Trust by Region: Attitudes of China's Millennial Generation

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Abstract:

Social trust is an important component of a nation's future economic development (Arrow, 1972; Fukuyama, 1995; Knack and Keefer, 1997; Zak and Knack, 2001), as well as an indicator of the current social conditions. Individuals' local community of origin may play an important role in shaping trust attitudes. We report on differences in three trust indicators across China's provinces, based on a nationally representative survey of undergraduate students (CCSS) conducted in 2011. We find there are significant differences in trust levels based on students' home province origins. Generalized trust is positively correlated with average per capita income by province. Financial or property trust is notably concentrated along China's eastern coast and northern-most provinces, and is positively correlated with provincial income and income inequality. Willingness to interact with strangers is notably lowest in China's most developed regions, and is negatively correlated with provincial income and income inequality. The results point to the importance of regional conditions in developing the trust attitudes of young people.

Keywords: Trust, China, social capital, regional differences

JEL codes: D03, D62, J24

Social trust is an important and increasingly challenging issue in China. Official statistics compiled by the government indicate declining social trust levels, while popular social media frequently report on cases of behaviors that highlight the lack of trust among members of society.[2] Recent famous examples of such reports include corruption and misuse of funds at renowned domestic charitable organizations, the use of counterfeit money in purchasing from elderly street vendors, and the discontent between doctors and patients in the domestic health care system.[3] Over the past decade, news media and scholars have repeatedly pointed out the "trust crisis" within China.

If social trust is cultivated by certain economic and cultural features of society as hypothesized in much of the literature, it is reasonable to believe there may be persistent regional variation in China's trust levels based on differences in economic development, local cultural norms, population characteristics and other province-specific features such as local policies. In addition to the unique history and culture of each geographic region in China, provincial differences carry a further special importance in China due to the *hukou* system, which places restrictions and inconveniences on the population that inhibit full mobility of individuals and their family members between provinces.

In this paper, we report on trust levels from a nationally representative survey of Chinese university students in their final year of study. We explore the differences in trust attitudes across the provinces using three questions pertaining to trust which we included in the 2011 edition of the Chinese College Student Survey (CCSS).[4] The trust questions measure the standard generalized trust (World Values Survey, General Social Survey, etc.), trust in the respect for property or finances of others, and the willingness to interact with strangers. We find that provinces vary significantly in terms of their trust scores on each of these indicators among college educated youth. Coastal and northern provinces display the highest trust in the regard for personal property or finances by fellow members of society. These same provinces score relatively low on the willingness to interact with strangers, while the inland provinces score significantly higher on this measure. Generalized trust tends to be positively correlated with average income, but does not show a particular geographic pattern.

For obvious reasons, the trust attitudes of young people are especially important social indicators. First, the trust attitudes of young adults in a region might be interpreted as a best-case scenario for the trust levels of that region. Young adults have presumably on average, been exposed to fewer first-hand incidents which could destroy their trust in others, compared to older adults. Secondly, societies will eventually be in the hands of today's youth, hence their views are important indicators of future policies and social conditions. A similar argument holds for the subset of college educated youth, who are even more likely to hold future influential positions in society.

The CCSS is nationally representative at the college level, containing a sample of school rankings and categories across China. We focus on variation in trust attitudes by students' home provinces. Despite the likely influence of the college environment on students' trust attitudes over their years of study, we find significant variation in trust by students' home provinces, the environments in which they were raised. This highlights the importance of studying regional variation in social indicators such as trust, in order to better understand the overall state of social

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[2] For example, "China's social trust index declines in 2012": http://english.peopledaily.com.cn/90882/8090290.html ; Only 65% of people said they would definitely help an elderly person who had fallen, with "fear of getting into trouble (blamed)" as the primary reason for not helping: http://english.peopledaily.com.cn/90882/7621574.html

[3] See for example, the "Guo Meimei" incident: http://news.sina.com.cn/c/2011-06-23/081522691504.shtml; reporting on elderly being fooled by counterfeit money: http://news.sina.com.cn/o/2014-04-30/144030040860.shtml; incidents of violence at hospitals such as: http://edu.gmw.cn/2014-06/04/content_11504880.htm. These and other examples can be readily found on internet news websites and Chinese social media.

[4] The authors were directly involved in the design and implementation of the Chinese College Student Survey, 2011. Li, Lien and Peng (2014) analyzes the differences in these three trust measures at the individual student level, and their correlates with individual behavior and characteristics.

trust in China. It also provides supporting evidence that the environment where individuals are raised has a substantial impact on their psychological and behavioral tendencies as adults.

We also check the trend of each of the trust measures against standard development indicators. Average income is positively correlated with general trust, negatively correlated with willingness to engage with strangers, and positively related to financial or property trust. Adding to the literature on trust and economic inequality, in our data willingness to talk to strangers tends to be negatively related to inequality, while belief in financial or property trust tends to be positively related to inequality by province. We do not find much of a relationship between inequality and general trust, at least not at the province level in our data. In this sense, the contextual trust questions seem to perform better in identifying the macroeconomic variables associated with trusting behaviors.

Our study contributes to the study of regional trust attitudes in China, where the most closely related study to our knowledge is Ke and Zhang (2003), which studies the trust attitudes of Chinese business managers towards different regions of China. Among the business managers, the largest cities and most developed provinces tended to garner the most trust. The authors also connect the results on trust to a variety of macro-level variables such as education, market structure, population and infrastructure.

The remainder of this paper is organized as follows: Section 2 describes the measures of social trust and the Chinese College Student Survey; Section 3 reports summary statistics on the aggregate level and geographically, by province; Section 4 reports on correlation between trust measures and economic development indicators, by province; Section 5 concludes.

2. Chinese College Student Survey (CCSS) and Trust Measures

The Chinese College Student Survey (CCSS) is designed and implemented by the China Data Center at Tsinghua University. The first edition was implemented in Spring of 2010, and the second edition was implemented in Spring of 2011 and included an expanded set of questions. Our focus is on the 2011 data, since the trust-related questions were newly added to the survey in that edition. The CCSS targets undergraduate students in their fourth (final) year of study, and is thus cross-sectional data, appropriate for providing detailed and representative age cohort statistics for university students. The survey is designed and implemented with consultation from experts in several fields such as economics, education, and sociology.

The 2011 edition of CCSS included 61 colleges in 24 provinces, covering the full range of geographic areas in China. 10 of the colleges were Project 985 schools, 18 colleges were in Project 211, and 29 colleges (including 3 vocational schools, one private college and two independent schools) were not in either of the two elite categories.[5] The survey was implemented with the administrative approval and assistance of each participating university. In total, 8176 students completed the survey in 2011.

Prior research which has used an edition of the CCSS includes Li, Meng, Shi and Wu (2012a, 2012b, 2013), and Li, Lien and Peng (2014). Li, Meng, Shi and Wu (2012a) addresses the returns to attending an elite college in China, while Li, Meng, Shi and Wu (2012b) estimates the financial benefit of having a cadre parent on salary. Li, Meng, Shi and Wu (2013) examines poverty in Chinese college campuses. Li, Lien and Peng (2014) classifies students based on their relative responses to these three questions about trust, and explores the associated individual behaviors of the students in several domains.

