



RESEARCH NOTE

Social trust in subnational regions and foreign subsidiary performance: Evidence from foreign investments in China

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Abstract

Recent research suggests that subnational regions can explain the variation in foreign subsidiary performance. However, most studies either treat subnational regions as a whole or focus on formal institutions at the subnational level. This study examines how general social trust, an important dimension of informal institutions at the subnational level, affects foreign subsidiary performance. In a sample of 17,886 foreign investments in China in 2012, we find that the level of social trust in subnational regions has a positive effect on the performance of foreign subsidiaries, reducing the liability of outsidership faced by foreign subsidiaries. Our results also show that this positive effect is contingent on local embeddedness of the foreign subsidiaries. Our findings highlight the importance of incorporating informal institutions at the subnational level in examining strategies and strategy outcomes.

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INTRODUCTION

Prior studies have examined how various characteristics of institutional environment affect firm strategy and performance using country as a primary geographic unit of analysis (e.g., Makino, Isobe, & Chan, 2004; Meyer & Peng, 2005; Peng, Wang, & Jiang, 2008). Recently, a growing number of studies have begun to investigate the influence of institutions at the subnational level on a broad range of strategic outcomes, including the performance of foreign subsidiaries (Chan, Makino, & Isobe, 2010; Lu & Ma, 2008; Ma, Tong, & Fitza, 2013). These studies have highlighted the institutional differences among various subnational regions (for brevity we use “regions” hereafter to refer to subnational regions) and the associated performance implications. However, they treated regional effect as a whole and did not explicitly test which institutional factors contribute to the variation in foreign subsidiary performance in these regions.

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Further, almost all studies on regions focus on formal institutions, paying little attention to informal institutions. The paucity of research on informal institutions presents a major obstacle in the advancement of literature on foreign subsidiary performance because informal institutions usually outnumber formal institutions in most societies (North, 1990) and some of the most significant differences among locations are rooted in informal institutions (Bruton, Ahlstrom, & Puky, 2009). Therefore, it is essential to incorporate informal institutions in the analysis of subsidiary performance in regions.

This study attempts to address these two issues by explicitly theorizing and testing the influences of specific institutional factors in subnational regions on the performance of foreign subsidiaries and by switching the attention from formal institutions to informal institutions. Specifically, we investigate the effect of general social trust (“social trust” for brevity hereafter) at the subnational level on the performance of foreign subsidiaries.

Social trust is a society-level construct that refers to people’s expectation about the trustworthiness of the generalized and abstract other (Dinesen & Sønderskov, 2015). According to the behavior assumption of bounded reliability (Verbeke & Greidanus, 2009), economic actors face difficulties in collaboration because they “may be reliable but only boundedly so” (p. 1472). Social trust helps players to establish mutual expectations of others’ reliability and thus promotes information sharing, knowledge transfer, collaboration among economic actors, and rule enforcement within a society, all of which could affect firm performance. It is especially relevant to foreign subsidiaries because they are usually considered as “strangers” in host countries and “trust should be more essential for ensuring cooperation between strangers” than for familiar ones (La Porta et al., 1997: 333).

Based on the social trust literature, we posit that there is a positive relationship between social trust and the performance of foreign subsidiaries. Further, we discuss how this positive effect varies by the formal institutions of a region and by foreign subsidiaries’ local dependence and embeddedness in the region. In a sample of 17,886 foreign subsidiaries in China in 2012, we find good support for our predictions.

Our study extends the literature in three ways. First, we further the literature on institutions by examining the effect of informal institutions, an important yet under-researched area, on subsidiary performance.

Our results illustrate the strong influence of informal institutions at subnational level and reveal the boundary conditions of such influence. Second, we offer new insights into the notion of liability of outsidership (Johanson & Vahlne, 2009), a key concept in the IB literature which emphasizes the importance of entering into local business networks of host countries, by identifying social trust as one of its antecedents and showing its variations across subnational regions and its effect on subsidiary performance. Third, this study extends the context of social trust literature by showing variation of social trust within a country, by revealing firm-level consequences of social trust and by applying it to the context of multinational enterprises.

SOCIAL TRUST IN REGIONS AND FOREIGN SUBSIDIARY PERFORMANCE

Social trust reflects the strength of honesty norms that structure human interactions in a society (Bjørnskov, 2011; Kim & Li, 2014). As a complexity-reducing mechanism for social interactions, social trust enables players in a society to establish mutual expectations of regular and honest behavior (Knack & Keefer, 1997). As such, social trust can serve as an alternative source of rule development and social enforcement (Kim & Li, 2014). Social trust is also considered as a kind of bridging social capital (Putnam, Leonardi, & Nanetti, 1994) and has been found to facilitate information transmission, cooperation, and the enforcement of sanctions within a society (e.g., Bjørnskov & Méon, 2015; La Porta et al., 1997). Therefore, a high level of social trust leads to various desirable economic outcomes at both macro and micro levels (e.g., Bjørnskov & Méon, 2015; Knack & Keefer, 1997; La Porta et al., 1997; Li, Wang, & Wang, 2017).

