Social Capital and Innovation in East Asia

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This paper investigates the relationship between social capital and innovation in high-performing East Asian economies. Rapid economic growth and innovation in these economies contradicts the presumed positive link between social trust and innovation suggested in the literature, as these economies are often characterized as low-trust societies. The results of the multilevel analyses conducted in this paper show that social trust among individuals is not a driving force of innovation in East Asia. Instead, other elements of social capital—shared social norms of supporting collective developmental goals and trust in formal institutions—are more important determinants of innovation. This finding reveals the region-specific developmental path of East Asia—states set innovation and growth as common goals for society and played an active role in initiating and coordinating efforts to achieve them.

Keywords: High-performing East Asian economies, innovation, institutions, social capital
JEL codes: L26, N15, O31, O43

I. Introduction

According to Coase (1960), social trust—generalized trust or trusting broad ranges of other people—can promote innovation because it reduces transaction costs among economic players. This argument is further elaborated by the school of social capital (Putnam 2000, Fukuyama 1995). In explaining the role of social trust, Fukuyama (1995) introduced the concept of high- and low-trust societies, distinguished by the extent of trust clusters. In high-trust environments, trust-based relationships exist between a large number of social actors so that individuals with a broad spectrum of backgrounds can socialize and cooperate with one another. On the other hand, in low-trust milieus, trust remains in families and friends and therefore interactions and cooperation with unrelated people are limited. As generalized trust with strangers (high-trust cluster, i.e., social trust) can facilitate sharing valuable information and knowledge with a wide range of entrepreneurs and economic actors, it plays an important role in innovation through learning

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spillovers in society (Welter 2012). Therefore, high-trust economies are likely to foster innovative entrepreneurship and economic growth.

However, when one considers high-performing East Asian economies, this presumed link between social trust and innovation becomes puzzling. East Asian economies—especially the People's Republic of China (PRC); Taipei,China; and Hong Kong, China; as well as Singapore, which has an ethnic Chinese majority, but also the Republic of Korea to some degree—are often defined as having low-trust societies because personal ties based on family values tend to overshadow broader social networks and generalized trust (Fukuyama 1995). In spite of this, East Asian economies have achieved a high level of innovation which has contributed to their rapid growth in the last several decades. For instance, the Global Innovation Index (GII) (Cornell University, INSEAD, and WIPO 2014–2018), which evaluates inputs and outputs of innovation of countries and economies worldwide, ranks East Asian economies ahead of most others in terms of innovation in technological and knowledge development. Singapore was ranked 5th; the Republic of Korea 12th; Hong Kong, China 14th; and the PRC 17th out of 126 economies evaluated in 2018 (in addition, Japan was ranked 13th). Moreover, these economies are characterized as early adopters of innovation outcomes such as information technologies, online games, and new medical treatments.

This puzzle exhibited by these East Asian economies provides the motivation to reevaluate the relationship between social trust and innovation. The central question here is how the presumably low-trust East Asian economies have played lead roles in building innovation economies. One potential answer to this conundrum is that the relationship between social trust and innovation differs in East Asia compared to others, with social trust not necessarily playing an important role in innovation in the East Asian context.

Let us consider the East Asian economies' development paths, where innovation was led by the states during the period of fast economic growth. The state played the role of an entrepreneur and participated in markets as the main actor (Gulati 1992, Moon and Prasad 1994). The state's role contrasts with the industrialization path taken by Western economies that was mainly led by individual entrepreneurs. Under the collective leadership of the state, the role of social trust in innovation can be different from the one observed in Western economies. Because of state-mediated cooperation among individual entrepreneurs and knowledge and technology spillovers in East Asia, the level of trust between individual entrepreneurs may not be as important as in Western economies. Instead, social norms and values can be more crucial determinants of innovation, such as the degree to which individual entrepreneurs share collective goals of development and accept the modes of development proposed by the state. Likewise, trust in institutions that set up common goals and coordinate economic activities can be an equally important factor in encouraging individual stakeholders to support innovation.

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In this regard, shared social norms and institutional trust are proposed as the elements of social capital that play the key role of contributors to innovation in East Asia instead of social trust. With this proposition, this paper aims to empirically examine how social norms and institutional trust promote innovation in East Asia by borrowing concepts from social capital theory and disentangling dimensions of social capital to ascertain their roles in innovation. To do so, the study conducts multilevel analyses through which the relationships between different components of social capital and innovation are identified in the six high-performing East Asian economies (Hong Kong, China; Japan;[1] the PRC;[2] the Republic of Korea; Singapore;[3] and Taipei,China). The findings of this paper suggest that social trust is not an important determinant of innovation in East Asia, while its positive effect on innovation is generally supported in other parts of the world. Instead of social trust, the findings highlight the importance of social norms and institutional trust, as hypothesized above. In particular, social norms that endorse the shared societal goal of growth primacy and competition- and performance-based incentives are the prime drivers of innovation in East Asia. These results contribute a new piece of evidence in explaining East Asian development by emphasizing competition-based innovation (instead of innovation based on cooperation as proxied by social trust).

The paper is organized as follows. Section II provides a literature review and presents testable hypotheses. In section III, social capital is decomposed into different dimensions and each component is explained. In section IV, the hypotheses are tested across the economies, followed by an analysis at the individual level presented and discussed in section V. Section VI recaptures the main findings and concludes the paper.

II. Literature Review and Articulation of Hypotheses

In the social capital literature, many studies emphasize social trust as an important determinant of innovation and growth (Akcomak and ter Weel 2009;

[1] Japan has been a developed country since the early 20th century, which is significantly earlier than its neighboring newly industrialized economies—Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China. Nevertheless, Japan is included in the analyses because it was the lead economy engineering East Asian growth, followed by the newly industrialized economies and the PRC ("flying geese model"). Also, comparative analyses between Japan and the other economies presented in section V provide interesting findings that reveal similarities and differences in the effects of social capital between them.

[2] Measuring social trust in the PRC is a particularly challenging task because the World Values Survey data reveal various levels of social trust in the country depending on the survey year and types of questions. Steinhart (2012) defines the PRC as an outlier in terms of social trust because of this problem and suggests two plausible explanations for this: (fluctuating) spillover effects of institutional confidence in answering questions on generalized trust and problems in measurement validity (i.e., culturally induced response biases).

[3] Strictly speaking, Singapore is located in Southeast Asia. But this country is integrated in the analyses of this paper because it shares developmental and cultural characteristics with the East Asian economies to a considerable degree: being one of the four tiger economies or newly industrialized economies and having an ethnic Chinese majority (76% of the total population).

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Beugelsdijk and van Schaik 2005; Dakhli and De Clercq 2004; Hauser, Tappeiner, and Walde 2007; Horvath 2013; Knack and Keefer 1997; La Porta et al. 1997; Paldam and Svendsen 2000; and Zak and Knack 2001).[4]

Nonetheless, the East Asian experience presents an interesting case with counterevidence to the presumed positive relationship between social trust and innovation, as their economies grew fast despite lower levels of social trust. This observation offers an alternative view on the role of social capital. In particular, social trust may not always be the necessary condition to achieve innovation, but other types of social capital may emerge as more important and take over the role of social trust when social trust endowments are not readily available in society (Horvath 2013). In fact, substantial empirical evidence is provided in the literature that supports the role of other types of social capital in innovation. In a cross-country study, Doh and Acs (2010) show that civic norms and institutional trust promote associated entrepreneurial activities. In another study on firm-level behaviors, Landry, Amara, and Lamari (2002) propose stakeholders' participation and reciprocal norms as crucial social capital assets that determine firms' decision to innovate. In addition, Yoon et al. (2015) suggest shared norms as a type of cognitive social capital that vitalized entrepreneurial efforts in the Republic of Korea and Taipei,China. Another study on Spain by Molina-Morales and Martínez-Fernández (2010) also endorses the importance of shared orientations in shaping policy makers' and entrepreneurs' perceptions toward innovation.

As summarized above, the literature gives a special emphasis on social norms because innovation can be facilitated when society shares supportive norms and values. Such social norms are probably more important in East Asian economies, considering that they have upgraded their economic structures from agriculture-based economies to high technology-based innovation economies within only a few decades under the leadership of the states. Compared to private-led Western industrialization where trust between individual entrepreneurs and investors were an important determinant in forming a cooperation for innovation, the essential elements that supported public-led innovation in East Asia are arguably different. For economic players in East Asia, it is more crucial to share goals set by the state and demonstrate collective will toward the goals in order to participate in entrepreneurial projects sponsored by the state. Hence, social norms of embracing developmental goals can play a deciding role in stimulating innovation. Similarly, state-led innovation requires citizens to endorse and support the legitimacy and leadership of the state as the main economic stakeholder, and therefore the importance of trust in formal institutions overshadows that of social trust among individuals in the East Asian economies.

[4] Several other studies suggest a more complex relationship between social capital and innovation. Echebarria and Barrutia (2013) show an inverted U-shape in the effect of social ties on innovation. Pérez-Luño et al. (2011) propose an interactive effect that social and human capital jointly generate to enhance innovation.

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With these arguments in mind, social norms and institutional trust that reflect societal recognition of state leadership and common goals are hypothesized as essential elements of social capital that drive innovation in East Asia. Accordingly, this paper proposes and empirically tests the following hypotheses:

Hypothesis 1. In high-performing East Asian economies, social trust has no positive effect on innovation.

Hypothesis 2. In high-performing East Asian economies, social norms that support the shared goal of development have a positive effect on innovation.

Hypothesis 3. In high-performing East Asian economies, trust in formal institutions has a positive effect on innovation.

III. Decomposition of Social Capital

To test for the hypotheses articulated above, social capital is decomposed into different dimensions, distinguishing between social trust, norms, institutional trust, and others, so that the net effect of each element can be identified. This paper follows the measurement approach suggested by Scrivens and Smith (2013) in a study done for the Organisation for Economic Co-operation and Development (OECD). According to Scrivens and Smith (2013), social capital consists of four essential dimensions: trust, personal and social networks, cooperative norms and values, and civic engagement. This classification seizes the concept of social capital defined by Putnam (1993) and Coleman (1990) who proposed social networks and shared norms as underlying values of creating social trust and citizens' participation. Adopted by these two representative scholars of the social capital school, this concept is widely recognized and used in empirical studies on social capital.

