

Appendix A

Table A1. Correlation between the number of “*Jinshi*” holders and the share of college graduates

VARIABLES	(1) 1982 college graduate share	(2) 1990 college graduate share	(3) 2000 college graduate share	(4) 2010 college graduate share
<i>Jinshi</i>	5.21e-06 (4.32e-06)	8.20e-06 (5.48e-06)	0.00002*** (0.0000089)	0.000063*** (0.0000192)
Constant	0.00510*** (0.000478)	0.00469*** (0.000572)	0.0103*** (0.000885)	0.03051*** (0.00191)
Observations	150	255	283	283
R-squared	0.010	0.009	0.024	0.037
F	1.460	2.235	6.793	10.74
rss	0.00382	0.0159	476.9	2220

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A2. The 2000-2010 College Graduate Share Growth

VARIABLES	(1) OLS	(2) OLS	(3) IV	(4) IV	(5) IV	(6) IV
	Growth in the 2000-2010 college graduate share					
2000 college graduate share	1.100*** (0.0705)	0.994*** (0.100)	0.977*** (0.144)	1.098*** (0.0805)	1.086*** (0.0971)	1.003*** (0.0898)
Population density		-6.81e-06 (4.27e-06)	-9.51e-06* (5.32e-06)	-6.93e-06 (4.62e-06)	-9.87e-06* (5.87e-06)	-9.59e-06* (5.32e-06)
Average wage		1.43e-06*** (2.95e-07)	1.40e-06*** (3.74e-07)	1.33e-06*** (2.52e-07)	1.29e-06*** (3.50e-07)	1.37e-06*** (3.65e-07)
Nonagricultural population		9.68e-06 (1.15e-05)	1.11e-05 (1.51e-05)	3.64e-06 (9.85e-06)	6.59e-06 (1.30e-05)	1.00e-05 (1.37e-05)
# of total employed		-1.76e-05 (1.19e-05)	-1.44e-05 (1.50e-05)	-1.73e-05 (1.30e-05)	-1.58e-05 (1.70e-05)	-1.47e-05 (1.57e-05)
Manufacturing employment share		0.0058 (0.0050)	0.00767 (0.00794)	0.00567 (0.00532)	0.00895 (0.00853)	0.00797 (0.00787)
Longitude		0.0001 (0.0001)	0.000244** (0.000122)	0.000182* (0.000108)	0.000287** (0.000129)	0.000254** (0.000118)
Average PM2.5 concentration		5.35e-05* (2.85e-05)	8.19e-05* (4.65e-05)	5.50e-05* (3.03e-05)	7.87e-05 (4.81e-05)	8.12e-05* (4.69e-05)
Medical doctors per capita		-0.0339 (0.159)	0.0149 (0.185)	-0.0567 (0.153)	-0.0009 (0.181)	0.0112 (0.183)
Hospital beds per capita		0.174 (0.172)	0.353 (0.292)	0.0868 (0.162)	0.234 (0.275)	0.325 (0.260)
Middle school teachers per capita		0.112 (0.157)	0.0249 (0.300)	0.169 (0.122)	0.162 (0.252)	0.0570 (0.262)
Primary school teachers per capita		-0.0679 (0.0802)	-0.0381 (0.121)	-0.0301 (0.0915)	-0.0166 (0.121)	-0.0330 (0.117)
Constant	0.00957*** (0.000935)	-0.0210* (0.0123)	-0.0341** (0.0171)	-0.0252* (0.0132)	-0.0400** (0.0183)	-0.0355** (0.0167)
Observations	283	259	137	259	137	137
R-squared	0.797	0.852	0.883	0.849	0.880	0.883
F	243.3	304.1	77.94	204.6	70.10	77.51
Rss	150.4	106.1	61.00	107.9	62.28	61.02
First stage result						
Share of college graduates in 1982 Census			1.753*** (0.2513)		1.028*** (0.2085)	0.942*** (0.2041)
Number of faculties in city				0.0322*** (0.0070)	0.0288*** (0.0051)	0.0258*** (0.0068)
Number of universities in city				0.0001 (0.0003)	0.00002 (0.0002)	0.00001 (0.0003)

Lewbel (2012)'s IV	Not included	Not included	Not included	Included
Controls	Included	Included	Included	Included
First-stage F stat for weak instruments	48.63	97.42	72.85	160.49
Over-identification test				
Hansen J statistics	-	0.538	1.724	14.880
Chi-sq P-value	-	0.4632	0.4223	0.3149

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 3: IV = Share of the college graduate in the 1982 Census

* Column 4: IV = Number of universities and full-time faculties (10000) in cities

* Column 5: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000) in cities

* Column 6: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000), Lewbel (2012)'s IVs

Table A3. Third Front Movement Regions: The 2000-2010 College Graduate Share Growth