Social trust influences subsidiary performance by shaping the liability of outsidership a foreign subsidiary suffers in a region. Since “markets are networks of relationships” (p. 1411), the performance of foreign subsidiaries in a market, to a large extent, depends on whether they can tap into local networks (Johanson & Vahlne, 2009). As foreign entrants usually do not occupy a position in local networks prior to their entry, they need to enter one or more local networks to survive and prosper in foreign markets (Cantwell & Mudambi, 2011). In a society with high-level social trust, members in such regions are less likely to “divide the world into friends and enemies” (Fukuyama, 2001: 8) or to interact only among a small circle of familiar ones. In such regions, local

firms are more willing to accept outsiders such as foreign entrants in their local networks and share local resources and opportunities with them. Consequently, foreign subsidiaries will suffer less liability of outsidership and encounter less difficulty in doing business in these regions. Thus, social trust in subnational regions has a positive effect on the performance of foreign subsidiaries.

The relative strength of social trust's influence on subsidiary performance depends on regional-level and subsidiary-level factors. Specifically, social trust will have a weaker influence on subsidiary performance in regions with better-developed formal institutions, for subsidiaries with lower levels of local dependence, and for subsidiaries with higher levels of local embeddedness. Figure 1 illustrates the above relationships which we elaborate below.

First, formal institutions include a set of laws and regulations and regulatory forces governing both the establishment and the enforcement of contracts (North, 1990). Although there is little variation in laws and regulations across subnational regions because subnational governments do not have or only have limited law-setting authority, the appreciation and interpretation of the laws and regulations are substantially different across regions and so are their enforcement within a country (Wang, Fan, & Yu, 2017; World Bank, 2006), leading to variations in the development of formal institutions at subnational level in many countries (Chan et al., 2010; Dheer, Lenartowicz, & Peterson, 2015; Ma et al., 2013).

In regions with better-developed formal institutions, the incentive for local or foreign firms to cheat on the letter or spirit of a contract is lower (Oxley, 1999) and even if there are business disputes, firms can turn to the established formal transaction governance system to resolve such issues. Therefore in regions with better-developed formal institutions, the trustworthiness of business

partners is of less concern in market transactions and firms are more willing to conduct business on the basis of the merits of the transactions rather than the membership or position of business partners in the local network. Accordingly, the relative importance of social trust that promotes transactions and cooperation among members of a local network is reduced (La Porta et al., 1997). As such, the positive effect of social trust on subsidiary performance will be weaker in regions with better-developed formal institutions.

Second, social trust's effect on subsidiary performance is contingent on the dependence of subsidiaries on local networks. According to the final destination of their products, foreign subsidiaries can be classified into two types: local market-seeking and export-oriented. Compared with export-oriented foreign subsidiaries, market-seeking subsidiaries are more dependent on local networks. To secure/increase market share in local markets, market-seeking foreign subsidiaries need to develop their understanding of local customers' current and future needs, customize their products and promotion activities to suit the needs, and develop local distribution channels to reach customers in the local markets (Slater & Narver, 2000). In contrast, export-oriented subsidiaries treat local markets as manufacturing bases for export and thus tapping into local networks is less imperative for them. Therefore social trust has a weaker positive effect on the performance of foreign subsidiaries as their export intensity increases.

At last, the value of social trust also depends on subsidiaries' embeddedness in local networks. Foreign subsidiaries' local embeddedness is positively related to subsidiaries' entry tenure and domestic ownership. Foreign subsidiaries are more likely to gain trust from local stakeholders and enter local networks as their entry tenure in a location increases because contacts produce first-hand information about foreign subsidiaries and thus reduce local players' stereotypes and prejudices regarding foreign subsidiaries (Rydgren, Sofi, & Hällsten, 2013), facilitating the development of friendship ties between local players and foreign subsidiaries. These local players with whom foreign subsidiaries have friendship ties can serve as brokers that help them further build ties with key actors in local networks. As foreign subsidiaries gradually enter local networks, they will depend less on social trust in a region and the positive effect of social trust on the performance of foreign subsidiaries will be weaker as their entry tenure increases.

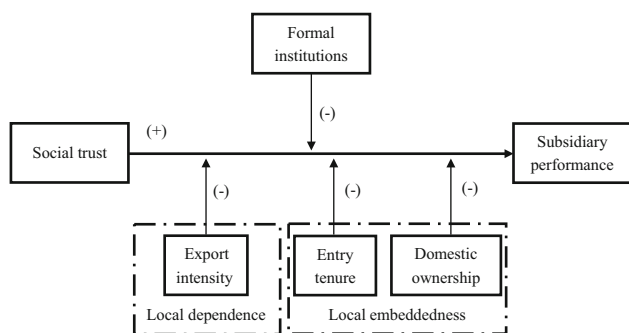


Figure 1 Theoretical framework.