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[5] The 211 Project was started in the 1990s by the Chinese government to enhance the quality of education in over 100 top historical universities. The 985 Project extended further financial support for an elite subset of these "211 schools", consisting of 39 colleges in total.

Our analysis focuses on three specific questions in the CCSS 2011, which were included in order to measure the social trust of the survey respondents:

The first question is widely used in other surveys (ex. General Social Survey (US), and the World Values Survey), and is known as the "generalized trust" question: "To what extent you agree with the saying that 'generally, people can be trusted'?" (1 "strongly disagree", 2 "disagree", 3 "agree", 4 "strongly agree") Although this question is widely used as a standard survey measure of trust, its relatively abstract interpretation has sometimes been questioned when compared to experimental measures (Glaeser, Laibson, Scheinkman and Soutter, 2000; Leland, Houser and Shachat, 2005).

In order to obtain more specific assessments of individuals' trusting behavior, we included two additional trust-related questions in the CCSS. These questions ask respondents about how they would react in specific daily life scenarios. In addition to being more specific than the general trust question, a potential benefit is that the word 'trust' is not explicitly mentioned in the question, so that the respondent does not need to think about the meaning of this concept.

The second question ("Stranger trust") asks about the respondent's willingness to talk to a stranger who is approaching them for an unspecified reason: "While walking on the street, how likely is it that you will talk to a stranger who is approaching you?" (1 "impossible", 2 "unlikely", 3 "possible", 4 "totally possible") Individuals' willingness to talk to random members of society is an attractive form of social capital for several reasons. First, it implies that individuals are comfortable with and not overly cautious towards people they do not personally know. It also implies that a stranger who happens to need help on a minor issue, is more likely to be able to get help successfully from a passer-by without having to call on someone he or she knows.

Finally, a third question ("Wallet trust") asks about the respondent's belief regarding the question, "Assume one of your neighbors discovered his/her wallet was missing after a shopping trip. With his/her address in the wallet, under what circumstance do you think the wallet would be returned?" (1 "No matter how much money inside, the wallet will not be returned", 2 "Whether it will be returned or not is related to the amount of money inside", 3 "No matter how much money inside, it will be returned") This question is aimed at assessing the respondent's belief in society members' respect and moral obligation towards private property when valuables are involved. The possible answers to the question are framed in terms of the possible dependence of the wallet being returned on the amount of money inside, which serves as an ethical temptation for society members who may find the lost wallet. The question is similar to the 'envelope game' implemented by Glaeser et al (2000), in which subjects are asked to value an envelope with money inside which has their name written on it.[6]

3. Summary Statistics and Geographic Trends

Table 1 summarizes the average reported trust level for each trust question. Figure 1 shows the distribution of responses in the survey for each question. The modal response in the generalized trust question was "disagree", or towards untrusting beliefs. The modal response in the stranger question was "possible", or towards trusting behavior. Respondents were more evenly distributed in the wallet question, with more people responding that the lost wallet would either unconditionally not be returned (1) or unconditionally returned (3), compared to the response which conditions on the amount of money enclosed.

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[6] We also asked a follow-up question for respondents who chose 2 (Whether it will be returned or not is related to the amount of money inside), asking the amount of money they believe would have to be in the wallet for it to be successfully returned. Since this follow-up question was open-ended, there was a wide variety of responses, and we analyze only the initial wallet question here.

Table 1: Summary Statistics of Trust Levels

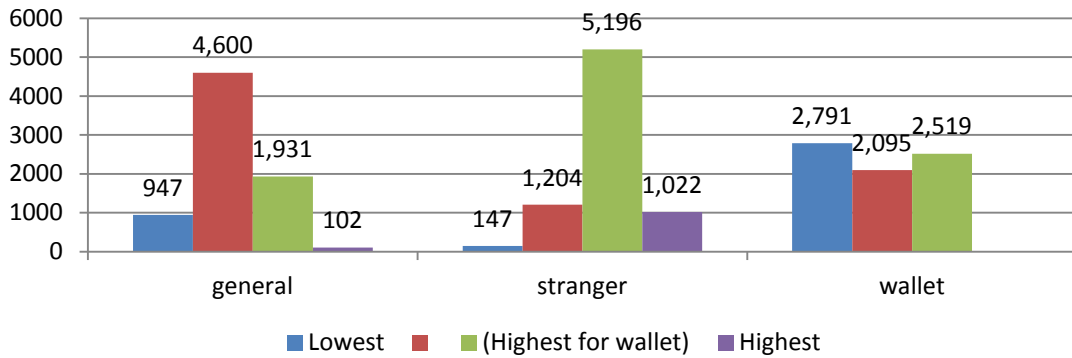| Variable	Obs.	Mean	Std. Dev.	Min.	Max.
General trust	7580	2.156728	0.639531	1	4
Stranger trust	7569	2.937112	0.606526	1	4
Wallet trust	7405	1.963268	0.846068	1	3

Figure 1: Distribution of Trust Measurements

Figure 2 shows the relative average scores for each of the three trust measures by province, in a three dimensional plot. Large cities which are administered as provinces, such as Shanghai, Guangdong and Beijing, score relatively high on the belief that a missing wallet will be returned, while scoring relatively low on the willingness to speak to an approaching stranger. Guizhou scores high on both general trust and willingness to talk to a stranger, while scoring low on the missing wallet question. Heilongjiang on the other hand scores low on both general trust and willingness to talk to a stranger, while scoring quite high on the missing wallet scenario. The remainder of the provinces' relative trust levels can be seen more easily in our subsequent trust maps.

Figure 2: Trust Measures, by Province
According to Students' Home Province
(Provinces/cities with less than 100 observations excluded: Tibet, Tianjin, Hainan, Qinghai, Ningxia)
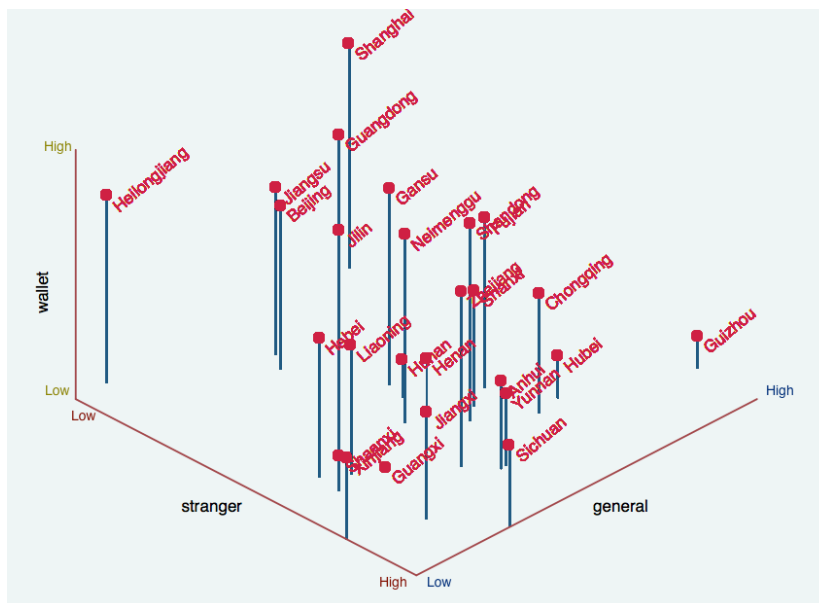
We now consider each of the trust questions in turn, ranking the provinces in terms of average trust level reported among the students in the CCSS based on students' home provinces. The provinces are then organized into groups of six according to the average trust level of respondents

from that province, and the groups are color coded in a map of China. Light color indicates low average trust levels, and darker colors represent higher average trust levels.

