.4	-0.2

Unemployment Rates by Region



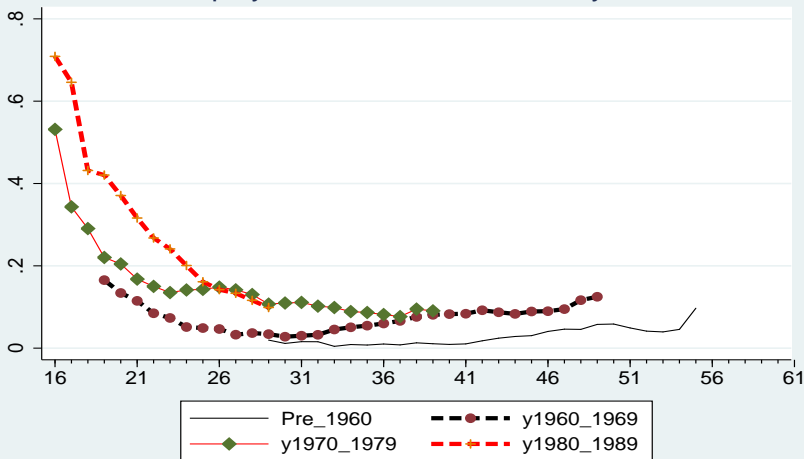
Unemployment rates by cohort, males

A: Unemployment rates for males, by cohort

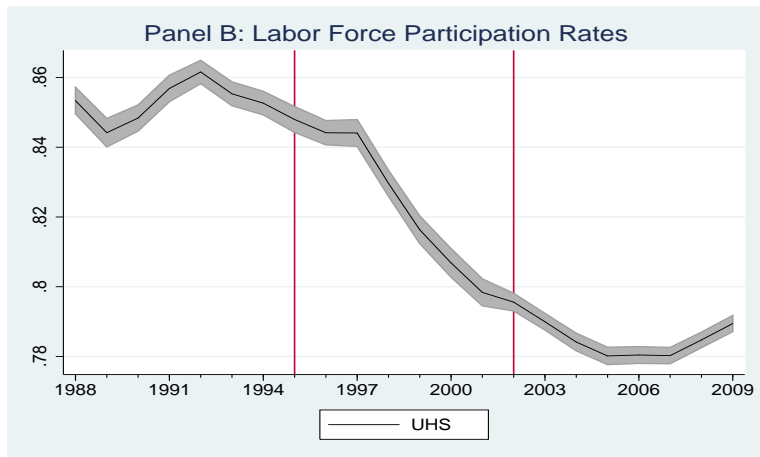


Unemployment rates by cohort, females

B: Unemployment rates for females, by cohort



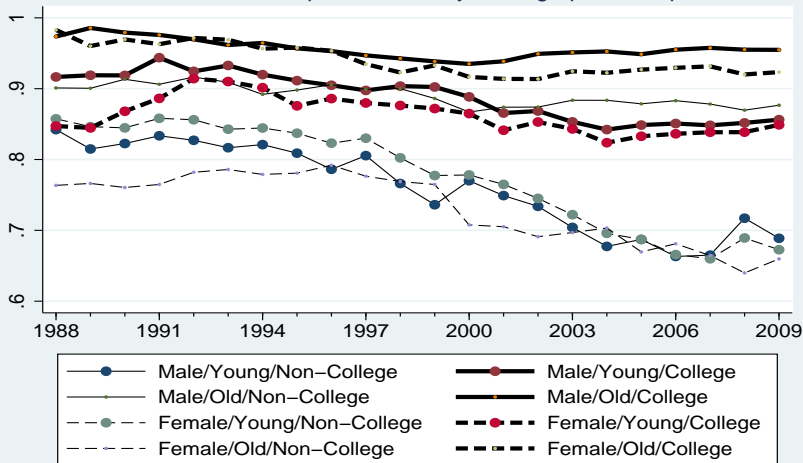
National Labor Force Participation Rates: 1988-2009.