With this in mind, the empirical model of this paper is designed to account for each effect of social norms, civil participation, trust, and networks by employing data from the 4th–6th waves of the World Values Survey (World Values Survey Association 2005–2014). A special emphasis is placed on social and civic norms shared by members of society that support collective goals and values toward development, as hypothesized above. Accordingly, the following questions in the survey are selected to measure such norms: (i) whether one supports the shared societal goal of economic growth (growth primacy, answered on a scale of 0 to 1); (ii) how much one embraces the values of competition and incentive orientation as modes of achieving goals (competition orientation and acceptance of inequality, respectively; scale of 1 to 10); (iii) reciprocity for others in society (scale of 1 to 6); and (iv) tolerance toward social minorities (scale of 1 to 10). Components (i) and (ii) represent social norms, while (iii) and (iv) reflect civic-mindedness.

Trust, another important dimension of social capital, is further subdivided into social, personal, and institutional trust. In this analysis, institutional trust is

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hypothesized as a crucial determinant of innovation in East Asia because it can be more relevant for state-led innovation than trust among individuals. Institutional trust is measured by degrees of trusting various types of formal institutions that were asked in the World Values Survey: (i) trust in courts (answered on a scale of 1 to 4); (ii) trust in parliaments (scale of 1 to 4); and (iii) trust in fairness of the rules (scale of 1 to 10). Distinguished from institutional trust, social trust is measured by using the question on how much one trusts other people in general (scale of 1 to 4). This question captures the level of trust in broadly defined groups of people. This type of trust can be an asset in forming cooperation with many other individuals for economic and entrepreneurial activities. In contrast, personal trust is evaluated through a question on how much one trusts family members, close friends, and relatives (scale of 1 to 4). Personal trust refers to a limited cluster of people who can be available for cooperation, which is different from social trust.

The other decomposed dimension of social capital is networks, which accounts for the scope of connectivity among individuals. Networks can function as a tool of imposing informal sanctions and encouraging members to participate in common activities. Similar to distinguishing social and personal trust, networks are also separated based on their extent, with each network's outreach involving different people and participatory causes: social networks for civil participation (humanitarian networks) and personal networks for private interests (hobby networks). The degree of one's participation in each type of network is measured by the frequency of participation in the respective network on a 3-point scale from 0 (no participation) to 2 (very frequent participation).

In total, social capital is decomposed into 12 different dimensions. The binary correlations across the different elements of social capital are all positive varying from 0.07 to 0.68 (see Appendix 2). These results show that the decomposed elements of social capital share the same direction, but each variable includes an independent component to a considerable degree (between 0.32 and 0.93). This finding verifies the empirical justification of distinguishing different dimensions of social capital and identifying each effect. The descriptive statistics of the social capital variables can be found in Appendix 1, and the utilization of the variables in the empirical model is discussed in more detail in section V.

IV. Economywide Aggregate Analysis

Before closely examining the relationship between social capital and innovation in East Asia at the individual level, an aggregate analysis is conducted at the level of each national economy to show whether the effects of social capital are different between East Asia and other parts of the world. If so, the evidence can be used to support a specific role of social capital in East Asian economic development.

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Table 1. **Aggregate Analysis: The Effects of Social Capital on Innovation**
(Cross-economy panel, linear estimation model)

	Global Sample (excluding East Asia)				East Asia	
	(log) Patent		Global Innovation Index		(log) Patent	
	(1)	(2)	(3)	(4)	(5)	(6)
Social trust	0.052	0.021	0.215	0.178	0.029	−0.031
	(0.010)***	(0.011)*	(0.051)***	(0.056)***	(0.031)	(0.013)*
Social networks		−0.068		−0.249		0.164
		(0.023)***		(0.212)		(0.025)***
Institutional trust		−0.003		0.055		0.157
		(0.007)		(0.046)		(0.023)***
Growth primacy		−0.005		−0.038		0.090
		(0.009)		(0.086)		(0.013)***
Tolerance		0.002		0.059		0.054
		(0.005)		(0.042)		(0.007)***
(log) GDP per capita	2.091	0.786	6.098	5.776	2.433	3.766
	(0.541)***	(0.379)**	(0.631)***	(0.663)***	(0.288)***	(0.253)***
(log) Population	3.668	2.579	0.836	0.740	5.959	3.901
	(1.039)***	(0.942)***	(0.511)	(0.538)	(2.917)	(1.172)**
Economywide fixed effects	Fixed effect	Fixed effect	Random effect	Random effect	Fixed effect	Fixed effect
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
Period	2005–2014		2014–2017		2005–2014	
Observations	897	401	264	254	91	40
Number of economies	83	78	54	52	6	6
R^2 (within)	0.45	0.20	0.35	0.35	0.97	0.98

GDP = gross domestic product.
Notes: Numbers in parentheses are robust standard errors clustered at the economy level. $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .001$.
Source: Author's estimates.

Table 1 provides the results of the aggregate analysis using panel data from the GII (Cornell University, INSEAD, and WIPO 2014–2018) and the number of patents (taken from the World Bank Database) as innovation outputs at the economy level. The World Values Survey was utilized to measure the aggregate levels of social capital in each economy. The empirical model used for this analysis is presented below.

$$\begin{aligned} Innovation_{it} = {} & \beta_1 social\ trust_{it} + \beta_2 social\ networks_{it} + \beta_3 institutional\ trust_{it} \\ & + \beta_4 growth\ primacy_{it} + \beta_5 tolerance_{it} + \beta_6 GDP\ pc_{it} \\ & + \beta_7 population_{it} + \alpha_i + \gamma_t + u_{it} \end{aligned} \quad (1)$$

The aggregate analysis employs a reduced form of using one representative measurement for each dimension of social capital so that links between social capital and innovation can be presented without multicollinearity. Accordingly,

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the following variables are encompassed in the model: social trust (trust in other people in general), social networks (participation in humanitarian organizations), institutional trust (trust in the parliament), the shared norm of growth primacy (endorsing growth as the most important societal goal), and tolerance toward minorities (accepting homosexuals as neighbors). The decomposition analysis model in section V includes the full set of 12 social capital variables in order to disentangle the net effect of each element on innovation.

Besides social capital variables, income (gross domestic product per capita) and population variables enter the model as control variables as they represent important conditions in each economy that influence innovation. In addition, time-invariant unobserved heterogeneity in each economy (denoted as α_i) is accounted for in this model (fixed effects are applied when the dependent variable is the logarithmic (log) number of patents and random effects when the GII is used as the dependent variable due to limited variations in the GII scores). The rest of the unobserved effects is addressed as an error term (u_{it}), and time effects are controlled for by using year dummies (t).

As for the dependent variables, two innovation measurements are used in this model. The first is the (log) number of patent applications of an economy in a given year. Patents are considered an important indicator of innovation outputs, and the number of patents is the most frequently used measurement of innovation in the literature (Knack and Keefer 1997, Zak and Knack 2001). Second, the knowledge and technology outputs of the GII are taken as an alternative measurement. This index evaluates multifaceted dimensions of knowledge and technology including knowledge creation (e.g., patent applications); impact (e.g., high technology outputs); and diffusion (e.g., intellectual property receipts). This measurement is chosen because it focuses on outputs of high technology-based innovation that are relevant for the scope of this paper.

The period of investigation is 2005–2017 when the dependent variable is (log) patent applications, because data on social capital variables are available in the World Values Survey for this period. When the GII serves as the dependent variable, the analysis includes the period 2014–2017 due to the availability of the index. The model is estimated using a linear estimation technique.

In Table 1, the results are presented separately for the global sample of countries (up to 83 countries that were surveyed in the World Values Survey, excluding the six East Asian economies) and six East Asian high-performing economies (Hong Kong, China; Japan; the PRC; the Republic of Korea; Singapore; and Taipei,China). The comparison between the global and East Asian samples enables us to identify whether the effect of social trust differs in East Asia and whether social norms and institutional trust play an important role in promoting innovation.

First, in the global sample, it is evident that social trust has a positive effect on innovation (both patent applications and the GII). Without considering

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the other components of social capital (columns 1 and 3), increasing social trust by 1 percentage point increases the number of patent applications by 5.2% and the GII score by 0.2 percentage point. When social networks, institutional trust, the norm of growth primacy, and tolerance are all included in the model (columns 2 and 4), the effect of social trust decreases but remains positive and significant. Given that accounting for other compounding effects of social capital reduces the effect of social trust by 17%–60%, 40%–83% of the total effect of social capital can be attributed to social trust in the global sample.

However, when the sample is limited to the six East Asian economies, the results show quite a different outlook. Without controlling for the other components of social capital, social trust has no effect on innovation (column 5), in contrast to social trust's positive effect in the global sample.[5] Moreover, its effect on East Asian innovation becomes negative—although marginally significant at the 10% level—after accounting for the effects of the other social capital components (column 6). Instead, social and civic norms, networks, and institutional trust promote innovation in East Asia, as all of these effects become positive and significant.

This comparison suggests that, as expected, the role of social trust is different in the East Asian economies than in the rest of the world. The findings presented in Table 1 support hypotheses 1, 2, and 3 in that the role of social norms and institutional trust dominates that of social trust in this region. In the following section, these hypotheses are further investigated by using decomposed data at the individual level in the six East Asian economies.

V. Decomposition Analysis at the Individual Level

A. Model

In this section, the relationships between innovation and social capital in the East Asian economies are further disentangled by employing the full set of social capital variables. To this end, a decomposition analysis that exploits individual variations of the variables is conducted for two reasons. First, this analysis can reveal how individual endowments of social capital influence one's attitudes toward innovation, with the evidence contributing to explanations of behavioral consequences of social capital. Second, the application of individual data enables the use of finer sets of social capital and innovation measurements so that a more precise link between each element of social capital and innovation can be established. In this decomposition analysis, the 6th wave of the World Values Survey 2010–2014 is used because it provides the largest set of social capital and innovation measurements.

[5] In the East Asian sample, the number of patent applications is employed as the sole dependent variable because the GII has too few observations.