Several points deserve mention in interpreting the maps of trust. First, the maps show only the relative average levels of trust, but do not show the statistical significance of the differences. Tables 2 through 4 provide detailed results on statistical significance of the differences across provinces and will be discussed later. Second, the trust levels can be interpreted as being representative of the attitudes of average college students from that particular province, but not necessarily the province as a whole. Thirdly, certain provinces contain few observations and should be interpreted with caution; these areas are highlighted in yellow and listed in the Figures below. Finally, the usual cautions when interpreting survey data apply.[7]

Figure 3 shows the trust map for the generalized trust question. Ranking the provinces by their average trust levels from low to high, the ranking can be seen via the color coding in the legend. Excluding those provinces with small sample sizes, the bottom six provinces in terms of answers to the generalized trust question were: Xinjiang, Heilongjiang, Shaanxi, Hebei, Jilin and Jiangxi. The top six provinces were: Guizhou, Shanghai, Hubei, Chongqing, Fujian and Shanxi. As Figure 3 shows, generalized trust does not appear to follow a clear geographic pattern in the data.

Figure 3: Trust Map, General Trust
Average standardized trust level according to student's home province
(Highlighted provinces/cities are with less than 100 observations: Tibet, Tianjin, Hainan, Qinghai, Ningxia)

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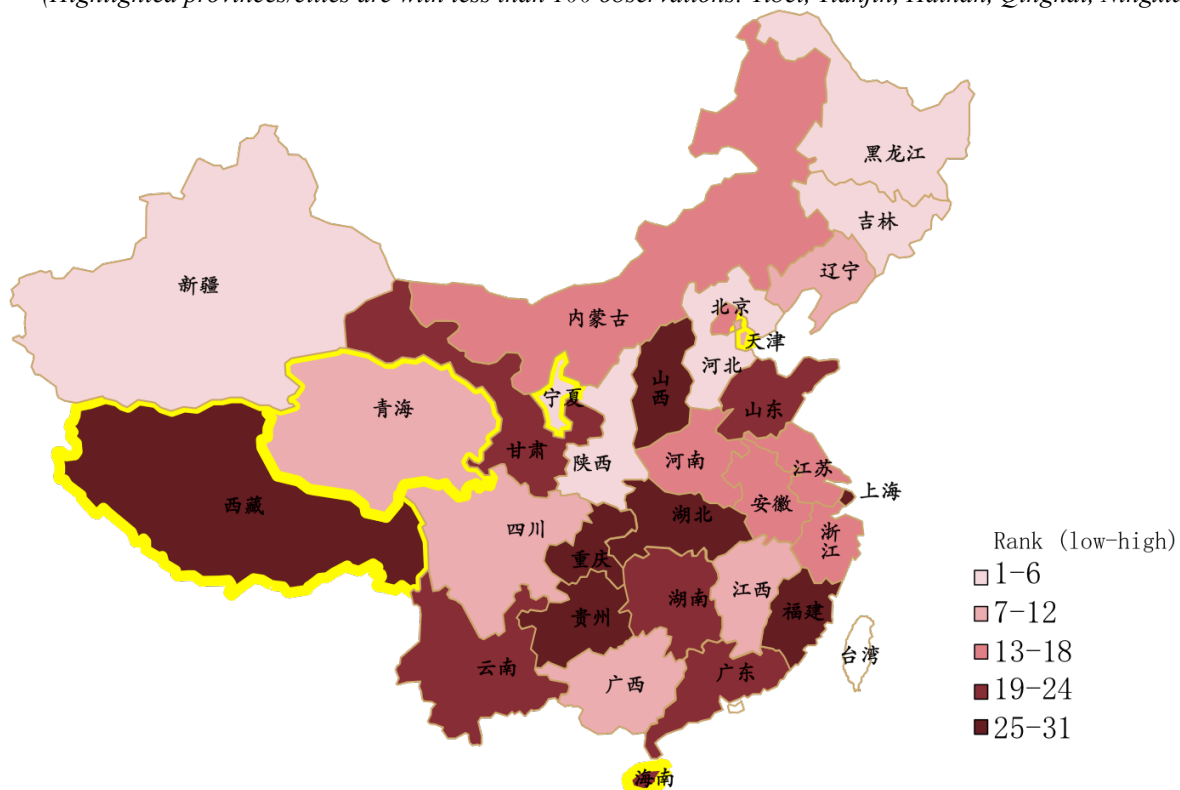
[7] For example, we cannot be sure whether respondents answer according to their true beliefs or how they believe they are 'supposed' to answer. This is a common ambiguity in survey-based data, and persists in our study. Differences in responses to the trust questions across provinces may be more generally construed as being representative of a current social norm.

Figure 4: Trust Map, Stranger Trust

Average standardized trust level according to student's home province
(Highlighted provinces/cities are with less than 100 observations: Tibet, Tianjin, Hainan, Qinghai, Ningxia)

Rank (low-high)
- 1-6
- 7-12
- 13-18
- 19-24
- 25-31

Figure 5: Trust Map, Wallet Trust

Average standardized trust level according to student's home province
(Highlighted provinces/cities are with less than 100 observations: Tibet, Tianjin, Hainan, Qinghai, Ningxia)
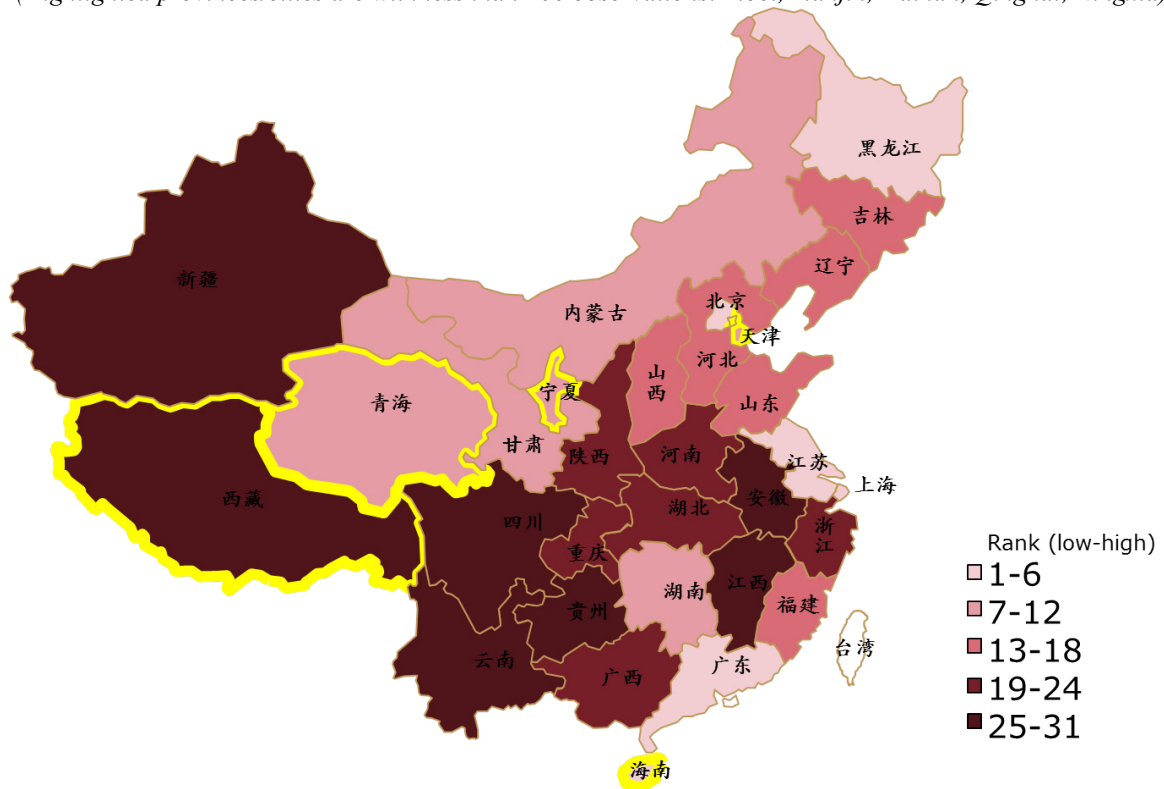