Labor Force Participation rates by Demographic Groups(%)

	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Labor Force Participation Rate						
Nation	85.3	-0.1	82.3	-0.7	78.6	-0.1
-by subgroup						
Male/Young/Non-col	82.3	-0.5	77.0	-1.1	69.2	-0.6
Male/Young/Col	92.3	-0.1	89.3	-0.6	85.2	-0.2
Male/Old/Non-col	90.5	-0.0	88.8	-0.3	87.8	0.0
Male/Old/Col	97.1	-0.2	94.5	-0.1	95.3	0.1
Female/Young/Non-col	84.8	-0.3	79.5	-1.3	69.2	-1.0
Female/Young/Col	88.1	0.4	86.9	-0.3	83.9	-0.1
Female/Old/Non-col	77.3	0.2	74.8	-1.3	67.6	-0.4
Female/Old/Col	96.6	-0.4	93.1	-0.6	92.4	0.1

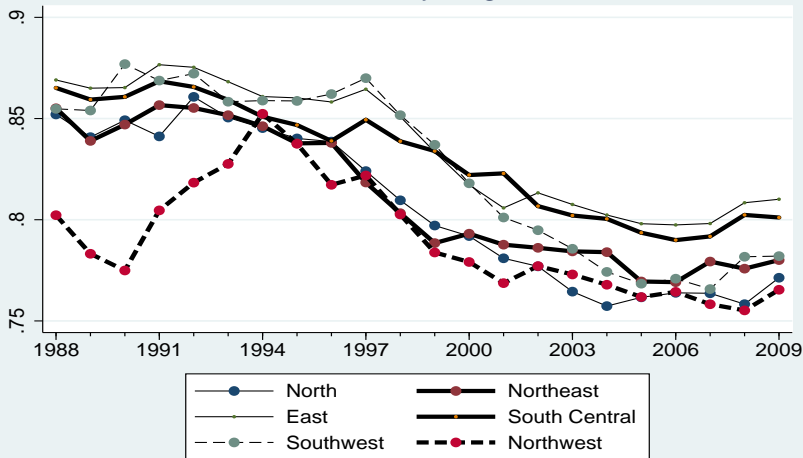
Labor Force Participation Rates by Demographic Group



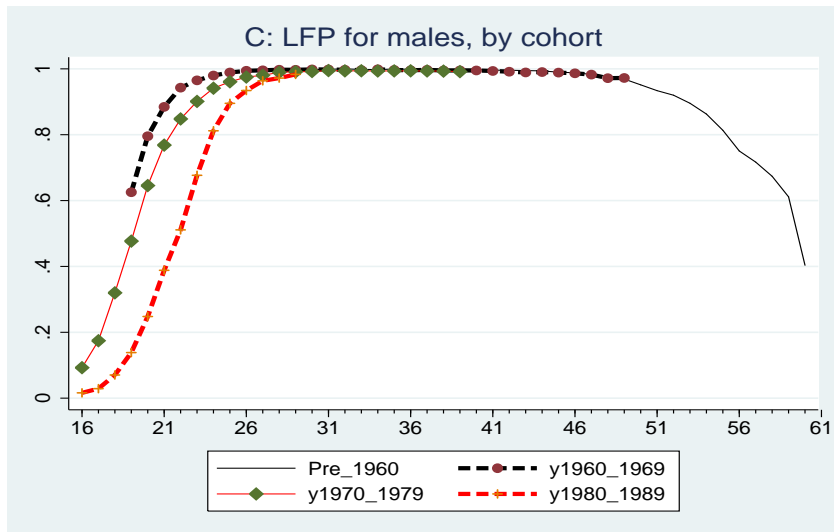
Labor Force Participation rates by Region(%)