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Accordingly, 12 variables which mirror various aspects of social capital are incorporated in the model (instead of the five variables that appeared in the parsimonious model in the aggregate analysis). As presented in section III, the 12 social capital variables represent social, personal, and institutional trust, social and civic norms, and social and personal networks. The vector of social capital consists of the following variables:

> Social Capital = {social trust (scale 1–4), personal trust (scale 1–4), social networks (scale 0–2), personal networks (scale 0–2), trust in parliaments (scale 1–4), trust in courts (scale 1–4), trust in the fairness of the rules (scale 1–10), growth primacy (scale 0–1), competition orientation (scale 1–10), acceptance of economic inequality (scale 1–10), reciprocity (scale 1–6), tolerance (scale 1–10)}

In this model, individual attitudes toward innovation are used as the dependent variables. These variables reveal the extent to which individuals value innovation. Six measurements that evaluate the degree of importance and acceptance of the particular aspects of innovation are selected to compose the set of dependent variables as presented below:

> Innovation = {importance of new ideas and creativity (scale 1–6), importance of technological development (scale 1–3), importance of science and technology today (scale 1–10), importance of science and technology in the future (scale 1–10), acceptance of the statement "science makes the world better" (scale 1–10), acceptance of the statement "we depend too much on science" (*an antagonistic attitude toward innovation*, scale 1–10)}

Additionally, individuals' demographic characteristics are included as control variables in the model following the selection of personal trait variables suggested in the literature that investigates individual attitudes reflected in the World Values Survey (Eichhorn 2012; Kistler, Thöni, and Welzel 2015). They include gender (being a female), age and age^2, marital status, income level, employment status (self-employed and unemployed), education (university degree), and an individual's preference for risk taking. Particularly, an individual's preference for risk taking is chosen as a control variable because innovation involves risky initiatives, therefore such a preference can influence one's attitudes toward innovation. Regarding the choice of employment variables, those who are self-employed are expected to be more willing to recognize innovation, while the opposite could be true for the unemployed. Additionally, a dummy variable for each economy is added in the model to account for shared cultural and cognitive frames (same language, rules, history, collective experience, etc.) among individuals from

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the same economy. Accordingly, the model of the decomposition analysis takes the form below:

$$Innovation_i = \alpha + \sum_k \beta'_k social\ capital_{ki} + \sum_j \varphi_j x_{ji} + \sum_m \lambda'_m economy_{mi} + u_i \quad (2)$$

In equation 2, k denotes each of the 12 social capital variables, j is each of the nine demographic variables (x), m is each of the six economy dummies, and i represents each individual (up to 7,462 in total). This model is estimated by using two regression methods: ordered probit, given the ordered structures of the dependent variables; and ordinary least squares (OLS) to compute marginal effects. The results of the linear and nonlinear estimations are presented and compared in Table 2.

Furthermore, an additional analysis is conducted by exploiting individual variations within each economy in order to identify economy-specific effects of social capital and compare their differences across the six economies. In this within-economy analysis, economywide fixed effects are naturally excluded from the model, leading the equation to be modified as follows:[6]

$$Innovation_i = \alpha + \sum_k \beta'_k social\ capital_{ki} + \sum_j \varphi_j x_{ji} + u_i \quad (3)$$

In addition, the potential endogeneity of the model is addressed by using an instrumental variable (IV) approach, for which the instrument for each social capital variable is the average value of the respective social capital variable of the same demographic group that shares the same gender and age cohort with individual i in the same economy (naturally excluding individual i in computing the average value of the group). The exclusion criteria of the chosen instruments are tested by two-stage least squares estimations and the results are presented in Appendix 3 (the first-stage results for the explanatory power of the instruments and the Hansen tests for the exogeneity of the instruments). The IV estimations produce results that are qualitatively similar to those of the OLS and ordered probit methods presented in Table 2. Hence, I will focus on the findings in Table 2 in the following section.

B. Findings

The results presented in Table 2 show the effects of the 12 social capital variables in the six East Asian economies. The table highlights the importance of shared social norms and institutional trust over social trust. Note that when the dependent variable is "too much dependence on science," the effects are expected

[6] The OLS and ordered probit estimations of equation (2) produce qualitatively identical results (see Table 2). Thus, a linear method is applied to estimate equation (3) so that the coefficients can be interpreted in a straightforward way.

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Table 2. **Decomposition Analysis: The Effects of Social Capital on Individual Attitudes toward Innovation in All Six East Asian Economies**
(World Values Survey 6th Wave, 2010–2014)

Table 2.1

	New Ideas and Creativity				Technological Development				Science and Technology Today			
	Ordered Probit		OLS		Ordered Probit		OLS		Ordered Probit		OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Social trust	0.110	0.065	0.130	0.067	−0.069	−0.090	−0.031	−0.040	−0.050	−0.080	−0.089	−0.143
	(0.019)***	(0.020)***	(0.022)***	(0.021)***	(0.021)***	(0.023)***	(0.010)***	(0.010)***	(0.019)***	(0.020)***	(0.034)***	(0.035)***
Personal trust		−0.077		−0.082		0.006		0.003		0.043		0.100
		(0.023)***		(0.025)**		(0.026)		(0.012)		(0.023)*		(0.040)**
Social networks	0.192	0.068	0.230	0.074	0.015	−0.023	0.005	−0.010	−0.054	−0.034	−0.136	−0.089
	(0.026)***	(0.012)***	(0.030)***	(0.032)**	(0.033)	(0.036)	(0.015)	(0.016)	(0.028)*	(0.031)	(0.052)***	(0.055)
Personal networks		0.064		0.070		0.025		0.010		−0.040		−0.072
		(0.012)***		(0.013)***		(0.015)		(0.007)		(0.013)***		(0.023)***
Trust in courts	−0.015	−0.020	−0.022	−0.025	0.124	0.063	0.054	0.027	0.134	0.099	0.256	0.183
	(0.018)	(0.022)	(0.021)	(0.023)	(0.021)***	(0.025)**	(0.009)***	(0.011)**	(0.019)***	(0.022)***	(0.035)***	(0.040)***
Trust in parliaments		0.002		0.002		0.091		0.038		0.022		0.048
		(0.021)		(0.023)		(0.024)***		(0.011)***		(0.021)		(0.038)
Trust in fairness		0.017		0.017		−0.001		−0.001		0.047		0.078
		(0.007)***		(0.007)**		(0.008)		(0.003)		(0.007)***		(0.012)***
Reciprocity		0.191		0.205		0.055		0.021		0.012		0.007
		(0.013)***		(0.014)***		(0.014)***		(0.006)***		(0.012)		(0.021)
Growth primacy	0.058	0.093	0.070	0.101	0.133	0.152	0.060	0.068	0.110	0.106	0.201	0.185
	(0.025)**	(0.026)***	(0.030)**	(0.007)***	(0.030)***	(0.031)***	(0.013)***	(0.013)***	(0.025)***	(0.026)***	(0.045)***	(0.045)***
Competition orientation		0.021		0.022		0.061		0.026		0.090		0.144
		(0.006)***		(0.007)***		(0.007)***		(0.003)***		(0.007)***		(0.012)***
Tolerance	0.002	0.005	0.002	0.005	−0.021	−0.021	−0.010	−0.009	0.011	0.011	0.024	0.022
	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)***	(0.006)***	(0.003)***	(0.003)***	(0.005)**	(0.005)**	(0.009)**	(0.010)**
Acceptance of inequality		0.019		0.020		0.025		0.010		0.040		0.072
		(0.006)***		(0.006)***		(0.006)***		(0.003)***		(0.006)***		(0.010)***
Risk taking		0.278		0.302		0.0008		0.004		0.001		−0.012
		(0.012)***		(0.012)***		(0.013)		(0.005)		(0.011)		(0.019)
Gender (female)	−0.169	−0.089	−0.208	−0.101	−0.156	−0.149	−0.066	−0.061	−0.053	−0.056	−0.074	−0.080
	(0.024)***	(0.026)***	(0.029)***	(0.028)***	(0.030)***	(0.031)***	(0.013)***	(0.013)***	(0.025)**	(0.025)**	(0.045)*	(0.045)*

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Table 2. *Continued.*

Table 2.1 *Continued.*

	New Ideas and Creativity				Technological Development				Science and Technology Today			
	Ordered Probit		OLS		Ordered Probit		OLS		Ordered Probit		OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	−0.029	−0.011	−0.035	−0.012	0.0005	0.004	0.001	0.003	−0.016	−0.016	−0.030	−0.030
	(0.005)***	(0.005)**	(0.006)***	(0.006)**	(0.006)	(0.006)	(0.003)	(0.003)	(0.005)***	(0.005)***	(0.009)***	(0.009)***
Age^2	0.0003	0.00009	0.0003	0.00009	0.00003	−0.00002	2.32e–06	−0.00002	0.0002	0.0002	0.003	0.0003
	(0.0001)***	(0.00006)	(0.0001)***	(0.00006)	(0.00006)	(0.00006)	(0.00003)	(0.00003)	(0.00005)***	(0.00005)***	(0.0001)***	(0.0001)***
Marital status	−0.057	0.0006	−0.070	−0.0003	0.040	0.036	0.017	0.017	0.020	0.098	0.208	0.168
	(0.032)*	(0.034)	(0.039)*	(0.036)	(0.038)	(0.039)	(0.017)	(0.017)	(0.007)***	(0.033)***	(0.059)***	(0.059)***
Income	0.050	0.028	0.061	0.032	−0.017	−0.028	−0.007	−0.010	0.006	0.012	0.041	0.025
	(0.007)***	(0.007)***	(0.008)***	(0.008)***	(0.008)**	(0.009)	(0.003)**	(0.004)***	(0.007)***	(0.008)	(0.013)***	(0.014)*
Self-employed	0.119	0.062	0.142	0.069	0.043	0.014	0.018	0.004	0.006	−0.003	0.009	−0.005
	(0.047)**	(0.049)	(0.056)**	(0.053)	(0.060)	(0.062)	(0.026)	(0.026)	(0.048)	(0.050)	(0.090)	(0.089)
Unemployed	0.026	0.078	0.024	0.078	−0.006	0.033	−0.002	0.013	−0.037	0.022	−0.092	−0.007
	(0.071)	(0.073)	(0.085)	(0.079)	(0.074)	(0.078)	(0.033)	(0.034)	(0.068)	(0.068)	(0.129)	(0.124)
University education	0.186	0.144	0.225	0.160	0.031	0.006	0.010	−0.0005	0.073	0.057	0.172	0.146
	(0.029)***	(0.030)***	(0.034)***	(0.033)***	(0.036)	(0.037)	(0.016)	(0.016)	(0.029)**	(0.030)*	(0.052)***	(0.052)***
Economywide dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,446	7,117	7,446	7,117	7,462	7,108	7,462	7,108	7,399	7,071	7,399	7,071
Number of economies	6	6	6	6	6	6	6	6	6	6	6	6
(pseudo) R^2	0.03	0.08	0.09	0.23	0.05	0.06	0.07	0.09	0.02	0.03	0.05	0.10

