PROVISIONAL

The Income Gains from Internal Migration in China

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Why Internal Migration?

- Very large numbers – maybe 800 million
  - In China 145 million in 2009 (MPI)
  - Maybe 170 million now
- Access to the poorest
- In most cases free from direct control
- The essence of development ?
  - If changes in location and sector highly correlated

Chinese Internal Migration

- Determinants (correlates) of migration
  - Land: Zhao (2005), Mullan et al (2011)
- Effects on educational choices
  - De Brauw and Giles (2008)
- Left-behind old and young
  - Chang et al (2011), Wen and Lin (2012)
- Effects on migrant household's consumption
  - De Brauw and Giles (2011)

- Gender dimensions
  - Zhang et al (2004)
- Effects of Hukou on migration and outcomes
  - Knight and Song(1999), Hu et al (2011)
- Effects on urban workers
  - Meng and Zhang (2001, 2010)
- Discrimination in the urban labour market
  - Lee (2012), Messinis (2013),
- Subjective Well Being of migrants
  - Akay et al (2011)

- Remittances and effects on left-behind households
- Return migration
- Role of contract law in migration
- Housing behaviour
- Macroeconomic/industrial studies
  - Lewis turning point
  - City growth

Counterfactual of Migrant Income

- Seems to be largely missing
  - Xing (2014)
  - Single cross-section, combines different sources
  - Little evidence of positive selection of rural residents working temporarily in urban areas
- It's difficult!

A nearly ideal exercise

- McKenzie, Gibson and Stillman
  - Lottery for Tongans migrating to New Zealand
  - Tracking non-participants, winners, losers
  - Big benefits from migration, but selection bias
- Lesson for us (JEEA, 2010)
  - Best performing non-experimental methods are:
  - D-i-D and PSM – we combine

China Family Panel Study

- 971 communities in 25 provinces
- Representative of 95% of population
- Two rounds to data – 2010 and 2012
- 15,565 households in panel
- 48,493 individuals but only 31,820 in both


No sample
Large sample
Small sample
Heilongjiang
Jilin
Sichuan
Hebei
Hunan
Yunnan
Guangxi

CFPS details

- April-September 2010; July-Dec. 2012
- One year recall period
- Community, Family and Individual q'aires
- Occupation type and industry sectors, coded according to national standards.
- Rich information related to individual characteristics and household and community level control variables

Key Variables

- **Net individual income**: recalled by main interviewee in each household in 2010; by individuals in 2012;
  - Any systematic bias will be differenced out
  - May be negative – truncated in q'aire at zero
  - 2010 prices (geographical deflation difficult)
- **Main job** including work in own farm, self-employment and employed in non-agricultural sectors.
  - Self-declared in 2010; most hours in 2012

- **Migrant:** the location of the main job is out of the home town.
  - Main job may be temporary, seasonal, occasional
  - No ‘non-workers’, including students
  - Only very crude information on destination !
  - Focus: non-migrant in 2010 to migrant in 2012
- **Rural**: if community declares itself a ‘village’ rather than ‘residential community’

Agricultural Income

- Poorly reported, even more poorly allocated over individuals
- Therefore estimate by marginal product
- Output = f(labour, land, inputs, year dummy)
- But labour and inputs are potentially endogenous
- So, instrument them
  - Land, non-family labour, family size/composition, education, health, month of survey

Annual Agricultural Income

province	mean	sd	N			mean	sd	N
Total	5796	7815	7998		Hebei	6131	7921	574
					Anhui	6052	7425	187
Zhejiang	10765	13114	67		Shandong	5678	7334	516
Jiangsu	9240	9680	93		Sichuan	4960	6934	416
Liaoning	8207	10201	630		Fujian	4743	7423	73
Henan	8073	9284	1017		Gansu	4530	5214	1357
Heilongjiang	7768	12163	81		Guangdong	4380	7034	520
Hunan	7690	9399	205		Jiangxi	4265	5597	209
Shanxi	7466	9968	319		Shaanxi	4182	4828	208
Jilin	7295	7525	164		Guangxi	3795	5026	316
Hubei	7197	8724	110		Guizhou	3658	5389	423
Chongqing	6206	10362	54		Yunnan	3407	5531	459

Annual labour income is MPL* eight hours*25 days* 12 months.