Rank (low-high)
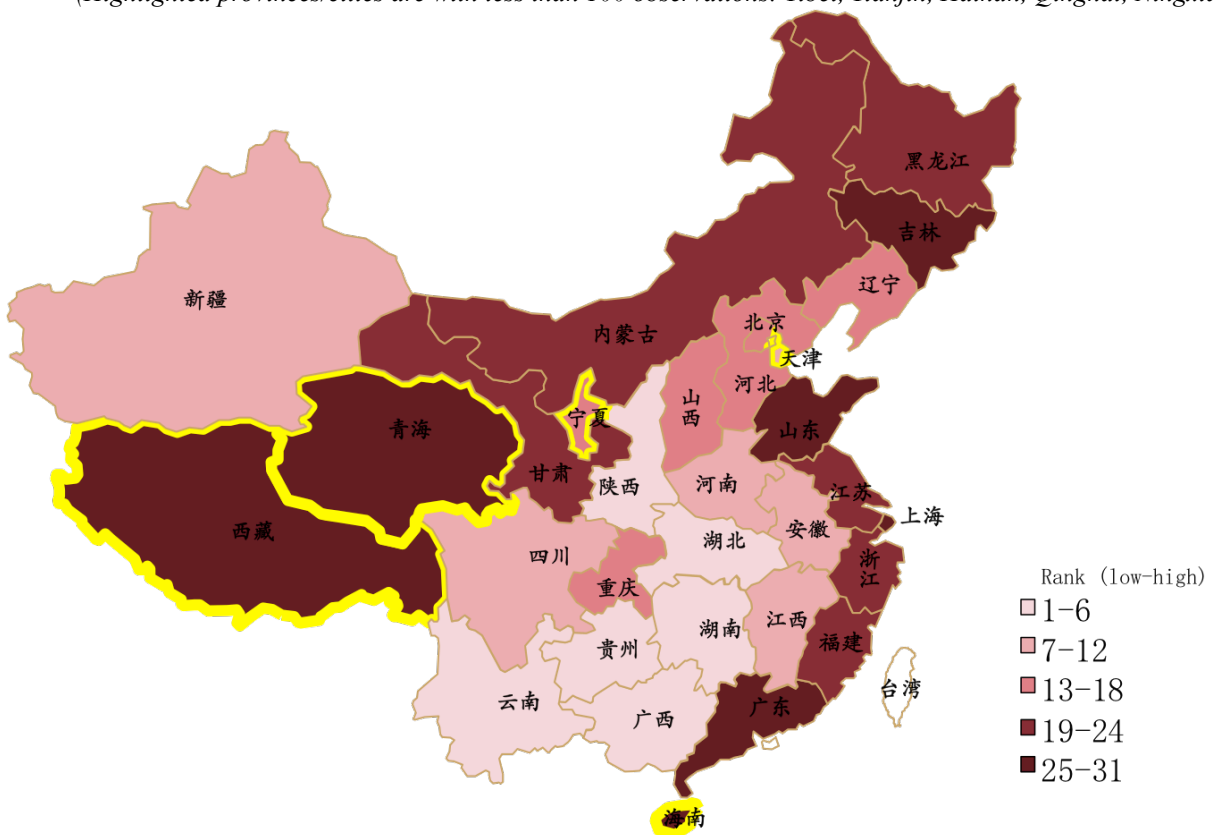- 1-6
- 7-12
- 13-18
- 19-24
- 25-31

Figure 4 shows the trust map for the Stranger trust question, with the provinces again grouped from low to high by average answer. The top ranking provinces in terms of stranger trust are: Sichuan, Jiangxi, Guizhou, Anhui, Yunnan and Xinjiang. The bottom ranking provinces by this measure are: Heilongjiang, Shanghai, Jiangsu, Beijing, Guangdong, and Gansu. Regions with high stranger trust are mostly concentrated in the inland regions, and some of China's most developed areas (Shanghai, Beijing, Guangdong, Jiangsu) are among the lowest ranking in terms of willingness to interact with strangers. Besides Zhejiang province, none of the coastal provinces score highly in terms of willingness to interact with a stranger.

Figure 5 shows the analogous trust map for the Wallet question, which measures respondents' belief in their fellow society members' regard for property of others. Here, the pattern is strikingly clear; the highest ranking provinces are on the east coast and northern border of China. The highest ranking provinces are Jilin, Guangdong, Shanghai, Shandong, Gansu and Inner Mongolia. The provinces scoring the lowest are, Guangxi, Guizhou, Shaanxi, Hunan, Hubei and Yunnan. Several studies have pointed out the growing income disparity between China's inland and coastal regions since the 1990s, in part due to government policy and infrastructure investment, as well as geographic access to trade (see for example, Fu, 2004). Kanbur and Zhang (1999) noted that the inequality between China's inland and coastal regions was likely to outpace the traditional inequality between urban and rural areas. Thus an income gap story may reasonably explain our geographic results on the Wallet question.

So far we have not yet discussed the statistical significance and magnitudes of the differences between provincial trust levels. Tables 2 through 4 address this issue. Each table shows pair-wise differences between average reported trust level by province, noting with * where differences are statistically significant via t-tests. Provinces with particularly few (less than 100) observations are omitted from the analysis. Each column shows the differences between that ranked province and the provinces ranked worse than it on a particular trust measure. The tables show that the magnitude of the difference between the highest and lowest ranked province is about 0.25 response points. While adjacently ranked provinces are not typically statistically different from one another, highly ranked provinces are most often robustly different than low ranked provinces.