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Table 2. *Continued.*

Table 2.2

	Science and Technology in the Future				Too Much Dependence on Science				Science Makes the World Better			
	Ordered Probit		OLS		Ordered Probit		OLS		Ordered Probit		OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Social trust	−0.059	−0.096	−0.107	−0.169	−0.027	−0.024	−0.053	−0.048	−0.032	−0.078	−0.049	−0.126
	(0.019)***	(0.020)***	(0.036)***	(0.037)***	(0.018)	(0.020)	(0.041)	(0.044)	(0.019)*	(0.020)***	(0.033)	(0.034)***
Personal trust		0.062		0.120		−0.006		−0.010		0.051		0.090
		(0.023)***		(0.041)***		(0.023)		(0.050)		(0.023)**		(0.039)**
Social networks	−0.008	−0.012	−0.043	−0.033	0.037	0.033	0.082	0.069	−0.089	−0.092	−0.180	−0.173
	(0.027)	(0.030)	(0.051)	(0.055)	(0.025)	(0.028)	(0.056)	(0.062)	(0.028)***	(0.031)***	(0.050)***	(0.054)***
Personal networks		−0.014		−0.031		0.010		0.027		−0.019		−0.034
		(0.013)		(0.024)		(0.012)		(0.028)		(0.013)		(0.022)
Trust in courts	0.145	0.102	0.281	0.192	−0.032	−0.023	−0.074	−0.053	0.169	0.076	0.299	0.134
	(0.019)***	(0.022)***	(0.035)***	(0.041)***	(0.018)*	(0.021)	(0.040)*	(0.047)	(0.019)***	(0.022)***	(0.033)***	(0.038)***
Trust in parliaments		0.035		0.076		−0.017		−0.034		0.126		0.214
		(0.022)*		(0.039)*		(0.021)		(0.046)		(0.022)***		(0.037)***
Trust in fairness		0.047		0.081		0.011		0.025		0.056		0.088
		(0.007)***		(0.013)***		(0.007)		(0.015)		(0.007)***		(0.012)***
Reciprocity		0.016		0.016		−0.021		−0.050		0.046		0.064
		(0.012)		(0.022)		(0.012)*		(0.027)*		(0.012)***		(0.021)***
Growth primacy	0.082	0.080	0.158	0.148	−0.048	−0.047	−0.105	−0.102	0.126	0.131	0.236	0.238
	(0.025)***	(0.025)***	(0.047)***	(0.047)***	(0.025)*	(0.025)*	(0.056)*	(0.057)*	(0.025)***	(0.025)***	(0.043)***	(0.044)***
Competition orientation		0.089		0.145		−0.025		−0.058		0.079		0.119
		(0.007)***		(0.012)***		(0.007)***		(0.014)***		(0.007)***		(0.011)***
Tolerance	−0.002	−0.003	−0.001	−0.002	−0.002	0.0001	−0.002	0.001	0.003	0.004	0.011	0.013
	(0.005)	(0.005)	(0.010)	(0.010)	(0.005)	(0.005)	(0.012)	(0.012)	(0.005)	(0.005)	(0.009)	(0.009)
Acceptance of inequality		0.030		0.050		0.005		0.009		0.031		0.031
		(0.006)***		(0.010)***		(0.006)		(0.013)		(0.006)***		(0.006)***
Risk taking		−0.002		−0.023		−0.004		−0.008		−0.016		−0.016
		(0.011)		(0.020)		(0.011)		(0.025)		(0.011)		(0.011)
Gender (female)	−0.051	0.057	−0.075	−0.088	−0.014	−0.024	−0.030	−0.055	−0.046	−0.052	−0.049	−0.052
	(0.025)**	(0.025)**	(0.046)	(0.046)*	(0.025)	(0.025)	(0.055)	(0.057)	(0.024)*	(0.025)**	(0.042)	(0.025)**

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Table 2. *Continued.*

Table 2.2 *Continued.*

	Science and Technology in the Future				Too Much Dependence on Science				Science Makes the World Better			
	Ordered Probit		OLS		Ordered Probit		OLS		Ordered Probit		OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	−0.019	−0.019	−0.036	−0.037	−0.001	−0.001	−0.003	−0.002	−0.008	−0.008	−0.014	−0.008
	(0.005)***	(0.005)***	(0.009)***	(0.009)***	(0.005)	(0.005)	(0.011)	(0.011)	(0.005)	(0.005)	(0.009)	(0.005)
Age^2	0.0002	0.0002	0.0004	0.0004	0.00002	0.00002	0.00004	0.00004	0.0001	0.0001	0.0002	0.0001
	(0.00005)***	(0.00005)***	(0.0001)***	(0.0001)***	(0.00005)	(0.00005)	(0.0001)	(0.0001)	(0.00005)**	(0.00005)**	(0.0001)**	(0.00005)**
Marital status	0.094	0.083	0.175	0.145	0.047	0.051	0.104	0.111	0.072	0.053	0.136	0.053
	(0.032)***	(0.033)**	(0.060)***	(0.060)**	(0.032)	(0.032)	(0.072)	(0.073)	(0.032)**	(0.033)	(0.057)**	(0.033)
Income	0.014	0.006	0.033	0.019	−0.008	−0.008	−0.017	−0.018	0.018	0.010	0.038	0.010
	(0.007)**	(0.007)	(0.013)**	(0.013)	(0.007)	(0.007)	(0.016)	(0.017)	(0.007)***	(0.007)	(0.012)***	(0.007)
Self-employed	−0.031	−0.036	−0.076	−0.085	0.079	0.088	0.176	0.195	0.062	0.063	0.101	0.063
	(0.049)	(0.051)	(0.093)	(0.094)	(0.048)*	(0.049)*	(0.107)*	(0.110)*	(0.050)	(0.051)	(0.097)	(0.051)
Unemployed	−0.016	0.050	−0.065	0.030	0.171	0.163	0.380	0.358	−0.032	0.033	−0.066	0.033
	(0.070)	(0.069)	(0.136)	(0.131)	(0.067)**	(0.068)**	(0.149)**	(0.150)**	(0.068)	(0.070)	(0.121)	(0.070)
University education	−0.0003	−0.023	0.020	−0.011	0.039	0.045	0.087	0.10	0.045	0.027	0.095	0.027
	(0.029)	(0.030)	(0.055)	(0.055)	(0.029)	(0.029)	(0.065)	(0.066)	(0.029)	(0.030)	(0.051)*	(0.030)
Economywide dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,371	7,051	7,371	7,051	7,170	6,892	7,170	6,892	7,375	7,054	7,375	7,054
Number of economies	6	6	6	6	6	6	6	6	6	6	6	6
(pseudo) R^2	0.01	0.03	0.05	0.09	0.01	0.01	0.05	0.05	0.03	0.05	0.10	0.14

OLS = ordinary least squares.

Notes: Numbers in parentheses are robust standard errors clustered at the individual level. $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .001$.

Source: Author's estimates.

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to stand in opposition to those in the other models because this variable reflects negative attitudes toward innovation.

First, the decomposition analysis shows no positive effect of social trust on innovation in general. It even constrains individuals from having positive attitudes toward technology and science. The only exception is its positive effect on promoting new and creative ideas. Instead of social trust, personal trust plays a more positive role in innovation, improving one's support for technology and science. However, personal trust negatively affects one's attitudes toward new ideas and creativity, which is exactly the opposite effect of social trust. This finding infers a region-specific aspect of East Asian development, in that innovation has been facilitated through cooperation between personally connected individuals and thus personal connectivity is an important driving force. However, personal trust can also be a hindrance to new ideas and creativity, while social trust is their promoter. These mixed findings complicate the role of individual trust in East Asia.

In contrast to the mixed results of trust in individuals, trust in formal institutions has a more robustly positive effect on innovation. All of the three types of trust in formal institutions stimulate individuals' positive attitudes toward innovation—the effects of trust in courts and fairness of the rules are significant in four out of the six models and the effect of trust in parliaments is significant in three models. A 10 percentage point increase in trust in courts, parliaments, and fairness of the rules boosts one's support for innovation by 9–19.2 percentage points, 12.7–21.4 percentage points, and 2.8–8.8 percentage points, respectively.

More importantly, shared social norms and values produce the most prominent effects of determining one's attitudes toward innovation. Particularly, the norms of growth primacy and competition orientation have robustly positive, significant effects in all models. Agreeing that economic growth is the main goal of the economy (growth primacy) increases the level of positive attitudes on innovation by 1.5–2.4 percentage points and reduces negative perceptions by 1 percentage point. Increasing the degree of accepting the norm of competition by 10 percentage points enhances one's innovative attitudes by 3.7–14.5 percentage points. In addition, the acceptance of economic inequality has a positive effect in five out of the six models—increasing the acceptance level of this norm by 10 percentage points improves one's supportive attitudes toward innovation by 3.1–7.2 percentage points.

These findings disclose the importance of the shared norm of stimulating growth through competition and individual efforts in East Asia. The role of social norms is further evident in the positive effect of reciprocity, which is significant in four of the six models. Increasing the degree of reciprocity for others in society by 10 percentage points raises one's positive attitudes toward innovation by 5–34.2 percentage points. The positive role of social norms found in this analysis provides an indication that East Asian innovation and growth have been achieved through the collective will of the society and shared norms toward development. On the other

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hand, the role of networks is limited in explaining innovation in this region. The effects of social and personal networks are either insignificant or negative. The only exception is the positive effect of social networks on new ideas and creativity—a 10 percentage point increase in social network participation increases one's support for new ideas and creativity by 11.2 percentage points.

Regarding the effects of individual traits, gender is an important determinant that shapes one's attitudes toward innovation. Women tend to support innovation less than men, and this negative effect remains significant with a gender gap of 0.5–2 percentage points against women after controlling for other individual differences in characteristics. This gender difference in attitudes toward innovation may be explained by the limited role women could play in phases of economic development, which results in fewer opportunities to contribute to innovation (this is probably true not only in East Asia but also worldwide). In contrast to the gender effect, the effects of income and education are generally insignificant in most specifications. Nonetheless, there is some evidence that higher income levels and university education enhance individuals' support for new ideas and creativity and for science and technology. This finding implies that innovation is an outcome of resourceful environments.