Another way to enter local networks is to have local partners. Equity ownership by local firms helps foreign subsidiaries to become members of local networks in two ways. Ownership of a firm, to a large extent, defines the identity of the firm in the local networks (Bonner, Kim, & Cavusgil, 2005). The local identity, although partial, makes it easier for the foreign subsidiary to be viewed as a member in the eyes of the local community. Ownership by a local firm also signals endorsement of an insider, enhancing the credibility of the foreign subsidiary when it tries to enter the local community. Further, with equity ownership in foreign subsidiaries, local firms share the interests of foreign firms and are likely to help them access local resources, including the local business community (Nachum, 2003; Park & Ungson, 1997). In the process of working with local partners, foreign subsidiaries can develop local knowledge and local connections more effectively than on their own (Hilmersson & Jansson, 2012). Therefore foreign subsidiaries with higher levels of domestic ownership will rely less on social trust, weakening the link between social trust and subsidiary performance.

METHODS

Data and Sample

We used China as our research setting and subnational regions refer to provinces in mainland China. China presents an ideal setting because it has a relatively large number of provinces and these regions vary significantly in both formal and informal institutions (Chang & Xu, 2008; Ma et al., 2013; Wang et al., 2017), allowing us to examine the effects of variation in institutions at the subnational level on subsidiary performance. To test our predictions, we compiled a comprehensive dataset from the 2012 edition of the Annual Census on Industrial Enterprises (ACIE), the Chinese General Social Survey (CGSS), marketization index, and the China Regional Economic Research (CRER) database.

Firm-level data were collected from the 2012 edition of ACIE database of the Chinese National Bureau of Statistics (CNBS), which was widely used in strategy and IB research (e.g., Buckley, Clegg, & Wang, 2002; Chang & Xu, 2008; Zhang, Li, & Li, 2014). It covers all industrial firms (included domestic firms and foreign subsidiaries) that are registered in mainland China with annual sales of at least 20 million RMB.

We used the 2012 edition of CGSS to measure province-level social trust. CGSS is designed and implemented following the same procedure of *General Social Survey* in the US.¹ Since foreign subsidiaries were located in cities due to China's FDI policy, we selected respondents from cities to calculate province-level social trust.²

The data on the development of formal institutions were from the 2012 edition of a marketization index developed by the National Economic Research Institute (NERI) (Wang et al., 2017). At last, we obtained data for province-level control variables from the CRER database developed by GAT Information Technology Company.

We defined foreign subsidiaries as subsidiaries with at least 50% foreign ownership.³ Our initial sample included all foreign subsidiaries in the 2012 edition of ACIE (20,013 observations).⁴ We excluded subsidiaries registered in provinces not covered by CGSS or with relatively few observations in CGSS (i.e., less than 100 observations) (428 observations, 2.14%). Further, we dropped observations with missing values of included variables (1,699 observations, 8.49%). These procedures yielded 17,886 observations in our final sample. *T*-tests revealed no systematic differences in return on asset (ROA) ($t = -1.09$, $p = 0.28$), total assets ($t = -0.68$, $p = 0.49$), or entry tenure ($t = -0.75$, $p = 0.49$) between the final sample and the full sample, indicating that the final sample was largely representative of the full sample.

Variables

Performance of foreign subsidiaries. We used ROA to measure the performance of foreign subsidiaries. ROA was lagged for one year (i.e., in year $t + 1$) to reduce the influence of autocorrelation. We also used return on sales as the dependent variable and found consistent results.

Social trust. We used the standard measure of social trust (e.g., Bjørnskov & Méon, 2015; Delhey & Newton, 2005; Delhey, Newton, & Welzel, 2011): "Generally speaking, would you say that most people can be trusted?" (Strongly disagree = 1, Disagree = 2, Neither agree nor disagree = 3, Agree = 4, Strongly agree = 5). The term "most people" in the question captures respondents' attitude toward generalized and abstract other, which is essential to measure the level of societal trust. The province-level social trust was the weighted average of respondents' answer to this question in a focal province (Li et al., 2017).⁵ We

also tried the simple average and got qualitatively identical results.

Development of formal institutions. Province-level development of formal institutions was assessed using the marketization index developed by the NERI (Wang et al., 2017). The index is the simple average of five sub-indices: (1) business–government interfaces; (2) development of private firms; (3) development of product markets; (4) development of factor markets; and (5) development of market and legal intermediaries (Wang et al., 2017). A higher score indicates that a region has better-developed formal institutions.

Export intensity. It was measured as the ratio of export sales to total sales.

Entry tenure. It was calculated as 2012 minus the founding year and plus one. We log-transformed this variable (+1) to correct for skewed values. As there could be a nonlinear relationship between entry tenure and subsidiary performance, we included the square term of *entry tenure* in regression models.