Provinces by rank on general trust: *1: Guizhou, 2. Shanghai, 3. Hubei, 4. Chonqing, 5. Fujian, 6. Shanxi, 7. Shandong, 8.Gansu, 9. Hunan, 10. Guangdong, 11. Yunnan, 12. Anhui, 13. Jiangsu, 14. Inner Mongolia, 15. Beijing, 16. Henan, 17. Zhejiang, 18. Sichuan, 19. Guangxi, 20. Liaoning, 21. Jiangxi, 22. Jilin, 23. Hebei, 24. Shaanxi, 25. Heilongjiang, 26. Xinjiang;* <u>*Table cells contain differences in average response between ranked provinces;*</u> **significant at 10% level, **significant at 5% level, ***significant at 1% level*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	0																								
2	0.056	0																							
3	0.072	0.016	0																						
4	0.088	0.032	0.017	0																					
5	0.091	0.035	0.019	0.002	0																				
6	0.107	0.052	0.036	0.019	0.017	0																			
7	0.119*	0.063	0.047	0.031	0.028	0.011	0																		
8	0.123*	0.067	0.051	0.035	0.033	0.016	0.004	0																	
9	0.127**	0.071	0.056	0.039	0.037	0.02	0.008	0.004	0																
10	0.133**	0.077	0.061	0.044	0.042	0.025	0.014	0.01	0.006	0															
11	0.138*	0.082	0.066	0.049	0.047	0.03	0.019	0.014	0.01	0.005	0														
12	0.142**	0.086	0.07	0.053	0.051	0.034	0.023	0.019	0.014	0.009	0.004	0													
13	0.143**	0.087	0.072	0.055	0.053	0.036	0.024	0.02	0.016	0.01	0.006	0.002	0												
14	0.144**	0.088	0.072	0.056	0.053	0.036	0.025	0.021	0.017	0.011	0.006	0.002	0.001	0											
15	0.151**	0.095*	0.08	0.063	0.061	0.044	0.032	0.028	0.024	0.019	0.014	0.01	0.008	0.007	0										
16	0.154***	0.098**	0.083*	0.066	0.064	0.047	0.035	0.031	0.027	0.021	0.017	0.013	0.011	0.01	0.003	0									
17	0.155**	0.099	0.083	0.066	0.064	0.047	0.036	0.032	0.027	0.022	0.017	0.013	0.011	0.011	0.003	0	0								
18	0.179***	0.123**	0.108*	0.091*	0.089	0.072	0.06	0.056	0.052	0.046	0.042	0.038	0.036	0.035	0.028	0.025	0.025	0							
19	0.183***	0.127*	0.111*	0.094	0.092	0.075	0.064	0.059	0.055	0.05	0.045	0.041	0.039	0.039	0.031	0.028	0.028	0.003	0						
20	0.199***	0.144**	0.128**	0.111**	0.109*	0.092	0.081	0.076	0.072	0.067	0.062	0.058	0.056	0.056	0.048	0.045	0.045	0.02	0.017	0					
21	0.204***	0.148***	0.132**	0.116**	0.113**	0.096	0.085*	0.081	0.077	0.071	0.066	0.062	0.061	0.06	0.053	0.05	0.049	0.025	0.021	0.004	0				
22	0.208***	0.152***	0.136**	0.119**	0.117**	0.1	0.089*	0.084	0.08	0.075	0.07	0.066	0.064	0.064	0.056	0.053	0.053	0.028	0.025	0.008	0.004	0			
23	0.213***	0.157***	0.142***	0.125**	0.123**	0.106*	0.094**	0.09	0.086*	0.080*	0.076	0.072	0.07	0.069	0.062	0.059	0.059	0.034	0.031	0.014	0.009	0.006	0		
24	0.216***	0.160***	0.144***	0.127***	0.125***	0.108*	0.097**	0.093	0.089**	0.083**	0.078	0.074	0.073	0.072	0.064	0.062*	0.061	0.037	0.033	0.016	0.012	0.008	0.003	0	
25	0.224***	0.168***	0.153***	0.136***	0.134**	0.117*	0.105**	0.101	0.097*	0.091*	0.087	0.083	0.081	0.08	0.073	0.070*	0.07	0.045	0.042	0.025	0.02	0.017	0.011	0.008	0
26	0.247***	0.191***	0.175***	0.158***	0.156***	0.139**	0.128**	0.124*	0.120**	0.114**	0.109	0.105	0.103*	0.103	0.095	0.093*	0.092	0.068	0.064	0.047	0.043	0.039	0.033	0.031	0.023

Table 3: T-test Matrix by Province, Stranger Trust

Provinces by rank on stranger trust: *1: Sichuan, 2. Jiangxi, 3. Guizhou, 4. Anhui, 5. Yunnan, 6. Xinjiang, 7. Zhejiang, 8.Chongqing, 9. Hubei, 10. Henan, 11. Guangxi, 12. Shaanxi, 13. Shandong, 14. Liaoning, 15. Jilin, 16. Shanxi, 17. Hebei, 18. Fujian, 19. Inner Mongolia, 20. Hunan, 21. Gansu, 22. Guangdong, 23. Beijing, 24. Jiangsu, 25. Shanghai, 26. Heilongjiang;* <u>*Table cells contain differences in average response between ranked provinces*</u>*; *significant at 10% level, **significant at 5% level, ***significant at 1% level*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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6	0.051	0.015	0.008	0.007	0.006	0																			
7	0.06	0.024	0.017	0.016	0.016	0.009	0																		
8	0.07	0.034	0.027	0.026	0.025	0.019	0.01	0																	
9	0.073	0.037	0.03	0.029	0.029	0.022	0.013	0.003	0																
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20	0.131**	0.095*	0.087	0.087	0.086	0.08	0.071	0.061	0.058	0.045	0.043	0.043	0.041	0.035	0.035	0.033	0.026	0.023	0.019	0					
21	0.145**	0.109*	0.101	0.101	0.1	0.094	0.085	0.075	0.072	0.059	0.057	0.057	0.055	0.049	0.049	0.047	0.04	0.037	0.033	0.014	0				
22	0.172***	0.136***	0.128**	0.127**	0.127**	0.121**	0.112*	0.102**	0.098**	0.086**	0.084	0.084**	0.082*	0.076	0.076	0.073	0.067	0.064	0.06	0.041	0.027	0			
23	0.196***	0.160***	0.152**	0.151**	0.151**	0.145**	0.135*	0.125**	0.122**	0.110**	0.108*	0.108**	0.106*	0.100*	0.099*	0.097	0.091*	0.088*	0.083	0.065	0.051	0.024	0		
24	0.208***	0.172***	0.164**	0.163**	0.163**	0.156**	0.147*	0.137**	0.134*	0.122**	0.120*	0.120**	0.118*	0.112*	0.111*	0.109	0.103*	0.100*	0.095	0.077	0.063	0.036	0.012	0	
25	0.242***	0.206***	0.199**	0.198**	0.197**	0.191**	0.182**	0.172**	0.169**	0.156**	0.154*	0.154**	0.152**	0.147**	0.146**	0.144**	0.137**	0.134**	0.130**	0.111*	0.097	0.07	0.046	0.035	0
26	0.249***	0.214***	0.206**	0.205**	0.205**	0.198**	0.189*	0.179**	0.176**	0.164**	0.162*	0.162**	0.159**	0.154**	0.153**	0.151**	0.145**	0.142**	0.137*	0.118*	0.105	0.078*	0.054	0.042	0.007