VARIABLES	(1) OLS	(2) OLS	(3) IV	(4) IV	(5) IV	(6) IV
	Growth in the 2000-2010 college graduate share					
2000 college graduate share	1.131*** (0.0899)	1.214*** (0.124)	1.455*** (0.274)	1.185*** (0.112)	1.280*** (0.191)	1.291*** (0.178)
Population density		-2.14e-06 (1.88e-06)	-7.52e-06 (8.59e-06)	-1.84e-06 (2.14e-06)	-2.57e-06 (6.71e-06)	-2.88e-06 (6.45e-06)
Average wage		1.15e-06** (4.71e-07)	1.47e-06 (1.10e-06)	1.19e-06*** (3.57e-07)	1.87e-06** (8.77e-07)	1.85e-06** (8.64e-07)
Nonagricultural population		6.50e-05* (3.40e-05)	0.000122*** (4.47e-05)	6.02e-05* (3.16e-05)	9.84e-05*** (2.88e-05)	9.99e-05*** (2.79e-05)
# of total employed		-0.0002* (0.0001)	-0.000434*** (0.000152)	-0.000212** (9.72e-05)	-0.000350*** (9.42e-05)	-0.000355*** (9.10e-05)
Manufacturing employment share		0.0076 (0.0075)	0.00857 (0.0157)	0.00673 (0.00960)	0.00274 (0.0134)	0.00310 (0.0133)
Longitude		0.0002 (0.0001)	-0.000356 (0.000346)	0.000212* (0.000112)	-0.000230 (0.000290)	-0.000237 (0.000286)
Average PM2.5 concentration		-1.71e-05 (2.97e-05)	7.03e-05 (6.07e-05)	-2.10e-05 (3.05e-05)	3.26e-05 (5.25e-05)	3.49e-05 (5.13e-05)
Medical doctors per capita		-0.0733 (0.162)	-0.610 (0.633)	-0.0671 (0.206)	-0.760 (0.651)	-0.751 (0.637)
Hospital beds per capita		0.0418 (0.405)	-0.803 (0.699)	0.0658 (0.239)	-0.473 (0.536)	-0.493 (0.515)
Middle school teachers per capita		0.118 (0.158)	0.876* (0.485)	0.1000 (0.157)	0.650* (0.341)	0.663* (0.339)
Primary school teachers per capita		0.0310 (0.0793)	0.0651 (0.169)	0.0204 (0.100)	0.0263 (0.155)	0.0286 (0.154)
Constant	0.0080*** (0.0010)	-0.0241 (0.0191)	0.0308 (0.0376)	-0.0245* (0.0137)	0.0186 (0.0318)	0.0194 (0.0314)
Observations	99	85	41	85	41	41
R-squared	0.900	0.938	0.947	0.938	0.952	0.952
F	158.2	.	53.87	53.18	56.97	57.69
Rss	18.39	10.96	7.213	10.99	6.555	6.563
First stage result						
Share of college graduates in 1982 Census			1.702*** (0.3495)		1.215*** (0.226)	-0.0804 (0.4718)
Number of faculties in city				0.0248*** (0.0040)	0.0303*** (0.0030)	0.0048*** (0.0160)
Number of universities in city				0.0007* (0.0004)	-0.0003 (0.0003)	-0.0010 (0.0006)

Lewbel (2012)'s IV	Not included	Not included	Not included	Included
Controls	Included	Included	Included	Included
First-stage F stat for weak instruments	23.72	272.79	82.4	56.57
Over-identification test				
Hansen J statistics	-	0.464	0.611	16.457
Chi-sq P-value	-	0.4957	0.7368	0.2253

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

* Column 3: IV = Share of the college graduate in the 1982 Census

* Column 4: IV = Number of universities and full-time faculties (10000) in cities

* Column 5: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000) in cities

* Column 6: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000), Lewbel (2012)'s IVs

Table A4. The 1990-2000 College Graduate Share Growth

VARIABLES	(1) OLS	(2) OLS	(3) IV	(4) IV
	Growth in the 1990-2000 college graduate share			
1990 college graduate share	-0.0741 (0.108)	-0.237** (0.100)	0.348* (0.190)	-0.185 (0.145)
Manufacturing employment share		0.0026 (0.0069)	-0.0024 (0.0080)	0.0111 (0.0091)
Population age 6 or older		-3.72e-07* (1.94e-07)	-4.18e-08 (2.84e-07)	-2.60e-07 (2.96e-07)
Total labor force		3.87e-07 (2.36e-07)	4.19e-08 (3.42e-07)	2.82e-07 (3.71e-07)
Total manufacturing employment		6.72e-07*** (2.18e-07)	2.46e-07 (2.52e-07)	6.11e-07** (2.94e-07)
Longitude		1.01e-05 (4.37e-05)	0.000131 (0.000170)	-5.33e-05 (6.36e-05)
Constant	0.0052*** (0.0006)	0.0042 (0.0049)	-0.0123 (0.0201)	0.0098 (0.0072)
Observations	253	253	143	143
R-squared	0.009	0.180	-0.203	0.222
F	0.471	5.916	6.989	4.718
Rss	0.00986	0.00816	0.00884	0.00571
First stage result				
Share of college graduates in the 1982 Census			1.059*** (0.286)	0.4828*** (0.1797)
Lewbel (2012)'s IV Controls			Not included Included	Included Included
First-stage F stat for weak instruments			13.70	140.87
Over-identification test				
Hansen J statistics			-	9.147
Chi-sq P-value			-	0.1033

Robust standard errors in parentheses, clustered at province level.

*** p<0.01, ** p<0.05, * p<0.1

* Column 3: IV = Share of the college graduate in the 1982 Census

* Column 4: IV = Share of the college graduate in the 1982 Census, Lewbel (2012)'s IVs

Table A5. The 1990-2000 College Graduate Share Growth: Migrants and non-Migrants in the 1990s

VARIABLES	(1) OLS Growth in the 1990-2000 college graduate migrant share	(2) OLS Growth in the 1990-2000 college graduate non-migrant share	(3) IV Growth in the 1990-2000 college graduate migrant share	(4) IV Growth in the 1990-2000 college graduate non-migrant share
1990 college graduate share	0.135*** (0.0295)	-0.372*** (0.0736)	0.139*** (0.0396)	-0.324*** (0.107)
Manufacturing employment share	-0.0009 (0.0015)	0.0035 (0.0055)	0.0008 (0.0022)	0.0103 (0.0070)
Population age 6 or older	-7.53e-08 (4.66e-08)	-2.97e-07* (1.51e-07)	-4.66e-08 (7.32e-08)	-2.13e-07 (2.28e-07)
Total labor force	7.19e-08 (5.69e-08)	3.15e-07* (1.83e-07)	4.11e-08 (9.17e-08)	2.41e-07 (2.85e-07)
Total manufacturing employment	2.39e-07*** (4.38e-08)	4.33e-07** (1.82e-07)	2.42e-07*** (5.83e-08)	3.69e-07 (2.41e-07)
Longitude	8.03e-06 (9.28e-06)	2.05e-06 (3.68e-05)	2.87e-06 (1.56e-05)	-5.61e-05 (5.02e-05)
Constant	-3.69e-06 (0.0011)	0.0042 (0.0041)	0.0003 (0.0018)	0.0095* (0.0056)
Observations	253	253	143	143
R-squared	0.560	0.277	0.657	0.286
F	53.02	9.218	55.72	2.130
Rss	5.320	49.09	0.000327	0.00355
First stage result				
Share of college graduates in the 1982 Census			0.4828*** (0.1797)	0.4828*** (0.1797)
Lewbel (2012)'s IV			Included	Included
Controls			Included	Included
First-stage F stat for weak instruments			140.87	140.87
Over-identification test				
Hansen J statistics			7.122	9.462
Chi-sq P-value			0.2118	0.0920

Robust standard errors in parentheses, clustered at province level.