Domestic ownership. This variable was operationalized as the ratio of shares held by domestic firms to all shares in a foreign subsidiary.

We also constructed several regional-level, industrial-level, and firm-level variables. At regional level, we controlled for *GDP growth rate*, *regional labor costs* (log average wage of employees in a province), and *population density* (10,000 people per square kilometers) of a province. In addition, we included a dummy variable, *regions with preferential policies*, which equals to 1 if a province has at least one Opening Coastal City or Special Economic Zone and 0 otherwise.⁶

We included *industrial concentration*, *foreign density*, and two-digit *industry dummies* to control for industrial factors. *Industrial concentration* was operationalized as the Herfindahl industry concentration index of three-digit industries, based on firms' total assets. *Foreign density* was measured as the ratio of assets by foreign subsidiaries to assets by all firms in three-digit industries in each province.

Finally, we controlled for two firm-level variables: subsidiaries' *leverage* and *size*. Subsidiaries' *leverage* was measured as the ratio of total debt to total assets. *Subsidiary size* was measured by the natural logarithm of a subsidiary's total assets. To capture the potential nonlinear relationship between *leverage*, *subsidiary size*, and performance, we included the square term of *leverage* and *subsidiary size* in regression models.

Analysis

We estimated a linear regression model to investigate how social trust influences the performance of foreign subsidiaries. The regression model included both firm-level and province-level variables. Since subsidiaries are nested in provinces, we used Hierarchical Linear Modeling (HLM) (Gooderham et al., 2015; Peterson, Arregle, & Martin, 2012) which accounts for the fact that subsidiaries within a province may be more similar to one another than subsidiaries across provinces. Specifically, we used the *mixed procedure* in the STATA program and reported the robust standard errors. As a robustness check, we used Ordinary Least Square regressions with cluster-robust standard errors (Cameron & Miller, 2010) to analyze the data and obtained qualitatively identical results.

RESULTS

Table 1 reports descriptive statistics and the correlation matrix for all the variables. It shows that the correlations among hypothesized independent variables are low to moderate. To alleviate multicollinearity, all the square and interaction terms were calculated using mean-centered linear terms. Further calculations of the variance inflation factor (VIF) values show that the maximum VIF values for the independent variables and their interactions are below 4 and the VIF values for all the control variables are below 8 across all models, indicating that multicollinearity is not a serious threat. In addition, we excluded *population density* which is highly correlated with *regional labor costs*, and found consistent results.

Table 2 presents the results of HLM regressions. Model 1 includes all control variables and *social trust*. As expected, the coefficient of *social trust* is positively signed and significant ($p < 0.01$). We further calculated the economic significance of this effect and found that a one-standard-deviation increase in *social trust* will lead to a 1.68% increase in subsidiary ROA, as per the results of Model 1. Given that the mean value of ROA is 9.01% (as shown in Table 1), the 1.68% increase in subsidiary ROA presents a 18.65% increase in mean ROA, an amount of substantial economic significance to foreign subsidiaries.

Following Mudambi and Navarra (2003), we further tested whether *social trust* is a major factor, a marginal factor, or of no importance in determining subsidiary performance. The significant coefficient of *social trust* in Model 1 of Table 2

Table 1 Descriptive statistics and correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ROA (%)	9.01	17.37													
2. Social trust	3.44	0.08	0.06*												
3. Development of formal institutions	8.54	1.19	-0.09*	-0.11*											
4. Entry tenure	2.40	0.44	-0.02*	-0.06*	0.00										
5. Domestic ownership	0.05	0.13	0.05*	-0.03*	-0.07*	0.06*									
6. GDP growth rate	0.09	0.02	0.11*	0.22*	-0.20*	-0.08*	0.01								
7. Regional labor costs	10.86	0.20	-0.09*	-0.30*	0.37*	0.13*	0.00	-0.42*							
8. Population density	0.10	0.11	-0.05*	-0.41*	0.17*	0.12*	0.00	-0.41*	0.86*						
9. Regions with preferential policies	0.90	0.30	-0.05*	-0.10*	0.53*	0.06*	-0.13*	-0.24*	0.08*	0.15*					
10. Industry concentration	0.01	0.01	-0.01	0.00	-0.02*	-0.01	0.01	0.00	0.01	0.00	-0.03*				
11. Foreign density	0.24	0.18	-0.04*	-0.12*	0.18*	0.04*	-0.07*	-0.02*	0.41*	0.37*	0.08*	0.10*			
12. Leverage	0.47	0.25	-0.15*	0.02*	0.00	-0.14*	0.00	-0.01	0.01	-0.02*	-0.03*	0.05*	0.00		
13. Subsidiary size	11.56	1.38	-0.06*	-0.05*	-0.01	0.12*	0.09*	0.03*	0.05*	0.03*	-0.11*	0.09*	0.21*	0.07*	
14. Export intensity	0.38	0.40	-0.14*	0.00	0.09*	0.08*	-0.12*	-0.12*	-0.02*	-0.04*	0.17*	0.02*	0.02*	0.02*	-0.11*

Notes: N = 17,886.
*p < 0.05.