Table 4: T-test Matrix by Province, Wallet Trust

Provinces by rank on stranger trust: *1: Jilin, 2. Guangdong, 3. Shanghai, 4. Shandong, 5. Gansu, 6. Inner Mongolia, 7. Heilongjiang, 8.Zhejiang, 9. Fujian, 10. Jiangsu, 11. Beijing, 12. Hebei, 13. Liaoning, 14. Chongqing, 15. Shanxi, 16. Jiangxi, 17. Henan, 18. Anhui, 19. Sichuan, 20. Xinjiang, 21. Yunnan, 22. Hubei, 23. Hunan, 24. Shaanxi, 25. Guizhou, 26. Guangxi;* <u>*Table cells contain differences in average response between ranked provinces*</u>*; *significant at 10% level, **significant at 5% level, ***significant at 1% level*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	0																								
2	0.013	0																							
3	0.027	0.014	0																						
4	0.057	0.044	0.03	0																					
5	0.057	0.045	0.03	0.001	0																				
6	0.066	0.053	0.039	0.009	0.009	0																			
7	0.066	0.053	0.039	0.009	0.009	0	0																		
8	0.079	0.067	0.052	0.023	0.022	0.014	0.013	0																	
9	0.085	0.073	0.058	0.029	0.028	0.019	0.019	0.006	0																
10	0.089	0.076	0.062	0.032	0.031	0.023	0.023	0.009	0.003	0															
11	0.093	0.08	0.066	0.036	0.035	0.027	0.027	0.013	0.007	0.004	0														
12	0.119*	0.107*	0.092	0.063	0.062	0.054	0.053	0.04	0.034	0.031	0.027	0													
13	0.130*	0.117	0.103	0.073	0.072	0.064	0.064	0.05	0.044	0.041	0.037	0.01	0												
14	0.141**	0.128**	0.114	0.084	0.084	0.075	0.075	0.062	0.056	0.052	0.048	0.022	0.011	0											
15	0.144	0.131	0.117	0.087	0.087	0.078	0.078	0.064	0.059	0.055	0.051	0.024	0.014	0.003	0										
16	0.153**	0.141**	0.127*	0.097	0.096	0.088	0.087	0.074	0.068	0.065	0.061	0.034	0.024	0.013	0.01	0									
17	0.172***	0.159***	0.145**	0.115**	0.115	0.106	0.106*	0.093	0.087	0.083	0.079	0.053	0.042	0.031	0.028	0.019	0								
18	0.174**	0.161*	0.147	0.117	0.117	0.108	0.108	0.094	0.089	0.085	0.081	0.054	0.044	0.033	0.03	0.02	0.002	0							
19	0.180**	0.168**	0.153**	0.124*	0.123	0.114	0.114*	0.101	0.095	0.092	0.088	0.061	0.051	0.039	0.036	0.027	0.008	0.006	0						
20	0.182**	0.169**	0.155*	0.125	0.124	0.116	0.115	0.102	0.096	0.093	0.089	0.062	0.052	0.041	0.038	0.028	0.01	0.008	0.001	0					
21	0.191**	0.179**	0.164*	0.135*	0.134	0.125	0.125	0.112	0.106	0.103	0.099	0.072	0.062	0.05	0.047	0.038	0.019	0.017	0.011	0.01	0				
22	0.223***	0.211***	0.196**	0.167**	0.166*	0.157*	0.157**	0.144	0.138*	0.135*	0.131*	0.104	0.094	0.082	0.079	0.07	0.051	0.049	0.043	0.042	0.032	0			
23	0.228***	0.215***	0.201***	0.171**	0.171*	0.162**	0.162**	0.149	0.143**	0.139*	0.135**	0.109	0.098	0.087	0.084	0.075	0.056	0.054	0.048	0.046	0.037	0.005	0		
24	0.231***	0.219***	0.204***	0.175***	0.174**	0.165**	0.165***	0.152*	0.146**	0.143**	0.139***	0.112*	0.102	0.09	0.087	0.078	0.059	0.057	0.051	0.05	0.04	0.008	0.003	0	
25	0.235***	0.222***	0.208**	0.178**	0.178*	0.169*	0.169*	0.155	0.150*	0.146	0.142*	0.115	0.105	0.094	0.091	0.081	0.063	0.061	0.055	0.053	0.044	0.012	0.007	0.004	0
26	0.269***	0.256***	0.242***	0.212***	0.212**	0.203**	0.203**	0.189*	0.184**	0.180**	0.176**	0.149*	0.139	0.128	0.125	0.115	0.097	0.095	0.089	0.087	0.078	0.046	0.041	0.038	0.034

4. Trust and Economic Development Indicators

A further question of interest is whether there is an empirical relationship between the provincial trust levels and provincial development indicators, as suggested by the trust maps. The top row of Figure 6 shows simple scatter plots of each of the three trust measures against average income levels, where each point in the plot is a province (as labeled). The x-axis shows the average standardized trust level, with the standard deviations labeled. The data on provincial income and inequality levels are derived from the China Urban Household Survey (UHS) in year 2006, and as such we restrict the related analysis to students with urban *hukou*.[8]

Figure 6 (top 3 panels) show a distinctly positive relationship between both general trust and property/financial trust and the average income level in a province. For general trust, the relationship is driven by the highly developed provinces. Willingness to talk to a stranger however, is decreasing in average income levels, which seems to imply that a negative artifact of rising income in China may be the reluctance of individuals to interact with individuals they do not know personally.

The bottom row of charts in Figure 6 shows the relationship between provincial inequality as measured by the Gini coefficient, and the three trust measures. In our data, the relationship between inequality and generalized trust shows no particular correlation. Previous studies have hypothesized and found support for a negative relationship between inequality and trust (Alesina and LaFerrara, 2004; Knack and Keefer, 1997; Gustavsson and Jordahl, 2008). These studies and others note that the existence of substantial differences among people (for example, along income or ethnic/racial lines) tends to generate distrust in a community. In our data, the generalized trust question may have been too vague to generate this relationship, or the lack of result in our data may be related to the young age of the respondent pool.

However, we do find evidence that willingness to talk to strangers is decreasing in income inequality (middle panel), perhaps a better measure of social trust in our data. Property/financial trust appears to be mildly increasing in inequality, much of this perhaps related to the relationship between average income and this same trust measure. Similar patterns are found using different measures of inequality, such as the 90/10 income ratio and the 75/25 income ratio, and these figures are shown in the Appendix.

Given the geographic patterns found in the trust maps (Figures 2 to 4) where we found that trust outcomes were heavily dependent on whether a province is a coastal/border province or an inland province, a natural further question is whether exposure in international markets is correlated with trust measures. Indeed, the Chinese government has specifically introduced development programs aimed at coastal regions in order to boost foreign investment and exports over the years (Fu, 2004).

Figure 7 plots provincial Foreign Direct Investment and exports against the three trust measures. General trust is positively correlated with both FDI and exports. The correlations for willingness to interact with strangers and the lost wallet question tell a story consistent with the trust map results. International economic exposure in terms of both FDI and exports tends to be negatively correlated with willingness to interact with strangers. International exposure tends to be positively correlated with trusting beliefs in the lost wallet question.