*** p<0.01, ** p<0.05, * p<0.1

* Column 3: IV = Share of the college graduate in the 1982 Census

* Column 4: IV = Share of the college graduate in the 1982 Census, Lewbel (2012)'s IVs

Table A6. IV results: The 2000-2010 College Graduate Share Growth

VARIABLES	(1)	(2)	(3)	(4)
	Growth in the 2000-2010 college graduate share			
2000 college graduate share	1.130*** (0.0775)	1.110*** (0.0829)	1.006*** (0.0856)	0.967*** (0.116)
Population density	-6.96e-06 (4.75e-06)	-9.94e-06* (6.02e-06)	-9.61e-06* (5.36e-06)	-6.78e-06* (4.02e-06)
Average wage	1.30e-06*** (2.75e-07)	1.26e-06*** (3.55e-07)	1.37e-06*** (3.63e-07)	1.46e-06*** (2.57e-07)
Nonagricultural population	1.77e-06 (9.10e-06)	5.63e-06 (1.21e-05)	9.87e-06 (1.37e-05)	1.12e-05 (1.25e-05)
# of total employed	-1.72e-05 (1.35e-05)	-1.61e-05 (1.78e-05)	-1.48e-05 (1.58e-05)	-1.77e-05 (1.13e-05)
Manufacturing employment share	0.0057 (0.0055)	0.0092 (0.0090)	0.0080 (0.0079)	0.00577 (0.00468)
Longitude	0.0002* (0.0001)	0.0003** (0.0001)	0.0003** (0.0001)	0.0001 (0.0001)
Average PM2.5 concentration	5.55e-05* (3.08e-05)	7.80e-05 (4.87e-05)	8.11e-05* (4.69e-05)	5.31e-05* (2.76e-05)
Medical doctors per capita	-0.0637 (0.152)	-0.0043 (0.181)	0.0107 (0.182)	-0.0280 (0.158)
Hospital beds per capita	0.0597 (0.169)	0.208 (0.284)	0.321 (0.265)	0.197 (0.177)
Middle school teachers per capita	0.187 (0.118)	0.191 (0.245)	0.0614 (0.258)	0.0974 (0.152)
Primary school teachers per capita	-0.0184 (0.0861)	-0.0120 (0.122)	-0.0323 (0.117)	-0.0778 (0.0921)
Constant	-0.0264** (0.0125)	-0.0412** (0.0179)	-0.0357** (0.0163)	-0.0200 (0.0135)
Observations	259	137	137	259
R-squared	0.847	0.879	0.883	0.852
F	336.6	89.48	83.97	330.9
rss	109.3	62.96	61.04	106.2
First stage result				
Share of the college graduates in 1982 Census		1.215*** (0.204)	1.016*** (0.1877)	
Number of universities per capita	-0.0437* (0.0257)	-0.0621** (0.0241)	-0.0378** (0.0157)	
Number of faculties per capita	7.641*** (0.7613)	7.411*** (0.7713)	5.4513 (0.4135)	
211 universities				0.0042*** (0.0012)
985 project universities				-0.0016 (0.0033)

Lewbel (2012)'s IV	Not included	Not included	Included	Included
Controls	Included	Included	Included	Included
First-stage F stat for weak instruments	86.66	48.07	135.19	13.78
Over-identification test				
Hansen J statistics	0.841	2.84	14.552	1.6
Chi-sq P-value	0.359	0.2418	0.3361	0.2059

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 1: IV = Number of universities per capita, full-time faculties per capita

* Column 2: IV = Share of the college graduate in the 1982 Census, Number of universities per capita, Number of faculties (10000) per capita.

* Column 3: IV = Share of the college graduate in the 1982 Census, Number of universities per capita, Number of faculties (10000) s per capita, Lewbel (2012)'s IVs.

* Column 4: IV = "985 project universities(the top 35 universities in China granted by the Ministry of Education in China put forward in May 1998)" or "211(the top 100 universities in China in the 21st century).

Table A7. IV Results: The 1990-2000 College Graduate Share Growth: Migrants and non-Migrants in the 1990s

VARIABLES	(1) Growth in the 1990-2000 college graduate share	(2) Growth in the 1990-2000 college graduate migrant share	(3) Growth in the 1990-2000 college graduate non- migrant share
1990 college graduate share	-0.176 (0.134)	0.144*** (0.0399)	-0.321*** (0.0954)
Manufacturing employment share	0.00138 (0.00699)	-0.00107 (0.00159)	0.00245 (0.00553)
Population age 6 or older	-3.41e-07* (1.93e-07)	-7.06e-08 (4.74e-08)	-2.71e-07* (1.49e-07)
Total labor force	3.52e-07 (2.33e-07)	6.66e-08 (5.77e-08)	2.86e-07 (1.80e-07)
Total manufacturing employment	6.37e-07***	2.34e-07***	4.03e-07**
Longitude	2.07e-07 (2.56e-05)	4.36e-08 (1.04e-05)	1.72e-07 (1.52e-05)
Constant	4.47e-05 0.00230 (0.00515)	1.04e-05 -0.000294 (0.00125)	3.61e-05 0.00259 (0.00409)
Observations			
R-squared	253	253	253
F	0.175	0.560	0.273
Rss	5.673	56.37	5.241
First stage result			
Number of universities established by missionary before 1952	0.0019* (0.0011)	0.0019* (0.0011)	0.0019* (0.0011)
Lewbel (2012)'s IV	Included	Included	Included
Controls	Included	Included	Included
First-stage F stat for weak instruments	220.62	220.62	220.62
Over-identification test			
Hansen J statistics	6.331	7.008	6.493
Chi-sq P-value	0.2754	0.2201	0.2612

Robust standard errors in parentheses, clustered at province level.

*** p<0.01, ** p<0.05, * p<0.1

* Column 1: IV = Number of universities established by missionary before 1952, Lewbel (2012)'s IVs.