Our sample for this paper

- Exclude four municipalities (Beijing, Shanghai, Tianjin, Chongqing) - commuting
- Adult individuals (≥16) on the labour market with positive incomes.

Our approach

- Effect of Δ migration status on Δ log(income)

$$\widehat{ATT} = E(\Delta Y^1 \mid D = 1) - E(E(\Delta Y^0 \mid P(Z), D = 0))$$

- Average treatment effect on the treated, Diff-in-diff matching estimator (Heckman et al, 1998):
  - Propensity score matching using the pre-treatment data: control for selection-on-observables.
  - Outcome is measured in changes: control for selection-on-unobservables, provided that there is no transitory shock.

Migrants *are* different (rural)

Variables	Mean (std deviation)		Diff	t-value
	non-Mig	Migrant		
Age	46.24 (10.04)	37.84(10.78)	8.40(0.31)	26.91
Gender (male==1)	0.49(0.50)	0.67(0.47)	-0.18(0.02)	-12.02
BMI	21.15(5.89)	22.59(4.18)	-1.44(0.17)	-8.34
Education level (0-8)	2.27(1.07)	2.81(1.08)	-0.54(0.03)	-16.35
Mother's education level (0-8)	0.95(0.76)	1.34(0.97)	-0.39 (0.02)	-15.87
Father's education level (0-8)	1.13(1.10)	1.58(1.23)	-0.44(0.03)	-12.87
Have chronic disease (yes=1)	0.13(0.34)	0.10 (0.30)	0.03(0.01)	3.05
Health status (1-5, very healthy=1)	2.55 (1.32)	2.20 (1.18)	0.35 (0.04)	8.92
Family size	4.47(1.72)	4.46(1.59)	0.01(0.05)	0.13
Distance to the medical centre(km)	1.10(4.07)	0.73(4.21)	0.37(0.13)	2.92
Travel time to the commercial centre	33.35(48.08)	28.14(55.95)	5.21(1.52)	3.43
Cooking use tap water (yes=1)	0.46(0.50)	0.50(0.50)	-0.04(0.02)	-2.29
Use gas or electricity for cooking	0.39(0.49)	0.53(0.50)	-0.14(0.02)	-9.3
Flush toilet at home (yes=1)	0.16(0.37)	0.18(0.39)	-0.02(0.01)	-1.50
House size (m2)	137.0 (96.3)	151.0(111.6)	-14.0(3.0)	-4.61
Observations	6348	1274		
No. of individuals	3174	637		