An important limitation is that these are correlations, and we are unable to disentangle the causality between income, inequality, and international interactions using these data. Nevertheless, the significant differences in trust attitudes among students from different provinces, when combined with the mobility restrictions of Chinese citizens historically, suggests that the socio-economic environment in students' home provinces can significantly affect their trust attitudes.

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[8] However, the results which include both urban and rural students are very similar to the results which exclude rural students. We thank Binzhen Wu for providing us with the UHS inequality data.

Figure 6: Regional Development Measures and Trust Levels

I.   Average Income and Trust, by Province

(horizontal axis shows standard deviations of trust measures; left panel: general trust, middle panel: stranger trust, right panel: wallet trust)
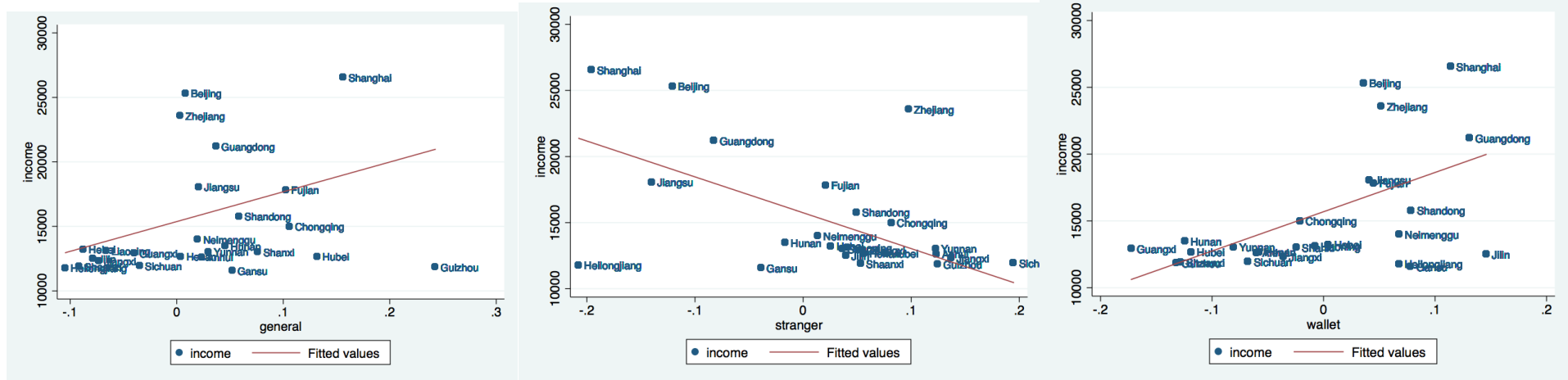
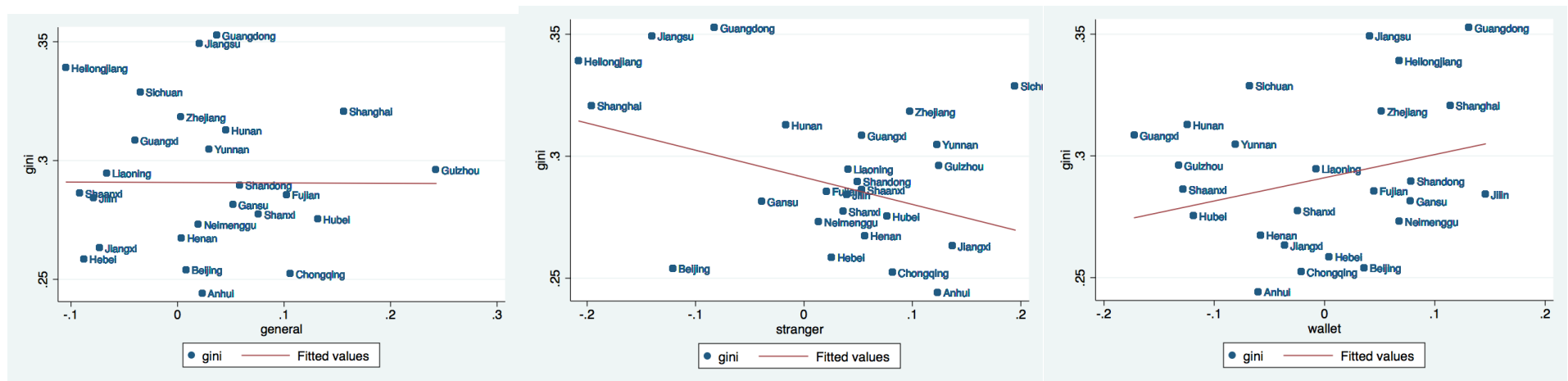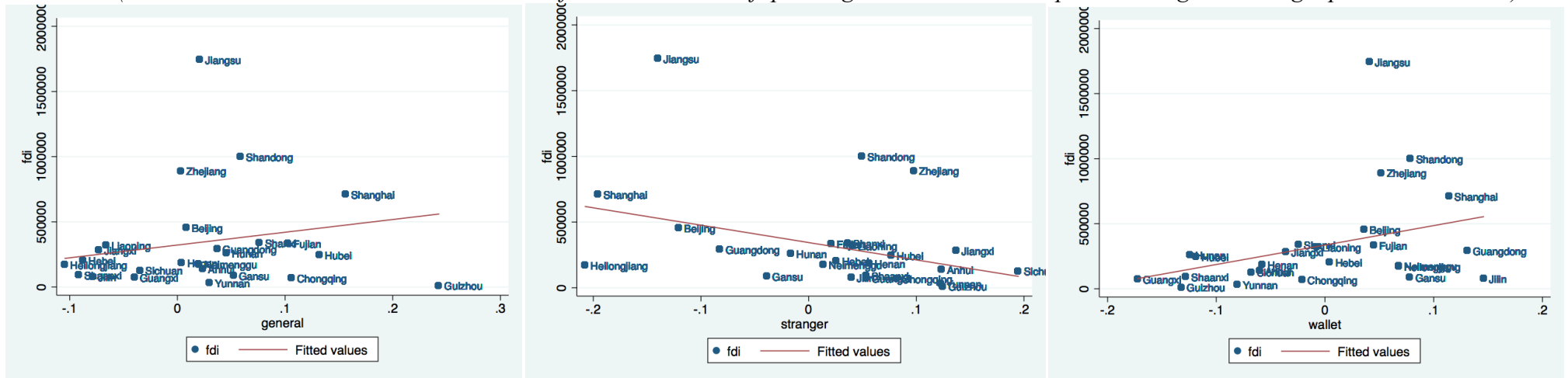**II.   Gini Coefficient and Trust, by Province**

(horizontal axis shows standard deviations of trust measures;left panel: general trust, middle panel: stranger trust, right panel: wallet trust)

Figure 7: International Exchange Indicators and Trust Levels

I.   Foreign Direct Investment, by Province
(horizontal axis shows standard deviations of trust measures; left panel: general trust, middle panel: stranger trust, right panel: wallet trust)