	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Labor Force Participation Rate						
Nation	85.3	-0.1	82.3	-0.7	78.6	-0.1
-by region						
North	84.7	-0.2	80.7	-0.9	76.5	-0.1
Northeast	84.9	-0.2	80.7	-0.7	77.9	-0.1
East	86.8	-0.1	83.8	-0.7	80.4	-0.0
South Central	86.0	-0.3	83.2	-0.6	79.9	-0.1
Southwest	86.3	0.1	83.7	-0.9	77.8	-0.2
Northwest	81.3	0.5	79.9	-0.9	76.5	-0.2

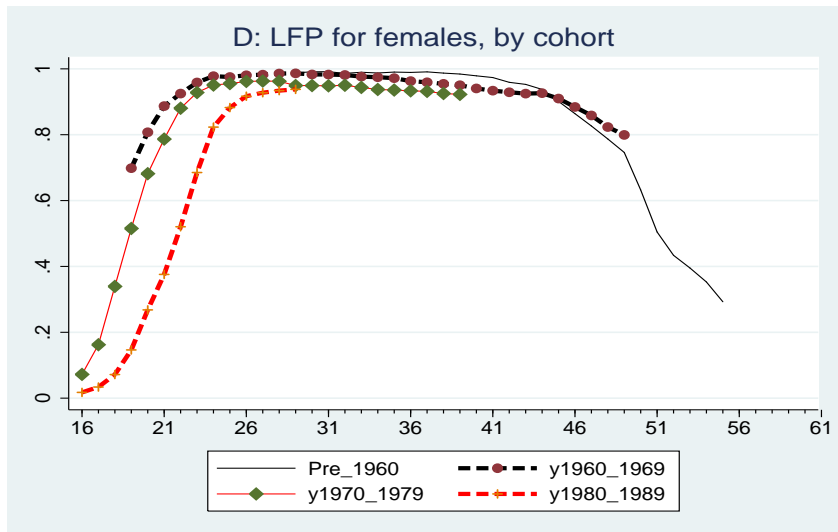
LFP Rates by Region



Labor Force Participation by Cohort, male



Labor Force Participation by Cohort, female



Robustness Check

- Sample representativeness
- Alternative samples
- Measurement errors (misclassification)

Alternative Estimates by subperiod

	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Unemployment Rate						
Baseline	3.4	-0.1	5.2	0.8	8.4	-0.2
A1	3.6	-0.0	6.0	0.9	9.3	-0.3
A2	3.4	-0.1	5.2	0.8	8.4	-0.2
A3	3.8	-0.1	5.6	0.8	8.8	-0.1
A4	3.4	-0.1	5.2	0.8	8.4	-0.2
A5	3.2	-0.1	5.1	0.9	8.4	-0.2
A6	3.1	-0.0	5.0	0.8	8.0	-0.1

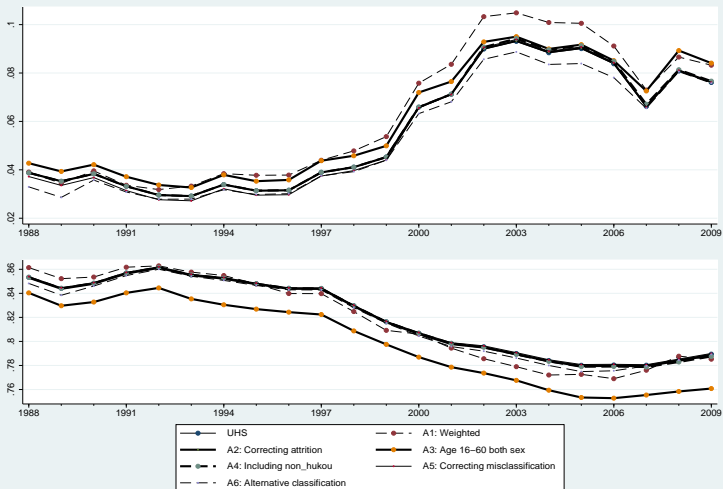
Note: A1: Weighted results. A2: Results with attrition corrected. A3: Results using sample including all people aged 16-60. A4: Results using sample including all non-local-urban-hukou people. A5: Corrected for misclassification. A6: "Other nonemployed" classified as NILF.