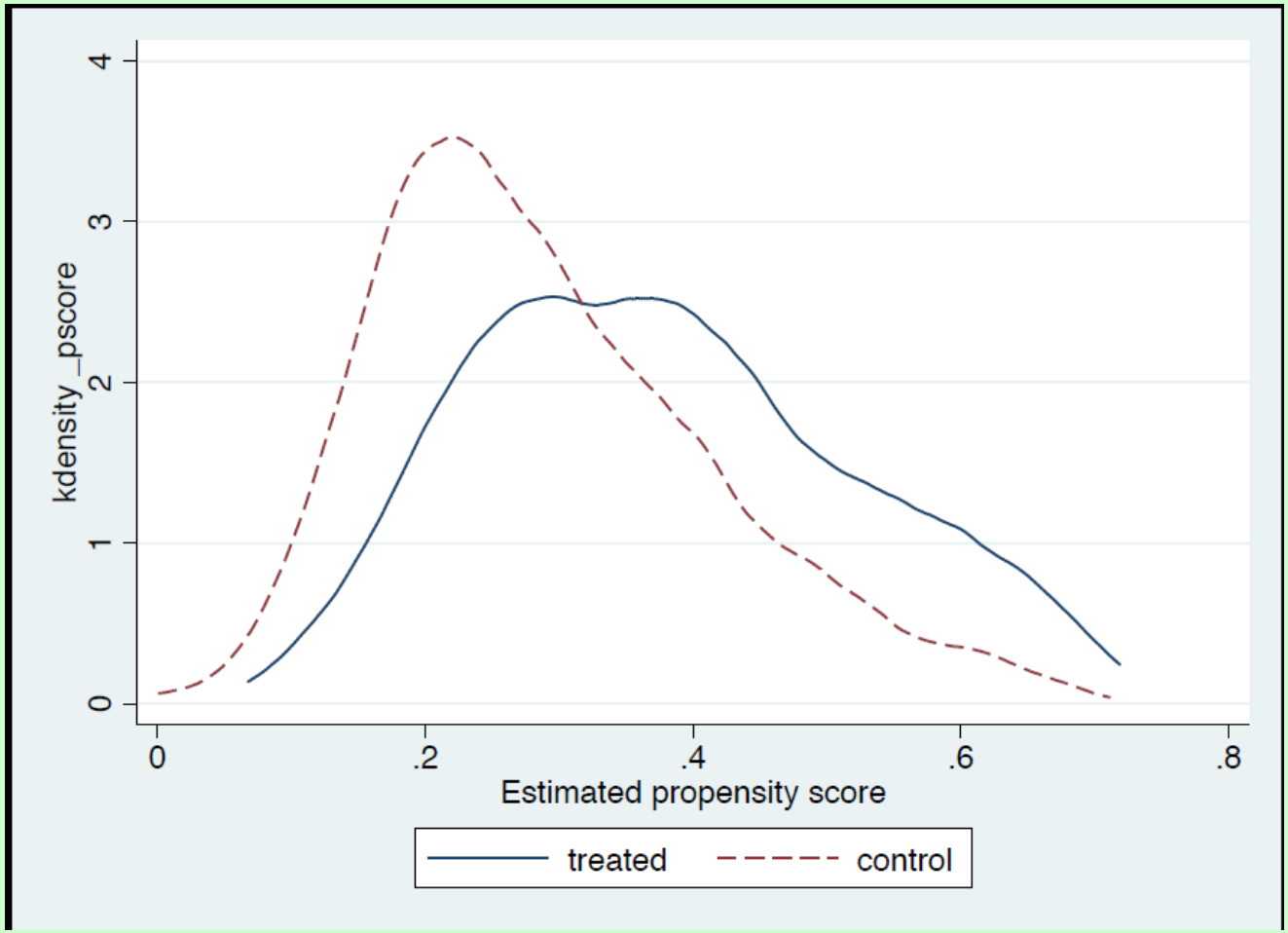
But so are farm escapees

Variables	Mean (std deviation)		Diff	t-value
	Stay Agric	Leave Agric		
Age	47.41(9.59)	41.06(10.98)	6.35(0.24)	26.75
Gender (male==1)	0.44(0.50)	0.64 (0.48)	-0.21(0.01)	-18.25
BMI	20.51(6.42)	22.67(4.02)	-2.15(0.13)	-16.57
Education level (0-8)	2.02(0.95)	2.86(1.10)	-0.84(0.02)	-35.58
Mother's education level (0-8)	0.88(0.70)	1.22(0.91)	-0.34(0.02)	-18.54
Father's education level (0-8)	1.05(1.06)	1.44(1.21)	-0.39(0.03)	-15.03
Have chronic disease (yes=1)	0.14(0.35)	0.10 (0.30)	0.04(0.01)	4.89
Health status (1-5, very healthy=1)	2.65(1.36)	2.26(1.18)	0.39(0.03)	13.15
Family size	4.52(1.73)	4.38(1.66)	0.14(0.04)	3.50
Distance to the medical centre(km)	1.30(4.70)	0.64(2.96)	0.66(0.10)	6.90
Travel time to the commercial centre	37.51(52.04)	25.12(44.58)	12.39(1.15)	10.81
Cooking use tap water (yes=1)	0.42(0.49)	0.54(0.50)	-0.12(0.01)	-9.97
Use gas or electricity for cooking	0.32(0.47)	0.57(0.50)	-0.25(0.01)	22.43
Flush toilet at home (yes=1)	0.11(0.31)	0.25(0.43)	-0.14(0.01)	16.59
House size (m2)	133.38(95.1)	148.06(104.2)	-14.68(2.3)	6.36
Observations	4524	3098		
No. of individuals	2262	1549		