(coef. = 9.31, $p < 0.01$) suggests that *social trust* is a major factor. We then excluded *social trust* from Model 1 in Table 2, re-ran the regression, and saved residuals. We subsequently used *social trust* to predict the residuals and found the coefficient of *social trust* in this model positive and significant (coef. = 0.92, $p < 0.05$). We further compared these two models based on F-test and found that Model 1 of Table 2 is significantly better ($F(1, 17884) = 27.88, p < 0.01$). Therefore we concluded that *social trust* is a major factor in influencing subsidiary performance.

In Models 2–6, we added the interaction terms between *social trust* and moderators in a stepwise manner to test the moderating effects. As shown in Model 2, the coefficient for the interaction term between *social trust* and *the development of formal institutions* is negative as expected but insignificant. Further, the coefficient for the interaction term between *social trust* and *export intensity* in Model 3 was negative as predicted but again insignificant.

In Model 4, the coefficient of the interaction term between *social trust* and *entry tenure* is negative and significant ($p < 0.01$), suggesting that *social trust* has a weaker positive effect on performance as *entry tenure* increases. Likewise, the coefficient for the interaction term between *social trust* and *domestic ownership* is negative and significant ($p < 0.01$), suggesting that *social trust* has a weaker positive effect on performance as *domestic ownership* increases.

Model 6 included all the independent variables and interaction terms. The signs and significance levels of our independent variable and interaction terms remain largely unchanged in this full model.

Endogeneity Check

Although we included a wide range of regional-level, industrial-level, and firm-level variables in the regression models, it is impossible to completely resolve the issue of omitted variables which could lead to endogeneity (Roberts & Whited, 2013). We tried to address this issue by assessing the likelihood that the estimates were biased from unobservables and by finding proper instrument variables.

Using Selection on Observables to Assess the Bias from Unobservables

Altonji, Elder, and Taber (2005) and Nunn and Wantchekon (2011) provide a measure to estimate the strength of the likely bias sourcing from unobservables: how much stronger selection on

Table 2 Social trust and the performance of foreign subsidiaries

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Social trust	9.31*** (3.10)	5.81 (6.72)	7.77** (3.12)	7.82** (3.19)	10.35*** (2.94)	6.16 (6.58)
Social trust × development of formal institutions		- 1.19 (1.65)				- 0.43 (1.80)
Social trust × export intensity			- 7.16 (6.28)			- 6.95 (5.91)
Social trust × entry tenure				- 13.48*** (4.42)		- 11.76*** (4.04)
Social trust × domestic ownership					- 30.56*** (8.99)	- 26.63*** (8.67)
Development of formal institutions	- 0.70 (0.45)	- 0.85 (0.54)	- 0.73 (0.47)	- 0.72 (0.46)	- 0.66 (0.44)	- 0.77 (0.54)
Entry tenure	- 1.44*** (0.49)	- 1.45*** (0.49)	- 1.44*** (0.49)	- 1.43*** (0.40)	- 1.45*** (0.50)	- 1.44*** (0.40)
Entry tenure × entry tenure	- 1.56*** (0.41)	- 1.56*** (0.42)	- 1.55*** (0.42)	- 1.77*** (0.47)	- 1.56*** (0.41)	- 1.74*** (0.46)
Domestic ownership	3.83*** (0.86)	3.82*** (0.86)	3.82*** (0.87)	3.77*** (0.87)	3.56*** (0.87)	3.53*** (0.84)
GDP growth rate	34.26 (22.47)	37.94* (22.52)	34.32 (22.20)	33.31 (22.10)	34.56 (22.56)	35.08 (22.71)
Regional labor costs	- 3.64 (3.91)	- 2.36 (4.30)	- 3.41 (3.89)	- 3.07 (3.84)	- 3.83 (3.88)	- 2.64 (4.33)
Population density	4.77 (6.95)	2.29 (7.84)	4.16 (6.94)	2.90 (6.85)	5.38 (6.91)	2.19 (7.86)
Regions with preferential policies	0.79 (1.29)	0.95 (1.27)	0.81 (1.30)	0.77 (1.29)	0.67 (1.28)	0.75 (1.27)
Industry concentration	- 6.37 (9.20)	- 6.35 (9.20)	- 6.28 (9.18)	- 6.53 (9.20)	- 6.39 (9.15)	- 6.42 (9.15)
Foreign density	0.78 (1.38)	0.78 (1.37)	0.76 (1.39)	0.81 (1.39)	0.77 (1.37)	0.78 (1.40)
Leverage	- 9.68*** (1.14)	- 9.68*** (1.14)	- 9.65*** (1.11)	- 9.68*** (1.12)	- 9.70*** (1.13)	- 9.66*** (1.08)
Leverage × leverage	- 9.95*** (1.67)	- 9.95*** (1.67)	- 10.00*** (1.65)	- 9.96*** (1.67)	- 9.90*** (1.66)	- 9.96*** (1.65)
Subsidiary size	- 1.15** (0.54)	- 1.15** (0.54)	- 1.15** (0.54)	- 1.15** (0.54)	- 1.15** (0.53)	- 1.14** (0.53)
Subsidiary size × subsidiary size	0.59*** (0.16)	0.59*** (0.16)	0.59*** (0.16)	0.59*** (0.16)	0.59*** (0.16)	0.59*** (0.16)
Export intensity	- 5.44*** (0.77)	- 5.44*** (0.77)	- 5.44*** (0.76)	- 5.43*** (0.76)	- 5.44*** (0.76)	- 5.44*** (0.75)
constant	42.92 (40.91)	42.15 (39.67)	46.09 (40.74)	42.19 (40.48)	41.42 (40.49)	43.78 (39.67)
Chi square	1197.46***	1198.13***	1200.41***	1213.62***	1206.15***	1222.21***