Alternative Estimates by subperiod

	subperiod 1 (1988-1995)		subperiod 2 (1995-2002)		subperiod 3 (2002-2009)	
	Average	Annual Chg.	Average	Annual Chg.	Average	Annual Chg.
Labor Force Participation Rate						
Baseline	85.3	-0.1	82.3	-0.7	78.6	-0.1
A1	85.7	-0.2	81.8	-0.9	77.8	-0.0
A2	85.2	-0.1	82.2	-0.8	78.5	-0.1
A3	83.5	-0.2	80.2	-0.8	76.0	-0.2
A4	85.3	-0.1	82.3	-0.8	78.4	-0.1
A5	85.3	-0.1	82.3	-0.7	78.6	-0.1
A6	85.0	-0.0	82.1	-0.8	78.3	-0.0

Note: A1: Weighted results. A2: Results with attrition corrected. A3: Results using sample including all people aged 16-60. A4: Results using sample including all non-local-urban-hukou people. A5: Corrected for misclassification. A6: "Other nonemployed" classified as NILF.

Alternative estimates



Estimated misclassification probabilities based on Feng & Hu (2013)

Group	P_{21}	P_{31}	P_{12}	P_{32}	P_{13}	P_{23}
Male/Young/Non-col	0.68	0.09	1.30	0.38	0.12	0.00
Male/Young/Col	0.05	0.02	7.80	3.02	0.00	0.00
Male/Old/Non-col	0.18	0.10	3.10	1.72	1.22	0.79
Male/Old/Col	0.11	0.04	7.20	0.00	1.02	1.51
Female/Young/Non-col	0.82	0.16	2.11	2.10	0.23	0.00
Female/Young/Col	0.37	0.04	5.63	6.74	0.68	6.28
Female/Old/Non-col	0.22	0.24	2.24	2.37	0.70	0.00
Female/Old/Col	0.06	0.05	4.29	0.00	2.49	0.04

Discussions

- 1988-1995: low unemployment rate and high LFP, not much change.
Guaranteed employment by the state. no major labor market reform yet.
- 1995-2002: sharp rise in unemployment rate and decline in LFP, especially for some groups.
mass layoff from SOE, rural-to-urban migration, enactment of labor law
- 2002-2009: high levels of u-rate and low levels of LFP, more sensitive to business cycles (2007 dip).
WTO entry, college enrollment expansion

Outline

1 Introduction

2 Data

3 Long run trends

4 Labor market dynamics

- Month-to-month labor force status transition probabilities
- Unemployment spells

5 Conclusions

Labor market dynamics

- Use monthly data from Jan 2004 to Dec 2006
- Examines month-to-month transition probabilities & unemployment spells
- Matching procedure: first drop (all) duplicates based on ID variables: region (city) code; household code within region; relationship to household head sex age. (would miss same sex twins)
- Then do the matching and calculate matching rate as % of the first month sample

Sample Size

Matching month i with month $i+k$ based on all 2004-2006
monthly samples

k	duplicate ID (%)	Matching rate (%)	Matched sample size
1	.180	97	3633310
2	.180	94	3412878
3	.180	91	3195511
6	.180	80	2555468
12	.182	52	1325380