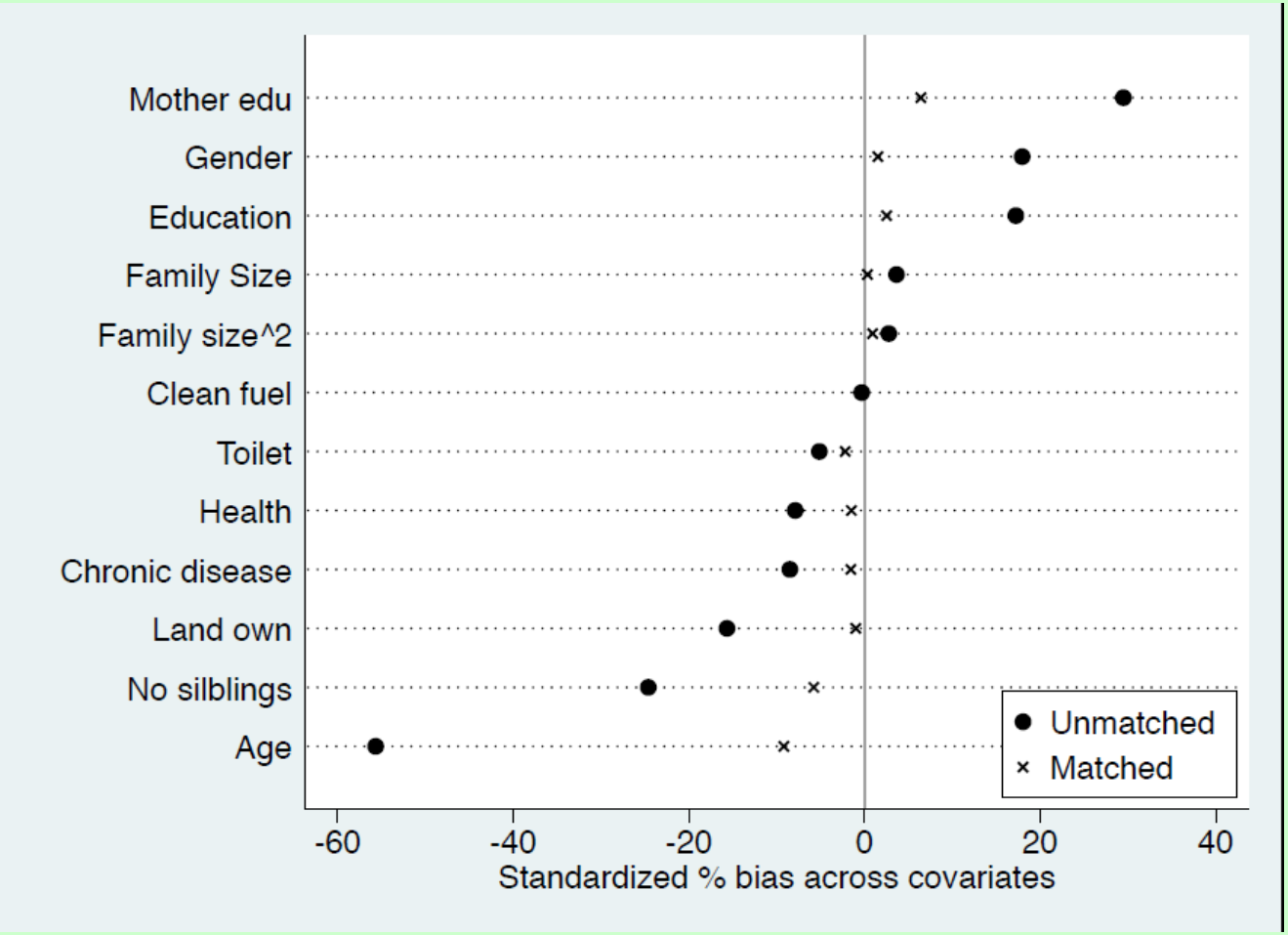
All Migration
Logit for Migration and ATET