* Column 2: IV = Number of universities established by missionary before 1952, Lewbel (2012)'s IVs.

Table A8. Missionary Schools IV results: The 2000-2010 College Graduate Share Growth

VARIABLES	(1) Growth in the 2000-2010 college graduate share	(2)
2000 college graduate share	1.348*** (0.168)	0.902*** (0.139)
Population density	-8.79e-06 (5.50e-06)	-6.71e-06* (3.67e-06)
Average wage	8.41e-07** (3.84e-07)	1.52e-06*** (2.97e-07)
Nonagricultural population		1.50e-05 (1.34e-05)
# of total employed		-1.78e-05 (1.09e-05)
Manufacturing employment share	0.00265 (0.00543)	0.00581 (0.00453)
Longitude	0.000215 (0.000138)	0.000120 (0.000107)
Average PM2.5 concentration	4.76e-05 (3.59e-05)	5.21e-05** (2.58e-05)
Medical doctors per capita	-0.291 (0.200)	-0.0138 (0.159)
Hospital beds per capita	-0.0256 (0.256)	0.251 (0.184)
Middle school teachers per capita	0.401*** (0.152)	0.0621 (0.176)
Primary school teachers per capita	0.0350 (0.151)	-0.101 (0.0856)
Constant	-0.0287 (0.0177)	-0.0174 (0.0128)
Observations	259	259
R-squared	0.809	0.850
F	86.55	409.8
rss	0.0137	0.0108
First stage result		
Number of universities established by missionary before 1952	0.01*** (0.0032)	0.00201 (0.0014)
Lewbel (2012)'s IV	Not included	Included
Controls	Included	Included
First-stage F stat for weak instruments	9.61	54.83
Over-identification test		
Hansen J statistics	-	13.168
Chi-sq P-value	-	0.2825

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 1: IV = Number of universities established by missionary before 1952

* Column 2: IV = Number of universities established by missionary before 1952, Lewbel (2012)'s IVs.

Table A9. First Stage Regression Results with “*Jinshi*” IV

VARIABLES	(1) 2000 college graduate share
Number of Jinshi holders	0.00002*** (0.0009)
Constant	0.0103*** (0.0009)
Observations	283
R-squared	0.024
F	6.793
rss	476.9

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A10: IV (LIML) Results

VARIABLES	(1)	(2)	(3)
	Growth in the 2000-2010 college graduate share		
2000 college graduate share	1.173*** (0.157)	0.977*** (0.144)	0.993*** (0.149)
Population density	-7.04e-06*** (1.63e-06)	-9.51e-06* (5.32e-06)	-9.56e-06* (5.41e-06)
Average wage	1.26e-06*** (2.94e-07)	1.40e-06*** (3.74e-07)	1.38e-06*** (3.78e-07)
Nonagricultural population	-6.52e-07 (1.25e-05)	1.11e-05 (1.51e-05)	1.04e-05 (1.49e-05)
# of total employed	-1.72e-05 (1.22e-05)	-1.44e-05 (1.50e-05)	-1.46e-05 (1.52e-05)
Manufacturing employment share	0.0057 (0.0062)	0.0077 (0.0079)	0.0079 (0.0080)
Longitude	0.0002** (8.97e-05)	0.0002** (0.0001)	0.0003** (0.000123)
Average PM2.5 concentration	5.62e-05*** (2.12e-05)	8.19e-05* (4.65e-05)	8.15e-05* (4.68e-05)
Medical doctors per capita	-0.0734 (0.281)	0.0149 (0.185)	0.0126 (0.185)
Hospital beds per capita	0 (0)	0.353 (0.292)	0.336 (0.293)
Middle school teachers per capita	0.221 (0.161)	0.0249 (0.300)	0.0449 (0.300)
Primary school teachers per capita	-0.0040 (0.116)	-0.0381 (0.121)	-0.0349 (0.121)
Constant	-0.0279** (0.0119)	-0.0341** (0.0171)	-0.0350** (0.0172)
Observations	259	137	137
R-squared	0.846	0.883	0.883
rss	110.3	61.00	60.99
Over-identification test			
Hansen J statistics			1.729
Chi-sq P-value			0.1885

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 1: IV = Number of Jinshi holders

* Column 2: IV = Share of the college graduate in the 1982 Census

* Column 3: IV = Number of Jinshi holders, Share of the college graduate in the 1982 Census

Table A11. IV Results with Province-Fixed Effect: The 2000-2010 College Graduate Share Growth

VARIABLES	(1)	(2)	(3)
	Growth in the 2000-2010 college graduate share		
2000 college graduate share	0.971*** (0.175)	1.208*** (0.0828)	1.140*** (0.0951)
Population density	-8.65e-07 (2.63e-06)	-1.15e-05 (7.67e-06)	-2.43e-06 (2.31e-06)
Average wage	1.10e-06** (5.16e-07)	7.70e-07** (3.47e-07)	7.93e-07** (3.95e-07)
Nonagricultural population	1.87e-05 (1.65e-05)	1.42e-05 (1.22e-05)	6.76e-06 (1.26e-05)
# of total employed	-7.36e-06 (1.11e-05)	-3.19e-05*** (1.12e-05)	-1.38e-05 (9.55e-06)
Manufacturing employment share	-0.00650 (0.00708)	0.0149 (0.0103)	-0.00371 (0.00668)
Longitude	-2.95e-05 (0.000308)	4.85e-05 (0.000221)	1.90e-05 (0.000317)
Average PM2.5 concentration	-5.55e-05 (3.69e-05)	-1.53e-05 (4.24e-05)	-4.32e-05 (3.72e-05)
Medical doctors per capita	-0.0316 (0.245)	0.0112 (0.149)	-0.0605 (0.221)
Hospital beds per capita	0.200 (0.306)	0.0520 (0.161)	0.0766 (0.270)
Middle school teachers per capita	0.110 (0.419)	0.0854 (0.171)	0.215 (0.401)
Primary school teachers per capita	-0.139 (0.186)	0.0388 (0.101)	-0.0852 (0.171)
Province fixed effect	Included	Included	Included
Observations	137	259	137
R-squared	0.911	0.836	0.911
F	76.13	271.0	112.9
rss	32.65	84.99	32.63
First stage result			
Share of college graduates in the 1982 Census	1.666*** (0.3513)		1.189*** (0.2697)
Number of faculties		0.0306*** (0.0086)	0.0036*** (0.008)
Number of universities		0.00524 (0.0004)	-0.0005 (0.0003)
Lewbel (2012)'s IV	Not included	Not included	Not included
Controls	Included	Included	Included
First-stage F stat for weak instruments	22.49	90.42	58.21
Over-identification test			
Hansen J statistics	-	0.12	3.578
Chi-sq P-value	-	0.7294	0.1671

Robust standard errors in parentheses, clustered for provinces in China

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

* Beijing, Shanghai, and Chongqing are considered as a separated province.