C. Analysis and Comparisons across the Six East Asian Economies

The results above highlight shared social norms and institutional trust as crucial determinants of innovation in East Asia. This common finding in the six economies is further disentangled in this section by identifying economy-specific heterogeneity in the effects of social capital. Accordingly, the sample is divided by economy in order to implement within-economy analyses. Table 3 presents the results estimated by OLS. Overall, there is considerable heterogeneity across the six economies in the effects of the different types of social norms and institutional trust.

1. The People's Republic of China and Hong Kong, China

Results for the PRC and Hong Kong, China are shown in Table 3.1. In the PRC, the importance of shared social norms is largely established. However, the specific types of social norms that are important in the PRC are different from the common findings in the six economies presented in section V.B. The most crucial component of social norms that determine attitudes of individuals toward innovation in the PRC is reciprocity. The effect of reciprocity is significant in all six innovation models. Increasing the level of reciprocity by 10 percentage points increases positive attitudes toward innovation by 9.8–49.7 percentage points and decreases negative perceptions of innovation by 15.7 percentage points. Moreover, the value of accepting competition as a means to stimulate individual efforts has a generally

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Table 3. **Decomposition Analysis: The Effects of Social Capital on Individual Attitudes toward Innovation in Each of the Six East Asian Economies** (Linear estimation model, World Values Survey 6th Wave, 2010–2014)

Table 3.1 **The People's Republic of China and Hong Kong, China**

	People's Republic of China						Hong Kong, China					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Social trust	−0.016	0.021	−0.041	−0.111	−0.317	−0.008	0.050	−0.071	−0.434	−0.500	−0.246	−0.134
	(0.054)	(0.024)	(0.081)	(0.082)	(0.131)**	(0.070)	(0.063)	(0.032)**	(0.122)***	(0.123)***	(0.126)*	(0.110)
Personal trust	−0.024	−0.048	0.048	0.123	0.082	0.010	−0.114	0.015	0.164	0.192	0.122	−0.060
	(0.057)	(0.023)**	(0.082)	(0.082)	(0.129)	(0.067)	(0.076)	(0.036)	(0.135)	(0.129)	(0.144)	(0.116)
Social networks	0.233	0.068	−0.061	−0.399	−0.220	−0.712	0.077	−0.002	−0.038	−0.025	−0.025	−0.157
	(0.132)*	(0.049)	(0.329)	(0.313)	(0.374)	(0.288)**	(0.080)	(0.036)	(0.148)	(0.136)	(0.168)	(0.140)
Personal networks	0.172	0.011	−0.223	−0.131	0.239	0.041	0.103	−0.004	−0.070	0.001	−0.176	−0.089
	(0.049)***	(0.017)	(0.095)**	(0.095)	(0.121)*	(0.065)	(0.036)***	(0.018)	(0.062)	(0.064)	(0.074)**	(0.061)
Trust in courts	0.134	−0.003	−0.063	−0.015	−0.205	−0.032	0.022	0.054	0.166	0.220	0.023	0.243
	(0.058)**	(0.020)	(0.090)	(0.087)	(0.135)	(0.072)	(0.061)	(0.030)*	(0.118)	(0.116)*	(0.114)	(0.104)**
Trust in parliaments	−0.041	0.030	0.238	0.275	0.348	0.298	0.067	0.053	−0.107	0.066	−0.195	0.348
	(0.058)	(0.024)	(0.093)**	(0.091)***	(0.134)***	(0.077)***	(0.056)	(0.026)**	(0.112)	(0.111)	(0.109)*	(0.099)***
Trust in fairness	0.027	0.004	0.123	0.086	−0.061	0.123	0.035	−0.011	0.107	0.107	−0.035	0.153
	(0.017)	(0.006)	(0.029)***	(0.030)***	(0.042)	(0.023)***	(0.022)	(0.009)	(0.043)**	(0.041)***	(0.044)	(0.036)***
Reciprocity	0.298	0.054	0.098	0.122	−0.157	0.150	0.155	0.019	0.043	−0.017	0.062	0.141
	(0.036)***	(0.017)***	(0.049)**	(0.053)**	(0.077)**	(0.044)***	(0.039)***	(0.016)	(0.067)	(0.066)	(0.075)	(0.063)**
Growth primacy	0.033	−0.007	−0.170	−0.347	−0.098	−0.040	0.090	0.050	0.059	0.157	−0.056	0.115
	(0.063)	(0.025)	(0.093)*	(0.097)***	(0.152)	(0.077)	(0.081)	(0.038)	(0.150)	(0.150)	(0.159)	(0.130)
Competition orientation	0.013	0.031	0.094	0.111	−0.106	0.048	−0.006	0.031	0.114	0.062	−0.104	0.111
	(0.016)	(0.007)***	(0.025)***	(0.027)***	(0.039)***	(0.020)**	(0.020)	(0.009)***	(0.037)***	(0.035)*	(0.040)***	(0.034)***
Tolerance	−0.023	0.003	0.016	−0.012	0.073	0.002	−0.009	−0.009	0.036	−0.010	0.018	0.026
	(0.014)*	(0.006)	(0.023)	(0.026)	(0.037)*	(0.019)	(0.017)	(0.008)	(0.033)	(0.033)	(0.034)	(0.029)
Acceptance Inequality	0.022	0.004	0.020	−0.002	0.015	0.010	−0.006	0.011	0.095	0.089	−0.066	0.018
	(0.012)*	(0.004)	(0.017)	(0.018)	(0.031)	(0.015)	(0.019)	(0.008)	(0.035)***	(0.033)***	(0.038)*	(0.031)
Risk taking	0.334	−0.028	−0.036	−0.060	−0.053	−0.032	0.234	0.020	−0.092	−0.108	−0.068	−0.121
	(0.026)***	(0.010)***	(0.040)	(0.042)	(0.061)	(0.031)	(0.031)***	(0.016)	(0.062)	(0.062)*	(0.069)	(0.059)**
Gender (female)	−0.115	−0.065	−0.103	−0.149	−0.357	−0.012	−0.162	−0.020	0.033	0.075	−0.041	0.032
	(0.063)*	(0.026)**	(0.091)	(0.099)	(0.149)**	(0.078)	(0.083)*	(0.039)	(0.156)	(0.151)	(0.161)	(0.136)

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Table 3. *Continued.*

Table 3.1 *Continued.*

	People's Republic of China						Hong Kong, China					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Age	−0.024	−0.005	0.003	0.025	−0.008	−0.014	−0.002	0.002	−0.041	−0.064	0.007	−0.046
	(0.015)	(0.006)	(0.021)	(0.024)	(0.035)	(0.018)	(0.014)	(0.007)	(0.028)	(0.024)***	(0.030)	(0.024)**
Age^2	0.0001	0.00005	−0.0001	−0.0003	−4.79e–06	0.0001	1.63e–06	0.00003	0.0006	0.0009	−0.0001	0.0006
	(0.0002)	(0.00006)	(0.0002)	(0.0003)	(0.0004)	(0.0002)	(0.0002)	(0.0001)	(0.0003)*	(0.0002)***	(0.0003)	(0.0002)**
Marital status	0.090	−0.036	0.037	−0.046	−0.079	0.039	0.012	0.004	0.161	0.140	−0.054	0.259
	(0.096)	(0.036)	(0.136)	(0.153)	(0.220)	(0.125)	(0.105)	(0.046)	(0.188)	(0.170)	(0.195)	(0.161)
Income	0.051	−0.023	−0.029	−0.009	−0.021	−0.004	0.038	−0.009	−0.034	0.012	0.052	−0.014
	(0.019)***	(0.007)***	(0.030)	(0.031)	(0.045)	(0.023)	(0.023)	(0.011)	(0.045)	(0.042)	(0.046)	(0.042)
Self-employed	0.142	−0.057	0.113	−0.013	−0.369	−0.068	−0.282	−0.021	−0.094	−0.221	0.396	−0.003
	(0.209)	(0.087)	(0.329)	(0.385)	(0.471)	(0.327)	(0.241)	(0.103)	(0.442)	(0.493)	(0.499)	(0.422)
Unemployment	0.280	−0.019	0.286	0.098	1.400	0.349	−0.060	0.071	−0.095	0.081	−0.144	−0.032
	(0.218)	(0.078)	(0.295)	(0.379)	(0.488)***	(0.298)	(0.194)	(0.076)	(0.340)	(0.337)	(0.357)	(0.313)
University education	0.134	0.032	0.051	0.084	0.298	−0.025	0.242	−0.099	0.210	0.065	0.425	−0.077
	(0.092)	(0.035)	(0.145)	(0.165)	(0.222)	(0.116)	(0.098)**	(0.058)*	(0.176)	(0.185)	(0.184)**	(0.164)
Observation	1,299	1,282	1,283	1,270	1,164	1,286	890	889	890	890	889	887
(pseudo) R^2	0.29	0.07	0.09	0.09	0.06	0.10	0.18	0.09	0.09	0.11	0.05	0.15