	co-eff	std.err.	z-stat
Age	-0.058	0.006	-10.22
Gender	0.583	0.103	5.68
Education (level)	0.019	0.044	0.44
Have chronic disease	-0.016	0.155	-0.11
Mother's education	0.000	0.056	0.01
The no. of siblings	0.011	0.029	0.38
Health	0.063	0.061	1.04
Size of the family	-0.052	0.081	-0.64
Size of the family^2	0.003	0.006	0.52
Clean fuel for cooking (gas or electricity)	-0.150	0.102	-1.47
Land area owned (mu)	-0.021	0.006	-3.44
flush toilet at home	-0.204	0.119	-1.72
_cons	1.431	0.396	3.61
N	2337		
Pseudo R2	0.07		

Common Support



Balancing


Mother edu
Gender
Education
Family Size
Family size^2
Clean fuel
Toilet
Health
Chronic disease
Land own
No silblings
Age
Unmatched
Matched
-60
-40
-20
0
20
40
Standardized % bias across covariates

Separating Location from Sector

A. Sectoral change, no migration
B. Migration, no sectoral change
C. Sectoral change and migration, relative to A

- Sector defined by main job
  - Agriculture
  - Manufacturing and Construction
  - Business and Services
  - Public sector employment
- Significant change between sectors

Sectoral Transitions – Rural

Main jobs, 2010-2012

	2011				
2009	Agriculture	Manufacture	Services	Public	Total
Agriculture	2262	369	90	38	2759
Manufacture	32	569	10	3	614
Services	15	33	142	14	204
Public	8	9	8	209	234
Total	2317	980	250	264	3811

Initial mean log(incomes) and changes i,.e. control groups

Non-Migrants	2009	2011	Diff	t-value	No.
All (∑0)	6273	10006	3733	12.52	3075
Agriculture (AA0)	3073	4739	1666	10.32	2224
Manufactures(MM0)	18564	27294	8730	7.84	361
Services (SS0)	15744	19779	4035	1.56	61
Public (PP0)	19359	26455	7096	3.48	172

Yuan, 2009 prices

Rural Origin ATETs - Δlog(income)

The effect of	Treatmnt	Control	ATET	t-value	No.	No.co
Migration,	∑1	∑0	0.46(0.14)	3.28	637	3119
Exit A to M	AM0	AA0	1.20(0.21)	5.65	204	2103
Exit A to S	AS0	AA0	1.35(0.58)	2.33	29	1163
Exit A to P	AP0	AA0	1.34(0.63)	2.12	24	1428
Remain A, migrate	AA1	AA0	1.57(0.40)	3.91	38	1632
Remain M, migrate	MM1	MM0	0.11(0.24)	0.46	208	357
Remain S, migrate	SS1	SS0	0.71(0.53)	1.34	81	52
Remain P, migrate	PP1	PP0	-2.91 (1.24)	-2.35	37	20
Exit A to M, migrate	AM1	AM0	-0.03 (0.24)	-0.14	165	194
Exit A to S, migrate	AS1	AS0	0.63(0.59)	1.06	61	25
Exit A to P, migrate	AP1	AP0	-1.75(2.10)	-0.84	14	11

Note: The outcome variable is Δ log (labour income), income is in 2009 yuan.

THANK YOU