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SOCIAL CAPITAL AND PROFITABILITY:

An Empirical Evidence from Indonesia

PENANGGUNGJAWAB

ENDRIZAL RIDWAN, PH.D.

JURUSAN ILMU EKONOMI
FAKULTAS EKONOMI
UNIVERSITAS ANDALAS

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Abstract

This study examined two opposite effects of two dimensions of social capital on profitability. The first dimension, bridging (inclusive) social capital, facilitates coordination and cooperation and channels valuable information. However, this healthy business environment may ease the potential entry into the markets. The second dimension, bonding (exclusive) social capital, promotes market collusion, but limits the spread of information. Both dimensions affect business costs and revenues in opposite ways. Using the fourth wave of the Indonesian Family Life Survey (IFLS), this study shows that bridging social capital promoted market competition, which was good for consumers. However, its net effect on profit was negative, and bonding social capital had no significant effect on either competition or profit. These findings support the view that profit positively correlates with price instability, while bridging social capital works toward price stability.

HALAMAN PENGESAHAN

1. Judul Penelitian : **Social Capital and Profitability**

2 Ketua Peneliti
   a. Nama Lengkap : Endrizal Ridwan, Ph.D.
   b. Jenis Kelamin : Laki-laki
   c. NIP : 197209271998021001
   d. Pangkat/Gol : Penata Muda Tk. I/ III.B
   e. Jabatan Fungsional : Assiten Ahli
   f. Jurusan : Ilmu Ekonomi
   h. Alamat : Komp. PGRI 2 D-25
   i. Telp/handphone : 082260649569
   j. E-mail : Endrizal.ridwan@gmail.com

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Mengetahui
Ketua Jurusan Ilmu Ekonomi

Ketua Peneliti,

Dr.H. Hefrizal Handra, M.Soc.Sc
NIP. 196510201993021001

Endrizal Ridwan, Ph.D.
NIP. 197209271998021001

Menyetujui,
Dekan

Dr. Harif Amali Rivai, SE, M.Si
NIP. 19711022 199701 1001

SURAT PERNYATAAN

Yang bertanda tangan di bawah ini:

Nama	: Endrizal Ridwan, Ph.D
NIP / NIDN	: 197209271998021001/ 027097204
Jurusan	: Ilmu Ekonomi

Dengan ini menyatakan bahwa penelitian saya dengan judul **Social Capital and Profitability** yang diusulkan dalam skim penelitian pendanaan Fakultas Ekonomi Universitas Andalas untuk tahun anggaran 2016 **bersifat original dan belum pernah dibiayai oleh lembaga / sumber dana lain**. Bilamana di kemudian hari ditemukan ketidaksesuaian dengan pernyataan ini, maka saya bersedia dituntut dan diproses sesuai dengan ketentuan yang berlaku dan mengembalikan seluruh biaya penelitian yang sudah diterima ke kas negara. Demikian pernyataan ini dibuat dengan sesungguhnya dan dengan sebenar-benarnya.

Padang, 30 Nopember 2016

Mengetahui,
Ketua Jurusan,

Yang menyatakan,
Peneliti

METERAI 6000

Dr. Hefrizal Handra, M.Soc.Sc
NIP. 196510201993021001

Endrizal Ridwan, Ph.D
NIP. 197209271998021001

DAFTAR ISI

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1 Introduction

This study will present an empirical investigation of the effect of social capital on business performances; it defines social capital as the "village level of trust" that facilitates cooperative behavior in an economic process. Social capital has shown to have a positive relation to broad social and economic variables, but it has been mainly studied from the perspective of the consumers, e.g., its effects on economic development (Fukuyama 1995; Putnam 2000), growth (Algan and Cahuc 2010), education (Coleman 1988; 1990), household income (Narayan and Pritchett 1999), health conditions, and social wellbeing (Helliwell and Putnam 2004; Helliwell 2006). Its effect on real business performance, especially at the household level, is not yet clear. The few attempts to look at this effect potentially suffered from endogeneity issues because social capital tended to be measured by the number of associations between people (Gomez and Santor 2001; Fafchamps and Minten 2002; Annen 2013). By understanding the causal relationship between social capital and business performance, the effect of social capital from the perspective of the producers can become clearer; and by defining social capital as the village level of trust, the endogeneity issue can be resolved.