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Table 3. *Continued.*

Table 3.2 **Japan and the Republic of Korea**

	Japan						Republic of Korea					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Social trust	−0.018	−0.05	−0.053	−0.170	0.230	0.161	0.034	0.001	−0.285	−0.145	−0.090	–0.103
	(0.066)	(0.031)	(0.112)	(0.111)	(0.149)	(0.105)	(0.057)	(0.028)	(0.095)***	(0.097)	(0.113)	(0.087)
Personal trust	0.027	−0.005	0.042	0.151	−0.304	−0.136	0.007	0.028	0.145	0.093	−0.115	0.038
	(0.078)	(0.037)	(0.130)	(0.123)	(0.176)*	(0.131)	(0.065)	(0.032)	(0.105)	(0.114)	(0.128)	(0.098)
Social networks	0.154	−0.045	−0.022	−0.157	−0.018	−0.333	0.330	−0.102	−0.143	−0.132	−0.007	–0.283
	(0.120)	(0.068)	(0.206)	(0.188)	(0.286)	(0.213)	(0.086)***	(0.052)*	(0.150)	(0.148)	(0.181)	(0.148)*
Personal networks	0.017	0.031	−0.045	0.008	0.043	0.058	0.056	0.012	−0.005	0.019	0.019	–0.031
	(0.034)	(0.018)*	(0.060)	(0.059)	(0.082)	(0.054)	(0.032)*	(0.017)	(0.057)	(0.058)	(0.065)	(0.054)
Trust in courts	0.162	0.050	0.219	0.306	0.120	0.293	0.094	0.102	0.252	0.265	−0.083	0.290
	(0.062)**	(0.030)*	(0.108)**	(0.102)***	(0.138)	(0.103)***	(0.056)*	(0.029)***	(0.104)**	(0.104)**	(0.115)	(0.095)***
Trust in parliaments	0.005	0.045	0.108	0.083	−0.032	0.296	0.113	−0.036	0.019	−0.083	−0.088	–0.018
	(0.060)	(0.029)	(0.102)	(0.101)	(0.133)	(0.099)***	(0.052)**	(0.029)	(0.095)	(0.093)	(0.109)	(0.081)
Trust in fairness	−0.009	−0.008	0.004	−0.026	−0.010	0.052	0.029	−0.009	0.100	0.088	−0.092	0.071
	(0.019)	(0.008)	(0.032)	(0.031)	(0.045)	(0.033)	(0.020)	(0.010)	(0.032)***	(0.033)***	(0.039)**	(0.029)**
Reciprocity	0.265	−0.012	0.030	0.077	0.060	−0.002	0.109	0.027	0.125	0.109	0.0001	–0.003
	(0.037)***	(0.016)	(0.055)	(0.053)	(0.076)	(0.055)	(0.033)***	(0.017)*	(0.053)**	(0.054)**	(0.062)	(0.052)
Growth primacy	−0.027	0.121	0.328	0.387	−0.398	0.310	0.074	0.097	0.461	0.468	−0.113	0.372
	(0.072)	(0.038)***	(0.121)***	(0.119)***	(0.164)**	(0.121)**	(0.072)	(0.038)**	(0.117)***	(0.122)***	(0.141)	(0.110)***
Competition orientation	0.025	0.006	0.078	0.112	−0.045	0.095	0.021	0.046	0.173	0.201	−0.039	0.147
	(0.018)	(0.008)	(0.033)**	(0.031)***	(0.042)	(0.034)***	(0.019)	(0.010)	(0.034)***	(0.035)***	(0.039)	(0.031)***
Tolerance	0.016	−0.008	0.051	0.039	−0.078	0.027	0.012	−0.011	−0.021	−0.011	−0.049	–0.023
	(0.013)	(0.007)	(0.022)**	(0.022)*	(0.029)***	(0.022)	(0.015)	(0.008)	(0.026)	(0.027)	(0.030)	(0.025)
Acceptance inequality	0.014	0.028	0.105	0.058	−0.045	0.105	0.017	0.009	0.115	−0.106	0.041	0.073
	(0.019)	(0.008)***	(0.032)***	(0.030)*	(0.041)	(0.032)***	(0.016)	(0.008)	(0.030)***	(0.031)***	(0.033)	(0.027)***
Risk taking	0.332	0.010	−0.005	0.062	0.005	0.080	0.335	0.042	0.093	0.087	−0.040	0.141
	(0.039)***	(0.018)	(0.064)	(0.057)	(0.087)	(0.059)	(0.033)***	(0.016)***	(0.052)*	(0.052)*	(0.062)	(0.050)***
Gender (female)	−0.179	−0.086	−0.259	−0.254	0.038	−0.114	−0.140	−0.024	−0.156	−0.111	−0.011	–0.099
	(0.075)**	(0.038)**	(0.127)**	(0.124)**	(0.170)	(0.121)	(0.074)*	(0.039)	(0.120)	(0.120)	(0.144)	(0.106)

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Table 3. *Continued.*

Table 3.2 *Continued.*

	Japan						Republic of Korea					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Age	0.013	0.012	−0.065	−0.042	−0.037	0.018	−0.039	0.005	−0.073	−0.052	−0.042	0.012
	(0.017)	(0.008)	(0.027)**	(0.026)	(0.035)	(0.025)	(0.017)**	(0.009)	(0.029)**	(0.028)*	(0.033)	(0.028)
Age^2	−0.0001	−0.0001	0.0006	0.0005	0.0004	−0.0002	0.0003	−0.0001	0.0007	0.0006	0.0004	–0.0001
	(0.0002)	(0.0001)	(0.0003)**	(0.0002)*	(0.0003)	(0.0002)	(0.0002)*	(0.0001)	(0.0003)**	(0.0003)*	(0.0003)	(0.0003)
Marital status	0.038	0.007	−0.017	0.053	−0.023	−0.085	0.118	0.152	0.647	0.623	0.378	0.419
	(0.088)	(0.045)	(0.150)	(0.152)	(0.200)	(0.145)	(0.099)	(0.056)***	(0.164)***	(0.163)***	(0.186)**	(0.148)***
Income	0.003	−0.009	0.012	0.013	−0.054	0.010	−0.019	−0.008	−0.031	−0.052	−0.061	0.036
	(0.013)	(0.007)	(0.024)	(0.023)	(0.030)*	(0.021)	(0.021)	(0.011)	(0.038)	(0.038)	(0.042)	(0.034)
Self-employed	0.118	−0.071	−0.050	0.009	0.760	0.140	0.056	−0.020	−0.074	−0.348	−0.053	–0.065
	(0.110)	(0.056)	(0.208)	(0.181)	(0.284)***	(0.183)	(0.096)	(0.050)	(0.154)	(0.160)**	(0.179)	(0.139)
Unemployment	0.343	0.158	0.194	0.208	−0.351	−0.167	0.143	0.004	−0.447	−0.598	−0.104	0.250
	(0.267)	(0.104)	(0.311)	(0.345)	(0.469)	(0.378)	(0.191)	(0.089)	(0.314)	(0.327)*	(0.360)	(0.260)
University education	0.016	0.018	0.293	0.073	−0.298	0.428	0.207	−0.120	0.117	−0.078	0.083	–0.123
	(0.084)	(0.043)	(0.125)**	(0.128)	(0.182)	(0.121)***	(0.086)**	(0.043)***	(0.132)	(0.134)	(0.158)	(0.124)
Observation	969	980	945	939	897	935	1,019	1,020	1,015	1,015	1,015	1,014
(pseudo) R^2	0.22	0.08	0.08	0.09	0.06	0.12	0.29	0.10	0.16	0.16	0.03	0.13

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Table 3. *Continued.*

Table 3.3 **Singapore and Taipei,China**

	Singapore						Taipei,China					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Social trust	−0.109	−0.032	−0.006	0.014	0.014	−0.164	0.132	−0.111	−0.140	−0.240	0.088	−0.127
	(0.034)***	(0.016)**	(0.055)	(0.032)	(0.032)	(0.054)***	(0.068)*	(0.034)***	(0.110)	(0.130)*	(0.132)	(0.130)
Personal trust	−0.133	0.027	0.226	0.015	0.015	0.345	−0.103	−0.010	−0.168	−0.065	0.021	−0.129
	(0.042)***	(0.020)	(0.064)***	(0.039)	(0.039)	(0.070)***	(0.077)	(0.037)	(0.0125)	(0.148)	(0.144)	(0.144)
Social networks	−0.034	0.024	−0.168	−0.120	0.119	−0.084	0.042	−0.006	−0.049	−0.043	0.122	−0.249
	(0.062)	(0.027)	(0.098)*	(0.051)**	(0.051)**	(0.085)	(0.059)	(0.032)	(0.101)	(0.107)	(0.111)	(0.107)**
Personal networks	0.047	0.002	−0.123	−0.0006	−0.001	−0.174	0.094	−0.001	−0.038	−0.001	0.103	0.100
	(0.025)	(0.012)	(0.041)***	(0.022)	(0.022)	(0.041)***	(0.032)***	(0.017)	(0.054)	(0.059)	(0.060)	(0.056)*
Trust in courts	−0.009	0.012	0.324	−0.0004	−0.0004	0.107	−0.058	−0.005	0.133	0.024	−0.104	0.131
	(0.051)	(0.021)	(0.083)***	(0.044)	(0.044)	(0.081)	(0.058)	(0.029)	(0.099)	(0.111)	(0.118)	(0.113)
Trust in parliaments	−0.043	0.046	−0.050	−0.029	−0.029	0.127	−0.057	0.082	0.095	0.222	−0.071	0.240
	(0.046)	(0.020)**	(0.075)	(0.044)	(0.044)	(0.076)*	(0.058)	(0.029)***	(0.097)	(0.109)**	(0.112)	(0.108)**
Trust in fairness	0.003	0.002	0.042	0.029	0.029	0.041	−0.0006	0.002	0.100	0.122	0.030	0.104
	(0.013)	(0.006)	(0.020)**	(0.012)**	(0.012)**	(0.020)**	(0.021)	(0.010)	(0.037)***	(0.037)***	(0.039)	(0.039)***
Reciprocity	0.179	0.016	−0.005	0.051	−0.051	0.002	0.240	0.009	0.073	0.198	−0.073	0.153
	(0.026)***	(0.012)	(0.038)	(0.022)**	(0.022)**	(0.037)	(0.040)***	(0.019)	(0.066)	(0.072)***	(0.074)	(0.071)**
Growth primacy	0.215	0.037	0.315	−0.021	−0.021	0.350	0.080	0.162	0.129	0.138	−0.016	0.328
	(0.056)***	(0.026)	(0.085)***	(0.049)	(0.049)	(0.084)***	(0.081)	(0.042)***	(0.128)	(0.140)	(0.145)	(0.141)**
Competition orientation	0.043	0.010	0.160	−0.012	−0.012	0.118	0.020	0.030	0.104	0.053	−0.075	0.113
	(0.012)***	(0.006)*	(0.020)***	(0.011)	(0.011)	(0.019)***	(0.020)	(0.010)***	(0.038)***	(0.036)	(0.040)*	(0.039)***
Tolerance	0.010	−0.005	0.052	0.009	0.009	0.072	0.024	−0.007	0.002	−0.067	−0.006	−0.028
	(0.012)	(0.005)	(0.017)***	(0.011)	(0.011)	(0.018)***	(0.016)	(0.008)	(0.027)	(0.029)**	(0.030)	(0.028)
Acceptance inequality	0.011	0.012	0.066	0.001	0.001	0.056	0.044	0.0002	0.041	0.006	0.052	0.052
	(0.012)	(0.005)**	(0.019)***	(0.011)	(0.011)	(0.018)***	(0.016)***	(0.007)	(0.026)	(0.027)	(0.030)	(0.027)*
Risk taking	0.332	−0.0001	0.027	0.016	0.016	−0.056	−0.160	0.003	−0.076	−0.062	−0.063	−0.031
	(0.024)***	(0.010)	(0.032)	(0.020)	(0.020)	(0.033)*	(0.035)***	(0.017)	(0.055)	(0.066)	(0.067)	(0.064)
Gender (female)	−0.043	−0.055	0.060	0.027	0.027	−0.113	−0.099	−0.133	−0.230	−0.200	−0.102	0.055
	(0.053)	(0.025)**	(0.079)	(0.047)	(0.047)	(0.080)	(0.078)	(0.041)***	(0.128)*	(0.141)	(0.146)	(0.138)