* Column 1: IV = Share of the college graduate in the 1982 Census

* Column 2: IV = Number of universities, Number of faculties (10000)

* Column 3: IV = Share of the college graduate in the 1982 Census, Number of universities, Number of faculties (10000)

* Column 4: IV = Share of the college graduate in the 1982 Census, Number of universities, Number of faculties, Lewbel (2012)'s IVs.

Table A12. Cities with no Universities: The 2000-2010 College Graduate Share Growth

VARIABLES	(1) OLS Growth in the 2000-2010 college graduate share	(2) IV
2000 college graduate share	1.526*** (0.366)	1.466*** (0.330)
Population density	1.86e-05*** (5.56e-06)	1.87e-05*** (4.07e-06)
Average wage	2.12e-06** (9.29e-07)	2.23e-06*** (8.09e-07)
Nonagricultural population	-0.0004*** (0.0001)	-0.0004*** (7.56e-05)
# of total employed	0.0001*** (3.50e-05)	0.0001*** (2.92e-05)
Manufacturing employment share	-0.0566** (0.0211)	-0.0550*** (0.0168)
Longitude	0.0006*** (0.0002)	0.0006*** (0.0002)
Average PM2.5 concentration	-0.0002*** (5.95e-05)	-0.0002*** (4.55e-05)
Medical doctors per capita	-1.875* (0.959)	-1.894** (0.743)
Hospital beds per capita	2.491** (0.913)	2.505*** (0.696)
Middle school teachers per capita	0.441 (0.295)	0.438* (0.226)
Primary school teachers per capita	-0.540 (0.312)	-0.541** (0.240)
Constant	-0.0565* (0.0283)	-0.0574** (0.0224)
Observations	32	32
R-squared	0.925	0.925
F	54.56	61.26
rss	5.986	5.993
First stage result		
Lewbel (2012)'s IVs		Included
Controls		Included
First-stage F stat for weak instruments		247.21

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 2: IV= Lewbel (2012)'s IVs. This is because only five cities were “prefecture-level cities” in 1982

Table A13. IV Results: The 2000-2010 College Graduate Share Growth with Industry Share

VARIABLES	(1) Growth in the 2000-2010 college graduate share	(2)
2000 college graduate share	1.323*** (0.274)	1.304*** (0.203)
Population density	0.000002 (0.000003)	0.000002 (0.000003)
Average wage	0.0000013*** (3.70e-07)	0.0000013*** (3.67e-07)
Nonagricultural population	-0.0000056 (0.0000095)	-0.0000052 (0.000009)
# of total employed	0.0000084 (0.000014)	0.0000077 (0.000013)
Manufacturing employment share	-0.0119 (0.0086)	-0.0116 (0.0085)
Longitude	0.00011 (0.0001)	0.0001 (0.0001)
Average PM2.5 concentration	-0.00000424 (0.0000417)	-0.00000267 (0.0000393)
Medical doctors per capita	-0.1076 (0.2120)	-0.1044 (0.2112)
Hospital beds per capita	0.2812 (0.2603)	0.2925 (0.2275)
Middle school teachers per capita	0.1714 (0.2889)	0.1611 (0.2654)
Primary school teachers per capita	-0.1164 (0.1351)	-0.1177 (0.1331)
Each industry share	Included	Included
Observations	137	137
R-squared	0.926	0.927
F	62.92	62.78
First stage result		
Share of college graduates in 1982	0.5135*** (0.1932)	-0.0442 (0.1573)
Census		
Number of faculties in city	0.0183*** (0.0038)	0.013*** (0.0048)
Number of universities in city	-0.0002 (0.00015)	-0.00015 (0.00015)
Lewbel (2012)'s IV	Not included	Included
Controls	Included	Included
First-stage F stat for weak instruments	16.289	19.135
Over-identification test		
Hansen J statistics	4.832	40.505
Chi-sq P-value	0.0893	0.0596

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* Column 1: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000) in cities

* Column 2: IV = Share of the college graduate in the 1982 Census, number of universities, number of full-time faculties (10000), Lewbel (2012)'s IVs

* Industry category is based on Appendix Table 14

Table A14. Industry and Occupation Classification in 2000 China Census

Industry Name (Chinese)	Industry Name (English)
农林牧渔业	agriculture, forestry, animal husbandry and fishery
采掘业	mining
制造业	manufacturing
电力、煤气及水的生产和供应业	production and supply of electricity, heat, gas, and water
建筑业	Construction
地质勘查业、水利管理业	geological prospecting and
交通运输、仓储及邮电通信业	transportation, warehousing, and postal services
批发和零售贸易、餐饮业	wholesale, retail trades and catering services
金融保险业	finance and insurance
房地产业	real estate
社会服务业	social service
卫生、体育和社会福利业	health, sports, and social welfare
教育、文化艺术及广播电视业	education, cultural, art, film, and television
科学研究和综合技术服务业	scientific research and integrated technological services
国家机关、政党机关和社会团体	state organs, political parties, and public organization
信息传输、计算机服务和软件业	information transmission, software, and information technology
Occupation Name (Chinese)	Occupation Name (English)
国家机关、党群组织、企业、事业单位负责人	leaders and managers
专业技术人员	technology professionals
办事人员和有关人员	handle affairs personnel and related personnel
商业、服务业人员	service personnel in the business and service industries
农林牧渔水利业生产人员	production personnel in agriculture, forestry, animal husbandry and fishery, and water management industries
生产、运输设备操作人员及有关人员	production personnel, transportation vehicle operators and related personnel
不便分类的其他从业人员	other personnel that are not included above