Note: N = 17,886. All tests are two-tailed. Robust standard errors are in the parentheses. Industry dummies are included in all models.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

unobservables, compared with selection on observables, must be to explain away the full estimated effect. Consider we have two regressions: one with a restricted set of control variables and the other with a full set of controls. The estimated coefficients for social trust from the first and second regression are $\hat{\beta}^R$ and $\hat{\beta}^F$, respectively. Then, the ratio can be calculated as $\hat{\beta}^F/(\hat{\beta}^R - \hat{\beta}^F)$ (Nunn &

Wantchekon, 2011). The larger the absolute value of this ratio, the stronger selection on unobservables needs to be to explain away the entire effect.

The model with a full set of controls was specified as Model 1 in Table 2, which included all firm-level, regional-level, and industrial-level variables. We consider three sets of restricted covariates: (1) with no controls; (2) only with firm-level controls; (3)

only with province-level controls. The ratios of selection on unobservables relative to selection on observables were 3.26, 4.33, and 38.68, respectively, for the above settings. Overall, the ratios were above 3, with a mean ratio of 15.23, which is much higher than the critical value of 1 (Nunn & Wantchekon, 2011). Therefore if we attribute the entire effect of social trust to selection effects, selection on unobservables would have to be at least three times greater than selection on observables and, on average, over fifteen times greater. These results suggest that it is less likely that the estimated effect of social trust is fully driven by unobservables.

Instrument Variable Estimates

We used regional ethnic diversity as an instrument variable for social trust for the following reasons.⁷ First, Dinesen and Sønderskov (2015) found that ethnic diversity has a negative effect on social trust because exposure to people with different ethnic background “spurs conflict and competition over scarce resources” (p. 552). Second, regional ethnic diversity is predetermined by historical factors and is uncorrelated with subsidiary performance. Furthermore, we conducted preliminary empirical checks which confirmed that ethnic diversity was a proper instrument.⁸

Table 3 presents the regression results for two-stage least squares (2SLS) regression. The diagnostic statistics of the first stage again indicate that *ethnic diversity* is a valid instrument. Specifically, the partial *R*-square for the first stage is 25.50%, and the *F*-statistic further rejects that the variable is a weak instrument variable ($F = 6104.57$, $p < 0.01$). Since we have a single endogenous regressor, the statistic for the Stock and Yogo test is simply the “first-stage *F*-statistic” (Stock & Yogo, 2005). The results of the Stock and Yogo test rejected the null hypothesis that the instrument is weak ($F = 3012.39$, $p < 0.01$). In addition, the Anderson–Rubin Wald test rejects the null hypothesis and indicates that the endogenous regressors are relevant (Baum, Schaffer, & Stillman, 2007).

The results for the first stage in Table 3 suggest that the instrument has a significant and negative effect on *social trust* ($p < 0.01$), consistent with the findings from prior studies (Dinesen & Sønderskov, 2015). The results for the second stage in Table 3 show that, after controlling for endogeneity, *social trust* still has a positive and significant effect on subsidiary performance ($p < 0.01$). Moreover, the

Hausman test was not significant ($\chi^2 = 4.38$, $p = 1.00$), indicating that endogeneity is not a serious threat.

Additional Robustness Checks

We conducted several additional tests to check the robustness of our results. First, we used alternative definitions of foreign subsidiaries (100% foreign ownership or subsidiaries whose largest shareholders are foreign firms) and found consistent results. Second, we removed the lag of the dependent variable and regressed dependent, independent, and control variables in the same year, and found consistent results. Third, we dropped regions with low social trust and found consistent results, alleviating the concern that the results were driven by the inclusion of regions with low trust scores.