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Table 3. *Continued.*

Table 3.3 *Continued.*

	Singapore						Taipei,China					
Variables[a]	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**	**New Idea**	**Tech. Dev.**	**Sci. & Tech.**	**Future**	**Too Much**	**World**
Age	0.006	0.005	−0.022	0.012	0.012	−0.023	−0.034	0.002	−0.021	−0.040	0.021	−0.009
	(0.010)	(0.005)	(0.015)	(0.009)	(0.009)	(0.014)	(0.015)**	(0.007)	(0.025)	(0.026)	(0.030)	(0.026)
Age^2	−0.00006	−0.00007	0.00028	−0.0001	−0.0001	0.00027	0.003	5.38e−06	0.0002	0.0004	−0.0003	0.0002
	(0.0001)	(0.00005)	(0.00015)*	(0.0001)	(0.0001)	(0.00014)*	(0.00015)**	(0.0001)	(0.0003)	(0.00025)*	(0.0003)	(0.0003)
Marital status	−0.090	0.018	0.072	0.098	0.098	−0.033	−0.040	−0.078	0.010	−0.221	−0.030	−0.171
	(0.067)	(0.031)	(0.105)	(0.061)	(0.061)	(0.102)	(0.102)	(0.050)	(0.158)	(0.183)	(0.199)	(0.176)
Income	0.073	−0.006	0.109	−0.003	−0.003	0.072	0.053	0.015	0.196	0.150	0.084	0.080
	(0.019)***	(0.008)	(0.029)***	(0.018)	(0.018)	(0.030)**	(0.026)**	(0.013)	(0.047)***	(0.048)***	(0.050)*	(0.048)*
Self-employed	0.067	0.004	−0.200	−0.025	−0.025	0.158	−0.124	0.035	0.432	0.205	0.353	0.298
	(0.117)	(0.052)	(0.195)	(0.115)	(0.115)	(0.194)	(0.156)	(0.073)	(0.224)*	(0.250)	(0.274)	(0.252)
Unemployment	0.113	0.015	0.032	0.363	0.363	−0.079	−0.170	−0.128	0.001	−0.306	−0.020	−0.455
	(0.135)	(0.056)	(0.191)	(0.106)***	(0.106)***	(0.193)	(0.228)	(0.126)	(0.386)	(0.417)	(0.440)	(0.454)
University education	0.063	0.068	0.112	−0.033	−0.033	0.177	0.267	0.019	0.091	−0.187	0.067	0.061
	(0.062)	(0.030)**	(0.095)	(0.059)	(0.059)	(0.096)*	(0.086)***	(0.045)	(0.134)	(0.150)	(0.158)	(0.147)
Observation	1,916	1,916	1,916	1,916	1,916	1,916	1,024	1,021	1,022	1,021	1,011	1,016
(pseudo) R^2	0.23	0.06	0.13	0.11	0.03	0.11	0.18	0.06	0.08	0.07	0.03	0.08

Notes: [a]*New Idea*: importance of new ideas and creativity; *Tech. Dev.*: importance of technological development; *Sci. & Tech.*: importance of science and technology today; *Future*: importance of science and technology in the future; *Too Much*: acceptance of the statement "we depend too much on science;" *World*: acceptance of the statement "science makes the world better." Numbers in parentheses are robust standard errors clustered at the individual level. $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .001$.
Source: Author's estimates.

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positive effect on innovation (significant in five of the six models). Increasing the acceptance level of competition by 10 percentage points strengthens one's supportive attitudes for innovation by 4.8–11.1 percentage points. These findings are puzzling because they suggest that innovation in the PRC is the outcome of both mutual assistance and individual competition, which are two potentially conflicting values. It mirrors the complex path of the PRC's fast development, in which both traditional (reciprocity) and individual (competition) values coexist and concur.

On the other hand, the shared norm of growth primacy plays a minimal role in promoting innovation in the PRC. The effect is either insignificant or sometimes even negative, contrary to the positive effect at the aggregate level of the six economies as shown in Table 2. In addition, the effect of trust in other individuals—both social and personal trust—is largely trivial, as is the limited role of networks. Instead, trust in formal institutions is important in promoting innovation. In particular, increasing the level of trust in parliaments and in the fairness of the rules by 10 percentage points improves one's support for innovation by 23.8–34.8 percentage points and 8.6–12.3 percentage points, respectively.

In Hong Kong, China the results demonstrate both similarities and differences with the PRC. First, similar to the PRC, the shared norm of growth primacy does not play a meaningful role in Hong Kong, China. The important component of social norms for Hong Kong, China is the value of accepting competition. This norm has a significant, positive effect in five of the six models in Hong Kong, China, a finding similar to the PRC with somewhat larger effects. Increasing the level of acceptance of competition by 10 percentage points improves one's attitudes toward innovation by 6.2–11.1 percentage points in Hong Kong, China compared to 4.8–11.1 percentage points in the PRC. Trust in formal institutions is also important in Hong Kong, China. Trust in courts and parliaments as well as the fairness of the rules all have significant effects in three of the six innovation models—an increase in institutional trust by 10 percentage points results in increasing innovation by 10.7–34.8 percentage points.

On the other hand, despite their shared ethnic backgrounds and Chinese tradition, several differences between the PRC and Hong Kong, China are observed. The effect of reciprocity is significant in only two out of the six models in Hong Kong, China. This finding suggests that reciprocity is less important in Hong Kong, China than in the PRC. Moreover, social trust discourages innovative attitudes in Hong Kong, China, which is similar to the overall results for the six economies but different from the insignificant effect in the PRC. All in all, contemporary individualist values (e.g., competition) overshadow traditional norms (reciprocity) in determining innovation in Hong Kong, China, while both types of norms coexist in the PRC. This might be explained by the different economic and institutional developmental paths the PRC and Hong Kong, China have taken in recent history.

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2. The Republic of Korea and Japan

The role of social capital is similar in the Republic of Korea and Japan to a substantial extent (see Table 3.2). In both countries, the effect of individual trust is considerably limited in explaining innovative attitudes, as both social and personal trust have almost no effect. In addition, social and personal networks are not important determinants of promoting innovation—there is (almost) no effect in Japan and either insignificant or negative effects in the Republic of Korea (except for a positive effect on new ideas and creativity). These findings provide counterevidence to the argument by Fukuyama (1995) who hypothesized Japan as a high-trust society (therefore relying on generalized social networks for economic cooperation and innovation) and the Republic of Korea as a low-trust society (therefore relying on personal networks). Instead of social and personal trust and networks, two other components of social capital play a meaningful role in these two countries: (i) trust in formal institutions, particularly justice (trust in courts in both countries and trust in the fairness of the rules in the Republic of Korea); and (ii) social norms that support growth primacy as a societal goal and competition as a mode of stimulating individual efforts.

In both countries, trust in courts has a significant, positive effect in five of the six innovation models. The size of the effect is comparable between the two countries: increasing trust in courts by 10 percentage points increases positive attitudes toward innovation by 16.7–29.3 percentage points in Japan and 15.7–29 percentage points in the Republic of Korea. Additionally, in the Republic of Korea, trust in the fairness of the rules has a significant effect in four of the six models, with an increase in this type of trust by 10 percentage points resulting in promoting innovative attitudes by 7.1–10 percentage points.

Among the different types of social norms, growth primacy plays a somewhat more significant role in Japan than in the Republic of Korea—the effect is significant in five models in Japan and four models in the Republic of Korea. However, the size of the effect is 20%–40% larger in the Republic of Korea when it is significant (except for *Tech. Dev*., i.e., the importance of technological development). Both the Republic of Korea and Japan tend to accept the norm of competition as a mode of fostering efforts, with the significance of the effect appearing in three models out of six. The effect is significantly greater in the Republic of Korea than in Japan (14.7–20.1 percentage points versus 7.8–9.5 percentage points), implying that the Republic of Korea tends to have a competition-oriented society.

However, the two countries differ in endorsing the norm of performance-based incentives (economic inequality). In Japan, the acceptance of economic inequality has a generally positive effect. A 10 percentage point increase in the level of accepting this norm increases innovative attitudes by 9.3–10.5 percentage points in four of the six models. The effect is more mixed in the Republic of Korea where

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accepting inequality increases positive attitudes toward the importance of science and technology only in the present but not in the future. The positive effects on *Sci. & Tech.* (importance of science and technology today) and *World* (agreeing that science makes the world better) have a magnitude of 7.3–11.5 percentage points. However, accepting inequality negatively affects *Future* (attitudes toward the importance of science and technology in the future)—a 10 percentage point increase in the level of accepting inequality results in constraining one's support for this type of innovation by 10.6 percentage points. This difference suggests that Koreans tend to accept economic inequality as a currently valid norm for development but not for the future, whereas the Japanese are more inclined to embrace such economic incentives in general.

While both countries generally support the social norms of competition- and incentive-based growth, the Republic of Korea and Japan place different emphases on the norms of social inclusion. In the Republic of Korea, the reciprocity of broad social groups plays an important role in innovation, while tolerance toward minorities fills this role in Japan. Increasing the level of reciprocity by 10 percentage points in the Republic of Korea enhances one's support for innovation by 9–18.16 percentage points, but tolerance has no effect. In Japan, increasing tolerance by the same margin results in stimulating one's innovative attitudes by 3.9–7.8 percentage points, but the effect of reciprocity is minimal.

Moreover, the gender effect is different between the Republic of Korea and Japan. Women's support toward innovation is generally lower in Japan—25.4%–29.8% lower than men's in four of the six models. On the contrary, in the Republic of Korea, women are as innovative as men, as the gender effect is largely insignificant. This result is similar to that in Hong Kong, China where there is also almost no gender difference in individuals' innovative attitudes.