Table A15: OLS results: Adding Industry Mix Variables as the Explanatory Variables

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Growth in the 2000-2010 college graduate share					
2000 college graduate share	0.972*** (0.0898)	0.966*** (0.0848)			0.966*** (0.0829)	
Expected 2000 college grad share		0.00100 (0.00173)		0.0137*** (0.00243)	0.00125 (0.0111)	0.0472*** (0.0160)
Expected 2000-2010 growth in college grad share	0.000594 (0.000985)		0.00797*** (0.00171)		-0.000156 (0.00648)	-0.0221** (0.0102)
Population density	-6.84e-06 (4.37e-06)	-6.84e-06 (4.35e-06)	-6.41e-06* (3.27e-06)	-6.53e-06* (3.37e-06)	-6.84e-06 (4.34e-06)	-6.62e-06** (3.05e-06)
Average wage	1.44e-06*** (2.96e-07)	1.42e-06*** (3.02e-07)	2.18e-06*** (4.06e-07)	1.93e-06*** (3.85e-07)	1.42e-06*** (3.65e-07)	1.39e-06*** (3.84e-07)
Nonagricultural population	1.03e-05 (1.14e-05)	1.02e-05 (1.14e-05)	5.84e-05** (2.46e-05)	5.22e-05** (2.31e-05)	1.01e-05 (1.19e-05)	4.00e-05* (2.22e-05)
# of total employed	-1.74e-05 (1.21e-05)	-1.72e-05 (1.21e-05)	-1.70e-05 (2.44e-05)	-1.47e-05 (2.23e-05)	-1.72e-05 (1.21e-05)	-1.00e-05 (2.05e-05)
Manufacturing employment share	0.00511 (0.00533)	0.00497 (0.00555)	-0.00232 (0.0109)	-0.00451 (0.0107)	0.00494 (0.00611)	-0.00696 (0.0106)
Longitude	0.000143 (0.000107)	0.000142 (0.000108)	-0.000159 (0.000130)	-0.000139 (0.000123)	0.000142 (0.000107)	-9.30e-05 (0.000105)
Average PM2.5 concentration	5.92e-05** (2.62e-05)	5.95e-05** (2.52e-05)	0.000121*** (4.26e-05)	0.000128*** (3.83e-05)	5.95e-05** (2.53e-05)	0.000117*** (3.36e-05)
Medical doctors per capita	-0.0304 (0.158)	-0.0286 (0.158)	0.165 (0.287)	0.173 (0.297)	-0.0283 (0.161)	0.199 (0.294)
Hospital beds per capita	0.169 (0.171)	0.171 (0.171)	0.689*** (0.213)	0.647*** (0.215)	0.171 (0.170)	0.647*** (0.229)
Middle school teachers per capita	0.118 (0.163)	0.116 (0.163)	-0.182 (0.276)	-0.168 (0.275)	0.116 (0.160)	-0.213 (0.271)
Primary school teachers per capita	-0.0532 (0.0835)	-0.0523 (0.0827)	-0.122 (0.167)	-0.0777 (0.155)	-0.0523 (0.0827)	-0.0706 (0.132)
Constant	-0.0220* (0.0124)	-0.0219* (0.0122)	-0.00651 (0.0167)	-0.00923 (0.0152)	-0.0219* (0.0125)	-0.00768 (0.0135)
Observations	259	259	259	259	259	259
R-squared	0.852	0.852	0.691	0.710	0.852	0.730
F	293.5	281.1	64.04	71.02	291.7	79.34
RSS	0.0106	0.0106	0.0221	0.0208	0.0106	0.0194

Robust standard errors in parentheses clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

Table A16: IV results: Adding Industry Mix Variables as the Explanatory Variables

VARIABLES	(1)	(2)	(3)
	Growth in the 2000-2010 college graduate share		
2000 college graduate share	1.138*** (0.117)	1.135*** (0.125)	1.089*** (0.141)
Expected 2000-2010 growth in college grad share	-0.127 (0.178)		-0.982 (1.105)
Expected 2000 college grad share		-0.160 (0.268)	1.343 (1.666)
Population density	-0.000969* (0.000546)	-0.000978* (0.000561)	-0.000931* (0.000515)
Average wage	0.000127*** (3.46e-05)	0.000129*** (3.60e-05)	0.000109*** (3.92e-05)
Nonagricultural population	0.000472 (0.00118)	0.000528 (0.00122)	0.000242 (0.00106)
# of total employed	-0.00154 (0.00165)	-0.00157 (0.00168)	-0.00137 (0.00158)
Manufacturing employment share	0.961 (0.936)	0.967 (0.949)	0.817 (0.951)
Longitude	0.0287** (0.0128)	0.0288** (0.0129)	0.0289** (0.0123)
Average PM2.5 concentration	0.00649* (0.00375)	0.00677* (0.00380)	0.00640* (0.00356)
Medical doctors per capita	-4.346 (20.49)	-3.718 (20.27)	-2.634 (19.42)
Hospital beds per capita	24.33 (27.83)	23.25 (27.65)	29.58 (29.18)
Middle school teachers per capita	20.15 (25.53)	20.38 (25.73)	13.86 (25.87)
Primary school teachers per capita	-7.474 (12.93)	-6.343 (12.35)	-6.659 (12.01)
Constant	-3.613** (1.708)	-3.722** (1.666)	-3.462* (1.781)
Observations	137	137	137
R-squared	0.879	0.878	0.883
F	94.98	96.10	87.22
rss	63.17	63.30	61.13
First stage result			
Share of college graduates in the 1982 Census	0.7332*** (0.2258)	0.6566*** (0.228)	0.6078*** (0.2157)
Number of faculties in city	2.7851*** (0.556)	2.6983*** (0.5537)	2.3817*** (0.4784)
Number of universities in city	-0.0045 (0.025)	0.0053 (0.0247)	-0.0016 (0.0218)
Controls	Included	Included	Included
First-stage F stat for weak instruments	53.14	48.72	39.28
Over-identification test			
Hansen J statistics	1.252	1.286	1.33
Chi-sq P-value	0.5347	0.5257	0.5142