DISCUSSION AND CONCLUSION

Our study is among the first to examine the effect of informal institutions at the subnational level on the performance of foreign subsidiaries in a host country, extending prior studies which either treat subnational regions as a whole (e.g., Chan et al., 2010; Lu & Ma, 2008; Ma et al., 2013) or mainly focus on formal institutions (e.g., Chung & Alcácer, 2002; Nachum, 2000). We highlight the effect of social trust – an important dimension of informal institutions – on the performance of foreign subsidiaries.

Further, we identify entry tenure and domestic ownership as two boundary conditions, revealing a more nuanced relationship between social trust and foreign subsidiary performance. The strong support for the moderating role of local embeddedness of foreign subsidiaries shows the importance of entering local networks. Overall, our results support the contention that informal institutions exert important influences on the strategic outcomes of international strategy, and call for more consideration of the role of informal institutions when examining strategic decisions and outcomes in future studies.

Another contribution of this study lies in our extension of the notion of liability of outsidership. As a key concept in the IB literature, liability of outsidership (Johanson & Vahlne, 2009) has not been directly examined in empirical studies and little is known about its antecedents and consequences. The increase in foreign subsidiary performance in regions with higher levels of social trust

Table 3 Results for 2SLS with instrument variable

Variables	First-stage DV: social trust	Second-stage DV: subsidiary performance
Social trust		15.51*** (5.43)
Ethnic diversity	– 0.65*** (0.08)	
Development of formal institutions	– 0.03*** (0.01)	– 0.35 (0.35)
Entry tenure	0.001 (0.01)	– 1.42*** (0.50)
Entry tenure × entry tenure	0.01 (0.01)	– 1.70*** (0.39)
Domestic ownership	– 0.01 (0.01)	3.62*** (0.84)
GDP growth rate	0.47 (0.30)	59.93** (27.55)
Regional labor costs	0.21*** (0.04)	– 7.78* (4.56)
Population density	– 0.66*** (0.07)	14.56* (7.66)
Regions with preferential policies	0.05** (0.02)	– 0.12 (1.61)
Industry concentration	– 0.01 (0.04)	– 7.26 (9.07)
Foreign density	– 0.01 (0.01)	0.91 (1.42)
Leverage	0.002 (0.002)	– 9.91*** (1.11)
Leverage × leverage	0.02 (0.01)	– 10.00*** (1.58)
Subsidiary size	0.001*** (0.0004)	– 1.17** (0.52)
Subsidiary size × subsidiary size	0.0004* (0.0002)	0.60*** (0.16)
Export intensity	– 0.01*** (0.002)	– 5.51*** (0.76)
Constant	1.45*** (0.46)	60.84 (49.92)
R^2	0.41	0.08
$F/\text{Chi-square}$	3012.39***	24537.82***
Partial R^2 (first stage)	25.50% ($F = 6104.57$, $p < 0.01$)	
Stock and Yogo test	$F = 3012.39$ ($p < 0.01$)	
Anderson–Rubin test	$F = 19.96$, $\chi^2 = 20.02$ ($p < 0.01$)	

Notes: $N = 17,886$. All tests are two-tailed. Cluster-robust standard errors are in the parentheses. Industry dummies are included in all models. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

suggests that the difficulty for foreign players to become insiders in local networks can be mitigated by high-level social trust in a region, which helps reduce the liability faced by foreign subsidiaries and thus leads to positive outcomes.

Finally, the important role of social trust found in this study has implications for the literature on social trust. Past studies have mainly focused on the

variation of social trust across nations, paying little attention to the within-country variation of social trust. The findings of significant impact that regional social trust has on the performance of foreign subsidiaries show the value of examining social trust at the subnational level. Social trust research mainly focused on macro-level economic and social consequences. The micro-level



(subsidiary) effect of regional social trust found in this study provides evidence of micro-level channels through which social trust affects economic activities and outcomes.

Implications for Practice

This research has important practical implications for foreign subsidiaries operating in countries with heterogeneous subnational regions. Given the important role of informal institutions at the subnational level in influencing the performance of foreign subsidiaries, managers of multinational corporations need to consider not only country-level but also subnational-level institutions. In their analysis of institutional environment, managers tend to focus on formal institutions. Our findings point to the importance of examining the influence of informal institutions, which is subtle but can be equally important for the success of foreign subsidiaries.

The finding of positive effect of social trust on subsidiary performance suggests that social trust can be considered as a location-specific asset. High-level social trust reduces entry barriers into local networks, which can be especially valuable to foreign firms. Therefore all things being equal, foreign firms should choose regions with higher levels of social trust to benefit from the openness of local networks. If they have to enter regions with lower levels of social trust, foreign firms should seek local firms as partners to mitigate the negative effect of social trust or have to be patient and gradually develop local connections through their own local experience in the regions.

Limitations

This study has several limitations. First, China is known for its collective culture, which could result in higher values of social trust. It would be important for future research to extend this study to other empirical settings, especially those countries known for high-level individualism, to examine the generalizability of our findings.