Month-to-Month Labor Force Transition Probabilities(%),

males

K	E-U	E-O	U-E	U-O	O-E	O-U	E-U	E-O	U-E	U-O	O-E	O-U
Male/Young/Non-col						Male/Young/Col						
1	0.20	0.00	1.90	0.10	0.10	0.10	0.10	0.00	3.20	0.20	0.70	0.30
2	0.40	0.00	3.60	0.20	0.30	0.20	0.20	0.00	5.80	0.30	1.50	0.60
3	0.60	0.00	5.10	0.30	0.40	0.30	0.30	0.00	8.10	0.50	2.30	0.90
6	0.90	0.10	8.90	0.60	0.90	0.70	0.40	0.10	14.30	0.90	4.80	1.80
12	1.30	0.20	17.40	1.40	2.10	1.70	0.60	0.20	27.20	2.10	10.60	3.90
Male/Old/Non-col						Male/Old/Col						
1	0.20	0.20	2.60	0.30	0.50	0.00	0.00	0.10	3.60	0.30	0.70	0.00
2	0.30	0.40	4.60	0.60	0.90	0.10	0.10	0.20	6.20	0.40	1.30	0.00
3	0.40	0.50	6.40	0.90	1.30	0.10	0.10	0.30	8.50	0.60	1.80	0.10
6	0.60	1.00	10.90	1.70	2.40	0.20	0.20	0.50	15.30	1.10	3.40	0.10
12	1.00	2.00	18.30	3.50	5.20	0.50	0.30	1.00	28.70	2.60	7.40	0.20

Month-to-Month Labor Force Transition Probabilities(%), females

	Female/Young/Non-col						Female/Young/Col					
1	0.30	0.10	1.90	0.10	0.30	0.10	0.10	0.00	2.90	0.10	0.80	0.30
2	0.60	0.10	3.50	0.20	0.50	0.20	0.20	0.10	5.40	0.30	1.50	0.50
3	0.80	0.20	5.00	0.30	0.80	0.30	0.30	0.10	7.70	0.40	2.30	0.80
6	1.40	0.30	8.90	0.60	1.60	0.50	0.60	0.10	13.30	0.80	4.90	1.50
12	2.30	0.60	17.30	1.60	3.60	1.20	0.90	0.40	24.70	1.70	11.00	3.40
	Female/Old/Non-col						Female/Old/Col					
1	0.20	0.50	1.80	0.60	0.50	0.00	0.00	0.20	2.20	0.60	0.80	0.00
2	0.40	0.90	3.30	1.20	0.90	0.10	0.10	0.30	4.20	1.10	1.50	0.10
3	0.50	1.30	4.50	1.70	1.20	0.10	0.10	0.40	6.10	1.60	2.00	0.10
6	0.90	2.50	7.70	3.50	2.20	0.20	0.20	0.70	11.60	3.10	3.40	0.20
12	1.50	5.40	13.90	8.10	4.80	0.40	0.30	1.50	22.00	2.80	6.90	0.50

Treating state and nonstate sector employments as two different statuses

		State	Nonstate	Unemployment	NILF
K=1	State	99.7	0.1	0.1	0.1
	Nonstate	0.1	99.4	0.3	0.2
	Unemployment	0.4	1.8	97.6	0.3
	NILF	0.1	0.3	0.1	99.5
		State	Nonstate	Unemployment	NILF
K=6	State	99.4	0.2	0.1	0.2
	Nonstate	0.7	97	1.3	1
	Unemployment	1.7	7.8	89	1.4
	NILF	0.6	1.6	0.6	97.2
		State	Nonstate	Unemployment	NILF
K=12	State	95.9	2.1	0.5	1.4
	Nonstate	1.8	94.1	2.1	2
	Unemployment	3.5	14.3	78.9	3.4
	NILF	1.4	3.5	1.3	93.8

Adjusting for state sector employment

k	China	China-adjusted	USA
Panel A: Probabilities of unemployment in month $i+k$ conditional on being employed in month i			
1	0.2	0.3	1.2
2	0.3	0.6	1.5
3	0.4	0.8	1.7
6	0.7	1.3	NA
12	1.1	2.1	1.9
Panel B: Probabilities of employment in month $i+k$ conditional on being unemployed in month i			
1	2.1	4.5	27.4
2	3.9	8.1	36.6
3	5.5	11.6	42.3
6	9.6	19.5	NA
12	17.8	35.1	54.3

Distribution of all matched individuals based on number of months matched (%)