Robust standard errors in parentheses, clustered for provinces in China

*** p<0.01, ** p<0.05, * p<0.1

* IV = Share of the college graduate in the 1982 Census, Number of universities, Number of faculties (10000) in cities

Table A17. OLS Result: The 2000-2010 College Graduate Share Growth

VARIABLES	(1) Growth in the 2000-2010 college graduate share
Medical doctors per capita	0.0039 (0.0029)
Hospital beds per capita	-0.0077* (0.0042)
Middle school teachers per capita	-0.0007 (0.0013)
Primary school teachers per capita	-0.0003 (0.0003)
Constant	0.0235*** (0.0012)
Observations	266
R-squared	0.022
F	1.448
Rss	708.4

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Table A18: IV Results: Growth Rate of Each Amenity Measure

VARIABLES	(1) Growth rate in the number of medical doctor per capita (2000 to 2010)	(2) Growth rate in the number of hospital bed per capita (2000 to 2010)	(3) Growth rate in the number of middle school teacher per capita (2000 to 2010)	(4) Growth rate in the number of primary school teacher per capita (2000 to 2010)
Initial Share of college graduates	1.970 (2.075)	2.041 (1.466)	-2.276 (1.401)	-0.884 (1.469)
Population density	2.50e-05 (0.000)	-3.06e-05 (4.25e-05)	0.000 (0.000)	0.000 (0.000)
Average wage	1.89e-05 (1.24e-05)	-2.58e-06 (8.32e-06)	-2.36e-06 (8.20e-06)	3.90e-08 (8.05e-06)
Non-agricultural population	-0.001** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	-0.001** (0.000)
Employment	0.000 (0.000)	0.000 (0.000)	0.001* (0.000)	0.000 (0.000)
Employment share of manufacturing	-0.859** (0.372)	-0.872*** (0.228)	-0.489* (0.274)	-0.455 (0.324)
Longitude	-0.001 (0.004)	-0.011*** (0.004)	-0.011*** (0.004)	-0.010** (0.004)
Average PM2.5 concentration	-0.002 (0.002)	-0.001 (0.001)	-0.002 (0.001)	-0.002* (0.001)
Medical doctors per capita	-75.110*** (18.30)	23.400 (17.40)	10.660 (8.015)	17.700** (8.175)
Hospital beds per capita	16.130 (25.28)	-47.360*** (13.86)	-6.236 (12.04)	-6.994 (12.31)
Middle school teachers per capita	35.150** (16.18)	14.160 (9.054)	-36.490*** (8.107)	-4.885 (7.874)
Primary school teachers per capita	-15.23** (6.487)	-4.293 (3.583)	9.759** (4.383)	-6.257 (3.916)
Constant	0.321 (0.582)	1.873*** (0.507)	1.747*** (0.566)	1.190* (0.681)
Observations	137	137	137	137
R-squared	0.243	0.277	0.389	0.294
F	6.628	3.887	7.224	5.536
First stage result				
Share of college graduates in the 1982 Census	1.028*** (0.2085)	1.028*** (0.2085)	1.028*** (0.2085)	1.028*** (0.2085)
Number of faculties in city	0.0288*** (0.0051)	0.0288*** (0.0051)	0.0288*** (0.0051)	0.0288*** (0.0051)
Number of universities in city	0.00002 (0.0002)	0.00002 (0.0002)	0.00002 (0.0002)	0.00002 (0.0002)
Controls	Included	Included	Included	Included
First-stage F stat for weak instruments	72.85	72.85	72.85	72.85
Over-identification test				
Hansen J statistics	2.386	2.574	1.138	2.477
Chi-sq P-value	0.3034	0.2761	0.5659	0.2899

Robust standard errors in parentheses, clustered for provinces in China

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

* IV = Share of the college graduate in the 1982 Census, Number of universities, Number of faculties (10000) in cities

Figure A1. Correlation between the College Graduate Share and the 2000-2010 Growth Rate in the Number of Medical Doctors

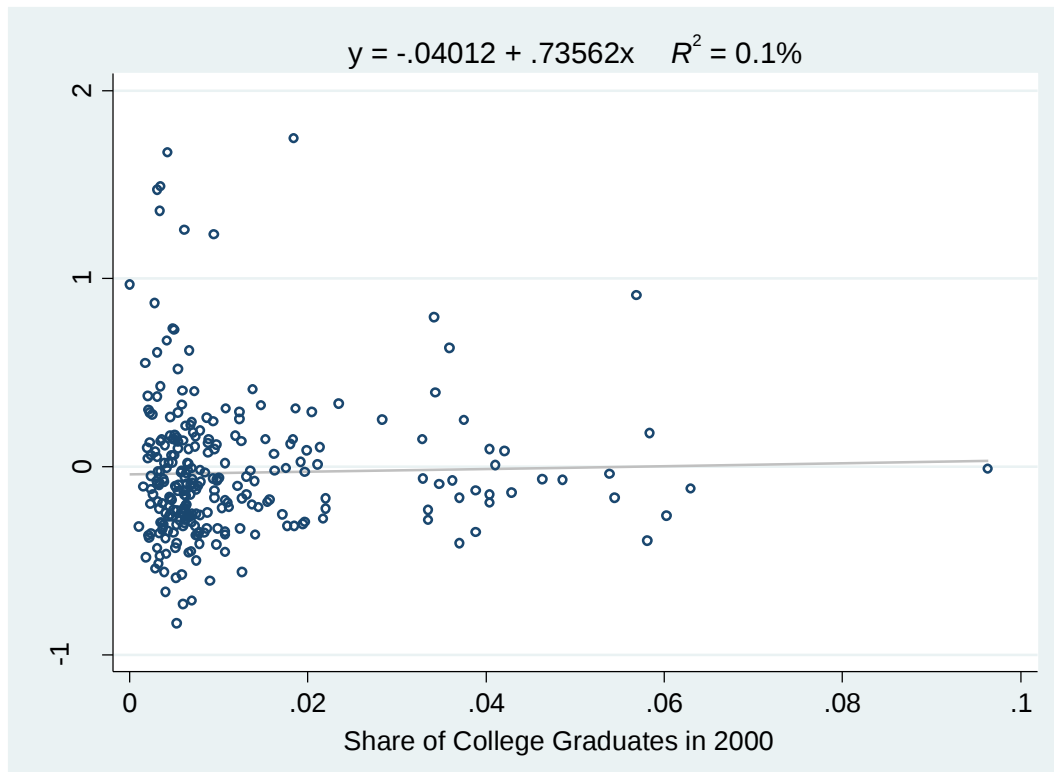


Figure A2. Correlation between the College Graduate Share and the 2000-2010 Growth Rate in the Number of Hospital Beds Per Capita