Second, due to the lack of data, we could not control for the country of origin of the foreign subsidiaries. Country of origin may affect the receptivity of specific foreign subsidiaries in local networks and moderate the effect that social trust has on the subsidiary performance. This would be an interesting direction for future study.

Third, due to the same data availability constraint, we could not differentiate in-group trust and out-group trust which are two dimensions of

social trust (Delhey et al., 2011). As they could have differential effects on performance, it would be important to collect data in this area and examine their varying influence on strategy and performance.

Fourth, our study is built on the concept of liability of outsidership which assumed that foreign firms are outsiders in host countries. The actual specification of insiders and outsiders to local networks is likely to be more complex. As shown in the moderating effect of local embeddedness of foreign subsidiaries, capabilities, rather than ethnicity, could be more relevant determinants of insidership. Future studies could explore other factors which make foreign firms insiders in local networks.

Finally, we examined the moderating role of the development of formal institutions and foreign subsidiaries' dependence on local networks but did not find support for our predictions. The correctly signed but insignificant coefficients of the interaction terms may point to the crude proxies we have for these two constructs. Specifically, the marketization index is an aggregated measure of different dimensions of institutional development. It does not capture precisely the subsets of formal institutions of more direct relevance to the establishment and enforcement of contracts. Foreign subsidiaries' export intensity does not fully capture foreign subsidiaries' dependence on local networks as foreign subsidiaries may need to tap into local networks for reasons other than market. Finding good proxies for these theoretical constructs is a prominent challenge in studies using archival data. Future research could use surveys to directly measure these constructs.

CONCLUSION

Although informal institutions account for a large percentage of all institutions (North, 1990), relatively little is known about the role of informal institutions in shaping firms' international strategy and performance. Our study demonstrates that informal institutions in subnational regions indeed matter for the performance of foreign subsidiaries even after controlling for the influence of formal institutions. We also reveal that this effect is moderated by the local embeddedness of foreign subsidiaries. These results suggest that we need to take into account the influences of both formal and informal institutions in subnational regions, and of

firm heterogeneity in explaining strategy and performance in IB.

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NOTES

¹The target population was adults (aged 18 and above) who reside in mainland China. Respondents were sampled through stratified, multi-stage probability in proportion to size (i.e., regional population) (PPS) sampling, which guarantees that all Chinese adults were covered with equal probability (for more details, please refer to www.chinagss.org).

²A total of 17,664 dwellings were sampled and 11,765 (66.60%) respondents were successfully interviewed in 29 provinces. 58.67% (6,903) respondents were from cities and 41.33% (4,862) were from rural areas. After dropping provinces with relatively few respondents (i.e., less than 100), the average sample size for each province was 283.48, which is larger than the sample size in prior studies (e.g., Dheer et al., 2015; Venaik & Midgley, 2015; World Bank, 2006).

³Foreign firms did not include those owned by Hong Kong, Macau, and Taiwan firms.

⁴We followed the procedures used by Cai and Liu (2009) to clean the ACIE. First, we dropped observations including missing data in total asset, profit, found year, total debt, and annual sales. Second, we excluded observations with extreme values in ROA and leverage (the values of ROA and leverage that were either larger than the 99.5 percentile or smaller than the 0.5 percentile). We also tried

alternative methods in dealing with extreme values in ROA and leverage, such as winsorized these variables at 0.5% or at 1%, or dropped the values that were either larger than the 99th or smaller than the 1st percentile, and got consistent results.

⁵The weight, provided by CGSS, equals to the inverse of a respondent' probability of becoming part of the sample. The weight average was recommended by CGSS and was more accurate than the simple average because respondents from an under-sampled subgroup were given more weights to cancel the sampling bias from nonresponse.

⁶There were 16 Opening Coastal Cities and 6 Special Economic Zones dispersed across 11 provinces in 2012.

⁷Following Dinesen and Sønderskov (2015), ethnic diversity was calculated as

$$\text{Ethnic diversity}_i = 1 - \sum_{j=1}^n \left(\frac{\text{Population}_{i,j}}{\text{Population}_i} \right)^2.$$

In this equation, *Ethnic diversity_i* is province *i*'s ethnic diversity, *n* is the number ethnic groups in province *i*, *Population_i* is the population of province *i*, and *Population_{i,j}* is the population of the *j*th ethnic group in province *i*. Data on the populations of each ethnic group in a province were only available from the Population Census of China which was conducted every 10 years since 1990. We used the 2010 Population Census of China to calculate regional ethnic diversity.

⁸Ethnic diversity was highly correlated with social trust ($r = -0.26$) while weakly correlated with subsidiary performance ($r = 0.01$). We added ethnic diversity into the regression model (specified as Model 1 in Table 2) and found that the influence of ethnic diversity on subsidiary performance was negative while insignificant ($p = 0.40$). The above empirical results largely suggest that ethnic diversity is a proper instrument variable.

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