	Male Young Non-col	Male Young Col	Male Old Non-col	Male Old Col	Female Young Non-col	Female Young Col	Female Old Non-col	Female Old Col	Total
1-11	15.5	11.5	10.8	10.6	14.8	13.2	12.7	11.9	12.9
12	41.9	44.6	46.2	46.2	42.7	43.8	45.6	45.2	44.4
13-23	6.5	4.6	4.1	4.1	5.9	4.9	4.8	4.7	5.0
24	28.0	30.5	30.0	29.7	28.7	29.2	28.4	28.4	29.1
25-35	1.1	0.9	0.8	0.9	1.1	1.0	1.0	0.9	1.0
36	6.9	7.9	8.1	8.5	6.8	7.9	7.6	8.8	7.6
Sample size	34164	20198	42808	16711	38956	19504	43018	8220	223579

Distribution of unemployment spells up to month i

	Male Young Non-col	Male Young Col	Male Old Non-col	Male Old Col	Female Young Non-col	Female Young Col	Female Old Non-col	Female Old Col	Total
Panel A: Uncensored spells only									
Spell ≥ 3	96.7	92.2	95.9	94.3	96.7	93.6	96.6	95.9	96.1
Number of spells	16795	4386	11936	970	25381	5258	16012	703	81441
Spell ≥ 6	92.6	83.1	90.8	86.4	92.6	85.6	92.6	91.3	91.3
Number of spells	15136	3914	10966	887	23180	4697	14621	633	74034
Spell ≥ 12	85.8	70.8	82.4	74.8	85.9	73.6	85.1	87.1	83.6
Number of spells	12243	3049	9254	723	19080	3664	12037	505	60555

Distribution of unemployment spells up to month i

	Male Young Non-col	Male Young Col	Male Old Non-col	Male Old Col	Female Young Non-col	Female Young Col	Female Old Non-col	Female Old Col	Total
Panel B: All spells									
Spell ≥ 3									
LB(%)	90.4	85.9	90.7	88.5	91.2	87.0	90.9	90.2	90.3
UB(%)	96.8	92.7	96.0	94.6	96.9	93.9	96.7	96.1	96.3
Spell ≥ 6									
LB(%)	78.0	69.1	78.9	74.1	79.7	71.1	79.6	77.4	78.0
UB(%)	93.3	85.0	91.4	87.8	93.2	87.1	93.2	91.3	92.0
Spell ≥ 12									
LB(%)	58.4	45.8	60.5	52.3	60.9	47.7	60.2	58.9	58.4
UB(%)	88.2	76.3	84.6	79.5	88.0	78.6	87.8	85.5	86.1
Number of spells	17975	4710	12616	1034	26923	5659	17018	747.0	86682

International comparison

	Unemployment Rate (%)			Long-term Unemployment (% of all unemployed)
	subperiod 1 (1988-1995)	subperiod 2 (1995-2002)	subperiod 3 (2002-2009)	
China	3.4	5.2	8.4	91
Transitional Countries				
Estonia	4.3	11.0	8.5	62
Slovak Republic	13.4	15.2	14.5	84
Slovenia	n.a.	6.7	5.7	68
Russian Federation	7.2	10.6	7.3	61
Poland	12.3	14.5	14.4	69
Czech Republic	3.5	6.6	6.9	75
Developed Countries				
Australia	8.7	7.4	5.2	31
Austria	3.6	3.9	4.5	44
Belgium	10.9	10.0	7.9	65
Canada	9.5	8.2	7.0	16
France	8.8	9.0	7.9	60
Germany	6.7	8.6	9.2	71
Greece	8.5	10.6	9.0	72
Italy	11.3	11.0	7.7	64
Japan	2.5	4.2	4.6	48
United Kingdom	8.7	6.4	5.4	40
United States	6.2	4.9	5.8	18

Outline

- 1 Introduction
- 2 Data
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Conclusions

- Rising unemployment and declining LFP. Trends in the three sub-periods consistent with the development of China's labor market.
- Labor market conditions deteriorated most for uneducated people, as well as for young people and females. Three groups deserves most attention (young non-college males and females, old non-college females).
- Very low dynamics partly due to state-sector employment. Very high level (nearly 90%) of long term unemployment (over 6 months).