This will study also fill the gap between the macro and micro level studies of social capital and development. The literature on social capital and economic development at the macro level focused on cross-country comparisons, and at the micro

level relied on the case studies of a few villages or small districts. The scope of the macro studies were typically too broad to derive at a specific conclusion as they involved a large number of communities with heterogenous characteristics (see, for example, Knack and Keefer 1997; Guiso, Sapienza, and Zingales 2006; Algan and Cahuc 2010). Therefore, the contribution of social capital on economic success was indistinguishable from other affecting variables. The micro level studies, such as Nadvi (1999), Gomez and Santor (2001), and Annen (2001), were too narrow for their findings to be generalized to other areas. My study fills the gap by focusing on one country with multiple community variations.

I will focus on two dimensions of social capital that follow Putnam's *Bowling Alone* (2000), and each dimension affects profitability in opposite ways. The first dimension is bridging (inclusive) social capital, which I define as the level of trust among community members, regardless of one's background. This outward looking social capital is presumably good for facilitating cooperation and coordination among community members. It is also good for channeling valuable information that is beneficial for labor productivity. However, bridging social capital relaxes the potential entry into the markets, which may increase competition. The second dimension is bonding (exclusive) social capital, which I define as the level of trust among people who have similar socioeconomic characteristics. This inward looking social capital tends to increase potential collusion among business practitioners, which is good to extract monopoly rent. However, bonding social capital limits the spread of information, which in turn may lower labor productivity. Overall, both dimensions of social capital simultaneously determine business costs and revenues, but in opposite directions, and hence, have an ambiguous effect on profitability.

2 Literature Review

The concept of social capital is the recognition that social connections have economic value (Putnam 2000). Such social connections include three components: social actors, organizations, and institutions.[1] Thus, social capital has aspects of social structure, and it facilitates the actors to conduct certain actions within its structure (Coleman 1988). The Worldbank divides social capital into three main concepts.[2] In its narrower concept, social capital is a set of horizontal associations between people as social actors. In its broader concept, it concerns not only horizontal associations but also the vertical connections within social structures. The broadest view of social capital considers all three components plus the roles of formal institutions as an external force to shape social connections.

Trust, the community members' expectation that each member behaves cooperatively, is an outcome of social connections in the broadest concept. As a product of social relations, norms, and external forces, trust affects community productivity and wellbeing. The presence of trust is also necessary for information transfers, which are crucial for labor productivity. The prevalence of trust within the community enables the people of the community to be capable to do productive activities (Fukuyama 1995). Therefore, I define social capital as the community level of trust that enables cooperation in productively economic relationships, and such trust comes from three sources: long-term social relationships, social norms of conduct, and community enforcement.[3]

[1] Uphoff (1993) distinguished between institutions and organizations. Institutions are sets of norms that persist over time and could be created by invisible hands, such as language and religion, or be man made, such as the Federal Reserve system. Organizations are structures of accepted roles such as firms. An organization is also an institution, and vice versa, if it implements specific norms of conduct, e.g., the Central Bank, the Supreme Court.

[2] The Worldbank's website has a special section on social capital: http://go.worldbank.org/C0QTRW4QF0.

[3] Social capital has been defined in different ways, although it is common to view it in terms of

The three sources, above, make cooperation in economic relationships possible. To cooperate in economic relationships, each actor needs to have shown repeated cooperation in social relationships, or the actors need to have social norms of conduct. Once the community has a set of mutual norms, trust can develop. In some cases, trust could be unilaterally placed by the trustors to the trustees (Coleman 1990). Economic cooperation can also be sustained if higher authorities impose an external force in terms of reward and punishment; because everyone in the community cannot be trusted at all times to behave within the norms of good conduct, higher authorities need to impose explicit rules and sanctions. Arrow's (1972) statement further supports my argument of the importance of trust: every commercial transaction virtually has within itself an element of trust. Thus, since economic activity represents an important part of social life, a society's well being crucially depends on the level of trust inherent in that society (Fukuyama 1995).