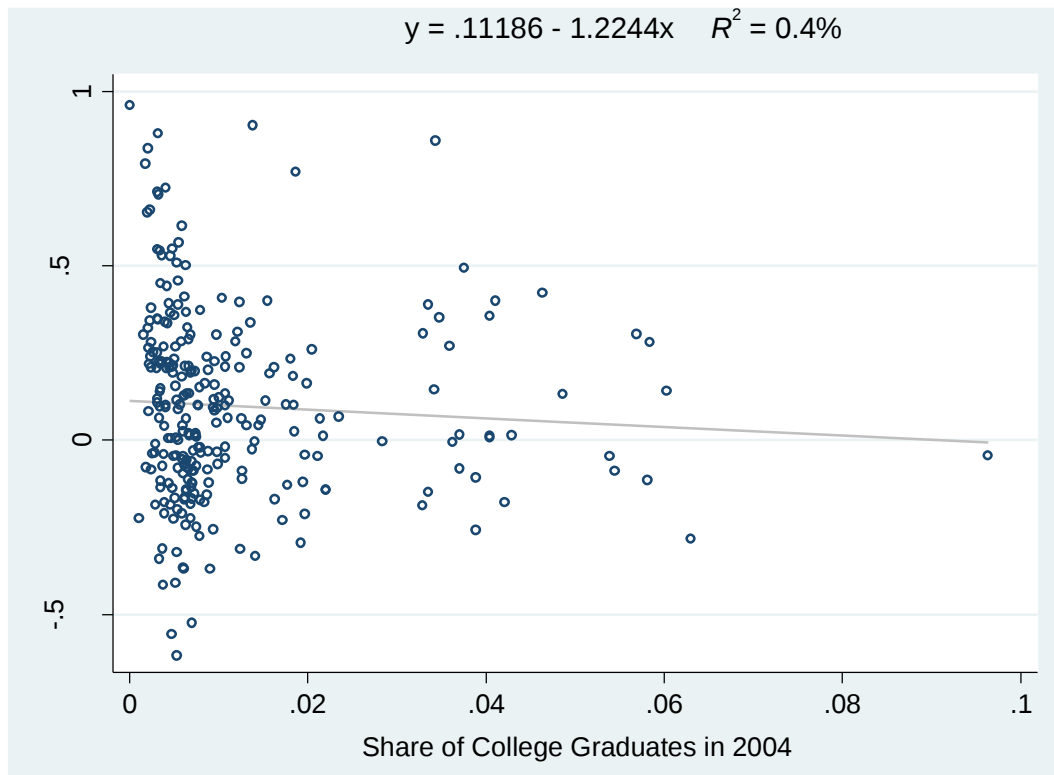


Figure A3. Correlation between the College Graduate Share and the 2000-2010 Growth Rate in the Number of Middle School Teachers Per Capita

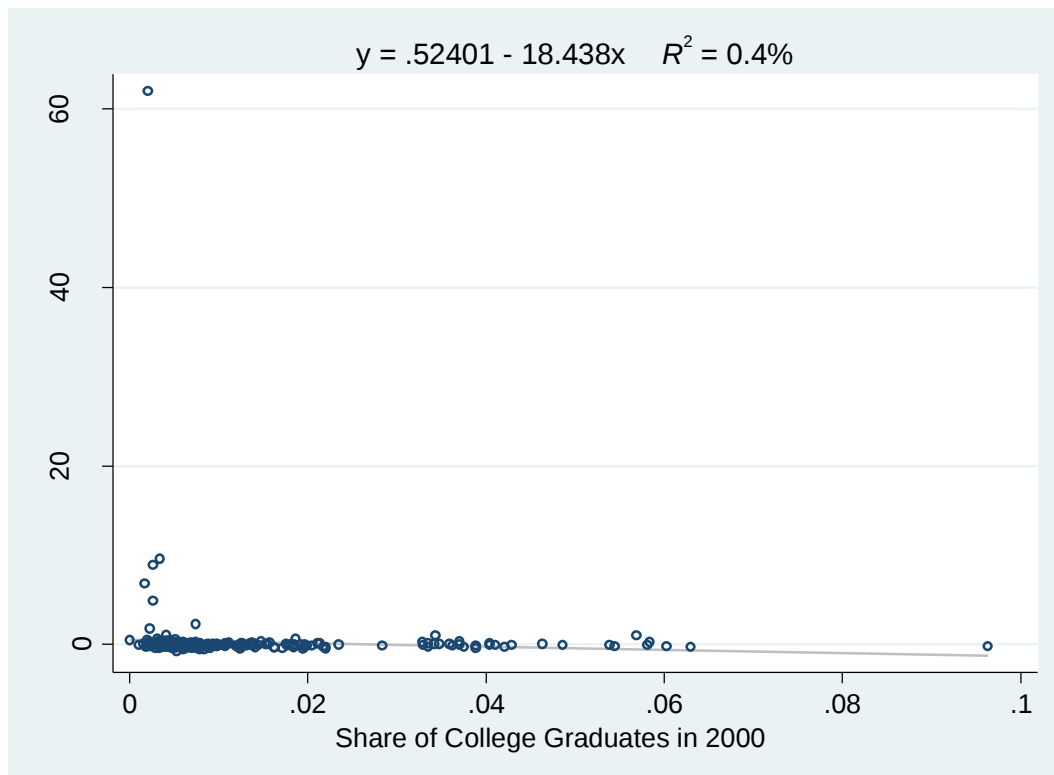


Figure A4. Correlation between the College Graduate Share and the 2000-2010 Growth Rate in the Number of Primary School Teachers Per Capita