3. Singapore and Taipei,China

Singapore shows generally similar results to those of the other East Asian economies (see Table 3.3). In Singapore, social trust has either a negative or insignificant effect. However, the effect of personal trust is more mixed—positive, negative, or insignificant—depending on the innovation measure. Also, the effects of both social and personal networks are insignificant or negative. Similar to the other East Asian economies, there is no evidence to support the positive role of trust in individuals or networks in explaining Singaporeans' attitudes toward innovation.

Instead, it is the shared social norms that stimulate innovative attitudes in Singapore, similar to the other East Asian economies. The value of accepting competition is the most robust determinant—increasing the level of endorsing this value by 10 percentage points raises one's innovative attitudes by 3.3–16 percentage points in four of the six models. Reciprocity, growth primacy, and

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acceptance of inequality also form a group of important social norms, as they foster attitudes toward innovation in three of the six models. Increasing the level of reciprocity and acceptance of inequality improves one's support for innovation by 5.1–29.8 percentage points and 4–6.6 percentage points, respectively, and agreeing with growth primacy as the main goal of the economy strengthens innovative attitudes by 3.2–3.6 percentage points. This finding contributes to the argument that innovation is an outcome of competition-based activities rather than cooperation-based activities in East Asia. Additionally, trust in the fairness of the rules is an important institutional determinant in Singapore. Increasing this type of institutional trust by 10 percentage points boosts the degree of supportive attitudes toward innovation by 2.9–4.2 percentage points.

The findings for Taipei,China (also in Table 3.3) are similar to those for Singapore to a great extent, supporting the important role of shared social norms. Increasing the degree of accepting competition by 10 percentage points raises positive attitudes toward innovation by 5.3–11.3 percentage points in four of the six models. The effect of reciprocity is significant in three out of the six models. A 10 percentage point increase in the level of accepting this norm creates a positive effect of 15.3–40 percentage points on innovative attitudes. Growth primacy and acceptance of inequality also have positive effects of 5.4–32.8 percentage points and 5.2–7.3 percentage points, respectively, but they are significant in only two models. In addition, trust in formal institutions is also important in Taipei,China. In particular, increasing the level of fairness of the rules and trust in parliaments by 10 percentage points improves one's innovative attitudes by 10–12.2 percentage points and 22.2–27.3 percentage points, respectively.

In contrast to the significant role of social norms and trust in formal institutions, the effects of trust in individuals and networks are limited in boosting innovation in Taipei,China. The effect of social trust is either negative or insignificant (except for the modestly positive effect on *New Idea*), while personal trust has no effect on innovation. Also, social networks generally do not have significant effects. Personal-interest-driven networks have a positive effect of stimulating innovative attitudes to some degree, albeit the effect is significant in only two models. This positive (although limited) effect of personal networks may be explained by the industrial structures of Taipei,China as a small economy that depends on many small and medium-sized, family-owned enterprises.

Overall, the effects of trust in individuals tend to be negative in smaller economies (Hong Kong, China; Singapore; and Taipei,China) and insignificant in larger ones (Japan, the PRC, and the Republic of Korea). In any case, social trust plays no positive role in shaping innovative attitudes. Instead, institutional trust and shared social norms such as growth primacy, acceptance of competition- and performance-based economic incentives, and reciprocity are important determinants of innovation in East Asia. This analysis renders social norms as the driving force of innovation in this region while questioning the role of

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social trust. While social norms are important in all six East Asian economies, the specific components of social norms that have more significant effects differ among them. This requires a future study that can address heterogeneity across economies in the role of social norms.

VI. Conclusion

The findings of this study recapture the important role of social capital in achieving innovation and economic development. Nevertheless, the types of social capital that are essential for innovation in East Asia are different from the emphasis given on social trust in the literature. Shared social norms and values are the prime drivers of innovation in the high-performing East Asian economies. In addition, trust in formal institutions plays a crucial role. These results indicate how the East Asian economies realized their development: by supporting societal goals that were collectively set by citizens and led by the states.

While the East Asian economies share the importance of social norms, the types of social norms and values that are particularly key to innovation differ across economies—for example, reciprocity plays a pronounced role in the PRC, in contrast to Japan and the Republic of Korea where growth primacy is more important. Further studies are encouraged to investigate how each economy's social conditions and contexts contribute toward shaping economy-specific roles of social norms as a promoter of innovation.

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Appendix 1. **Descriptive Statistics of Social Capital Variables**

Variables	Observations	Mean	Minimum	Maximum
Social trust	7,446	2.32	1	4
Personal trust	7,117	2.45	1	4
Social networks	7,446	1.21	0	2
Personal networks	7,117	1.33	0	2
Trust in courts	7,446	2.74	1	4
Trust in parliaments	7,117	2.01	1	4
Trust in fairness	7,117	2.55	1	10
Reciprocity	7,117	3.89	1	6
Growth primacy	7,446	0.68	0	1
Competition orientation	7,117	0.71	1	10
Tolerance	7,446	4.59	1	10
Acceptance of inequality	7,117	5.97	1	10

Source: Author's estimates using data from the World Values Survey (2005–2014).

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Appendix 2. **Correlation Matrix of Social Capital Variables**

Variables	Social Trust	Personal Trust	Social Networks	Personal Networks	Trust in Courts	Trust in Parliament	Trust in Fairness	Reciprocity	Growth Primacy	Competition orientation	Tolerance	Acceptance Inequality
Social trust	1											
Personal trust	0.53	1										
Social networks	0.43	0.26	1									
Personal networks	0.35	0.29	0.44	1								
Trust in courts	0.52	0.12	0.22	0.14	1							
Trust in parliaments	0.44	0.25	0.11	0.18	0.65	1						
Trust in fairness	0.56	0.31	0.35	0.27	0.51	0.49	1					
Reciprocity	0.61	0.42	0.29	0.31	0.37	0.36	0.51	1				
Growth primacy	0.34	0.23	0.13	0.25	0.33	0.42	0.63	0.21	1			
Competition orientation	0.12	0.19	0.20	0.22	0.29	0.33	0.43	0.19	0.64	1		
Tolerance	0.37	0.20	0.23	0.09	0.35	0.12	0.41	0.07	0.25	0.22	1	
Acceptance of inequality	0.21	0.18	0.17	0.25	0.41	0.24	0.46	0.12	0.59	0.68	0.21	1

Note: Pearson correlation coefficients are presented above.
Source: Author's estimates.

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Appendix 3. **Instrumental Variable Approach, Two-Stage Least Squares**

1st Stage	(1) Social Trust	(2) Personal Trust	(3) Social Networks	(4) Personal Networks	(5) Trust in Courts	(6) Trust in Parliaments
Average value	0.14***	0.07**	0.06**	0.02**	0.12***	0.16**
(Instrument)	(0.05)	(0.03)	(0.03)	(0.01)	(0.05)	(0.07)
F–statistics	31.71***	28.9***	36.78***	18.78***	24.62***	34.48***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,117	7,117	7,117	7,117	7,117	7,117
1st Stage	**(7) Trust in Fairness**	**(8) Growth Primacy**	**(9) Competition**	**(10) Acceptance Inequality**	**(11) Reciprocity**	**(12) Tolerance**
Average value	0.78***	0.05***	0.51***	0.69**	0.15**	0.33*
(Instrument)	(0.33)	(0.02)	(0.24)	(0.37)	(0.08)	(0.20)
F–statistics	29.01***	37.10***	16.42***	27.28***	19.50***	23.32***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,117	7,117	7,117	7,117	7,117	7,117
2nd Stage Variables[a]	**(1) New Idea**	**(2) Tech. Dev.**	**(3) Sci. & Tech.**	**(4) Future**	**(5) Too Much**	**(6) World**
Social trust	0.056	−0.121	−0.104	−0.105	−0.039	−0.099
	(0.032)*	(0.059)**	(0.065)*	(0.077)	(0.072)	(0.059)*
Personal trust	−0.055	0.011	0.081	0.092	−0.022	0.109
	(0.045)	(0.032)	(0.049)*	(0.084)	(0.091)	(0.061)*
Social networks	0.069	−0.053	−0.076	−0.054	0.105	−0.055
	(0.036)*	(0.044)	(0.101)	(0.095)	(0.099)	(0.030)**
Personal networks	0.041	0.031	−0.043	−0.042	0.035	−0.012
	(0.033)	(0.065)	(0.026)*	(0.055)	(0.048)	(0.031)
Trust in courts	−0.012	0.096	0.197	0.174	−0.032	0.156
	(0.013)	(0.045)**	(0.081)***	(0.091)**	(0.044)	(0.071)***
Trust in parliaments	0.001	0.085	0.051	0.066	−0.051	0.199
	(0.003)	(0.043)**	(0.048)	(0.040)*	(0.071)	(0.099)**
Trust in fairness	0.015	−0.010	0.093	0.097	0.011	0.071
	(0.007)**	(0.053)	(0.044)***	(0.051)**	(0.021)	(0.033)***
Reciprocity	0.121	0.076	0.009	0.006	−0.075	0.100
	(0.061)**	(0.034)***	(0.052)	(0.021)	(0.044)*	(0.051)**
Growth primacy	0.091	0.095	0.095	0.113	−0.111	0.198
	(0.032)***	(0.051)**	(0.050)**	(0.054)***	(0.061)**	(0.079)***
Competition orientation	0.032	0.054	0.109	0.195	−0.065	0.123
	(0.016)**	(0.017)***	(0.057)**	(0.095)**	(0.031)***	(0.065)**
Tolerance	0.020	−0.037	0.071	−0.001	0.002	0.009
	(0.016)	(0.020)*	(0.041)*	(0.011)	(0.015)	(0.011)
Acceptance of inequality	0.045	0.025	0.098	0.074	0.010	0.040
	(0.016)***	(0.011)***	(0.043)***	(0.039)**	(0.039)	(0.020)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Economywide fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,117	7,117	7,117	7,117	7,117	7,108
Countries	6	6	6	6	6	6
Hansen test (p-value)	0.35	0.33	0.29	0.30	0.42	0.38

Notes: [a]*New Idea*: importance of new ideas and creativity; *Tech. Dev.*: importance of technological development; *Sci. & Tech.*: importance of science and technology today; *Future*: importance of science and technology in the future; *Too Much*: acceptance of the statement "we depend too much on science;" *World*: acceptance of the statement "science makes the world better." Numbers in parentheses are robust standard errors clustered at the individual level. $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .001$. The coefficients of the control variables are not presented here to save space.
Source: Author's estimates.

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