II.   Exports, by Province
(horizontal axis shows standard deviations of trust measures; left panel: general trust, middle panel: stranger trust, right panel: wallet trust)
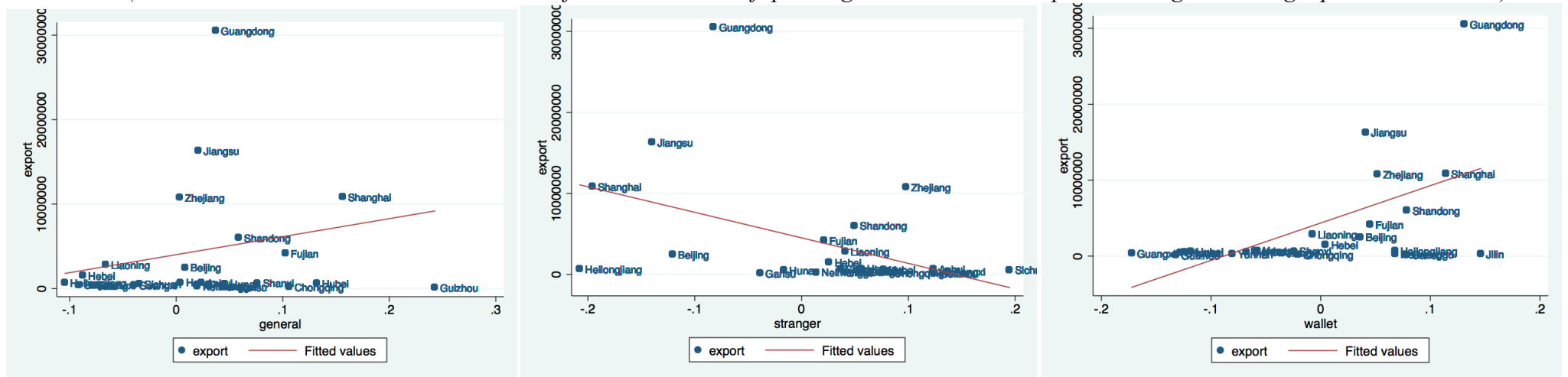
5. Conclusions

Trust remains a topic of intense interest in China and other developing countries, all while not being especially well-understood. In this paper, we have reported on the trust attitudes of China's young and educated population, by individuals' province of origin. Our analysis extends beyond the standard generalized trust question to assess differences in specific scenarios involving social trust. Despite the prevalence of centralized government policies and the strong sense of national identity in China, we find that trust attitudes do vary significantly by individuals' region of origin, even considering that students do not necessarily attend college near their hometown (38.2% of our respondents attended college outside of their home province).

Examining the regional similarities and differences in trust attitudes is informative to the literature on better understanding trust in China for several reasons.

First, it provides a more in depth understanding and analysis of the possible reasons for current trust attitudes at the national aggregate level, perhaps more reliably so than cross-country studies can. That is, regional analysis may be informative where the applicability of cross-national analysis might be limited, due to potentially vast cultural differences across independent nations. Our findings showed that even among Chinese educated youth, the willingness to talk to strangers and the belief that private property will be respected, showed distinct regional differences across the provinces. Specifically, the eastern coastal regions, which experienced economic development earliest, displayed the highest levels of financial/property trust, while showing among the lowest levels of willingness to interact with strangers. These geographic patterns were not detectable using the generalized trust question, which did not display any obvious geographic pattern.

Secondly, regional identity is still a strong feature of Chinese modern culture, due to both historical as well as institutional reasons. On the former point, regions of China usually have rich histories extending thousands of years, which could shape cultural attitudes significantly. On the latter point, the country's *hukou* system, which serves as a control on the population's residential mobility, reinforces the sense of regional belonging, imposing 'sticky' mobility of residents across regions. Our findings suggest that the central regions of China, which had fewer early historical interactions with outsiders, are currently the most "stranger-friendly".

Finally, regional analysis has the potential to inform us on how policies and institutions impact trust across culturally similar regions. For example, Chongqing, which is now its own administrative region, was once part of Sichuan province. Beijing, which is its own administrative region, is surrounded by Hebei province. Yet, individuals from these special administrative areas show significantly different average trust attitudes compared to the provinces they once belonged to. This suggests that local governance, policies and economic conditions may be quite influential in shaping trust.

Our analysis also provides specific economic statistics which can inform policy-makers on where their province falls short or performs well compared to the rest of the country. For example, policy makers in China's easternmost and northernmost provinces might emphasize policies which foster greater sense of community among individuals who were not previously acquainted with one another. Our results indicate that these regions tend to be more weary towards strangers. China's provinces with low average financial/property trust might implement policies which emphasize the importance of property rights as a moral standard. Our study is primarily descriptive and currently does not offer specific prescriptions on how to improve the different types of trust attitudes. However, this is an area for potential future work.

While providing an informative picture of the trust heterogeneity across China's regions, there are several caveats to our study. Firstly, due to our survey sample population, our results are only representative of college-educated recent graduates, and not necessarily of the larger population
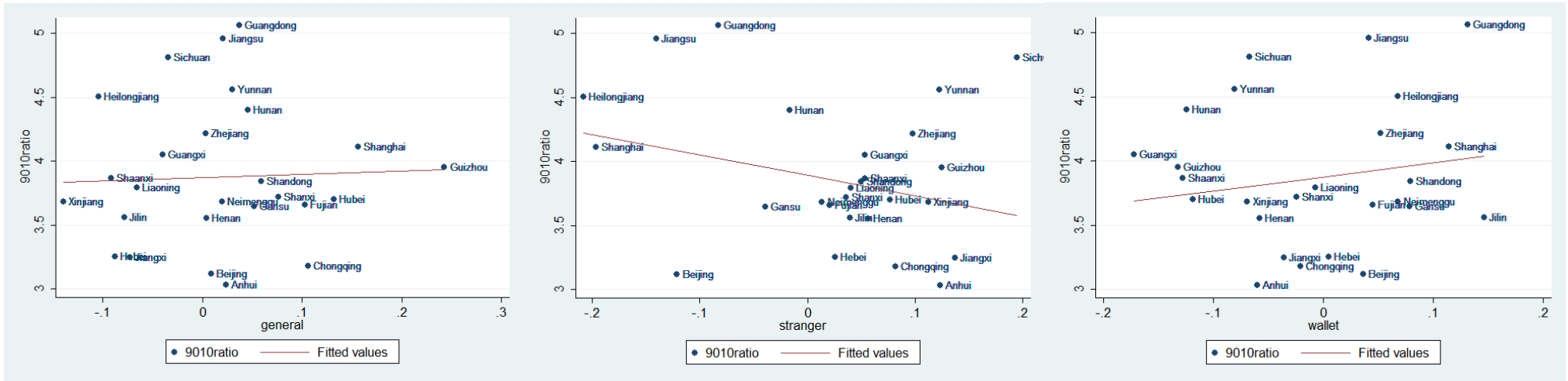
outside of this age range. Trust attitudes are likely to vary further based on generational factors. Second, the population of college educated individuals is highly selected and may not be representative of the general population even in that age range. We leave the further examination of the more general regional trust patterns to future research.

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Appendix: Alternative Inequality Measures, Provincial Correlations

I.   90/10 Income Ratio

II.   75/25 Income Ratio