Social capital is productive because it makes achieving certain ends possible (Coleman 1988). Like physical and human capital, social capital increases the productivity of individuals and groups. The most important distinction of social capital is between bonding (exclusive) and bridging (inclusive) social capital (Putnam 2000). Bonding social capital is the level of trust among community members who have similar demographic characteristics; it is inward looking and tends to reinforce exclusive identities and homogenous groups. Bonding social capital is good for undergirding specific reciprocity, mobilizing solidarity, and forming social, economic, and political collusions. However, this dimension of social capital may constrain individual actions and choices because it can exclude other community members from

the outcome of social interactions. Portes (1998) and Bourdieu (2008), for example, referred social capital to the ability of social actors to secure benefits by virtue of membership in social networks. Coleman (1988) viewed social capital as the aggregate of resources to which social actors have access because of social interactions. Fukuyama (1995) defined it as a capability that arises from the prevalence of trust in a certain part of society.

access to valuable resources (Portes and Landolt 1996).

Bridging social capital is the level of trust among community members regardless of their demographic background. It is outward looking and encompasses people across diverse social cleavages, and it is beneficial for linking to external assets and diffusing information. Bridging social capital can generate broader perspectives, whereas bonding social capital bolsters narrower outlooks. Putnam, in his book *Bowling Alone* (2000), illustrated bonding social capital as a social superglue and bridging social capital as a social lubricant; bonding social capital strengthens in-group loyalty, while bridging social capital broadens reciprocity.

However, many groups simultaneously bond along some social dimensions and bridge across others. For example, the Indonesian Muslim Association in the United States brings together people from one country and one religion as it reaches people from different level of education, income, etc. Thus, bonding and bridging are not either-or categories into which social networks could be divided; they are dimensions in which we can compare different forms of social capital. As both dimensions of social capital have advantages and disadvantages, both potentially contribute to business success.

To analyze how social capital affects business success, Annen (2001) compared two studies: Knorringa's (1996) case study on a cluster of footwear industries in India and Nadvi's (1999) cluster of surgical instrument industries in Pakistan. Annen's study viewed social capital as a means to sustain cooperation within social networks. He argued that social capital created in open social networks could combine high gains from trade with low costs of contract enforcement. According to his argument, the more inclusive the society the higher the gain from trade. Annen's study differentiated the two dimensions of social capital by investigating the network's entry cost: a network is less open to new members if the entry cost is rel-

atively high. Thus, bridging social capital refers to networks with a low entry cost, and bonding social capital refers to networks with a high entry cost. Annen (2001) concluded that bonding social capital was related to poor economic performance, and bridging social capital is associated with success. In the Indian footwear cluster, caste antagonism created bonding social capital that constituted social barriers between producers and sellers. Such barriers lowered gains from trade and led to low profitability. In the Pakistani surgical instrument cluster, social groups that welcomed open membership structures created bridging social capital which led to good economic performance.

Earlier studies in industrial organization focused on the empirical links between market structure, conduct, and performance, known as the SCP paradigm. Market structure, such as seller concentration and cost structure, determines conduct such as price and investment. Finally, conduct yields market performance such as profit, efficiency, and distribution. This paradigm was very powerful, and its emphasis on empirical studies of industries were later supported by a strong theoretical foundation (see Tirole 1988). A central theme of the SCP debate has been what determines profit, and Bothwell, Cooley, and Hall (1984) classified the hypothesis of the debate into six categories, namely, that profit is established by (i) seller concentration, (ii) entry barriers, (iii) absolute or relative firm sizes, (iv) advertising intensity, (v) growth, and (vi) that risk differential explains differences in profit. None of these hypotheses explicitly states social capital as a determinant of profit, despite that trust must have been a necessary condition for an economic transaction.

However, implicit analyses of social capital as a determinant of profitability began with studies that linked market concentration to profitability. In his seminal paper, Bain (1950) argued that firms in a high concentration industry made higher profit than those in a low concentration industry. His analysis was derived from

the economic theory that at a given entry and demand condition, effective collusive oligopolists could pursue their profit maximization solution at the long-run equilibrium. But firms with a higher level of competition would sell at a lower price, and hence, make a lower profit. Effective collusion can be achieved if bonding social capital exists in closely related firms. In this case, social capital determines market competition, and hence, profit.

Demsetz (1973) supported the idea that market concentration explained profitability. However, he claimed that the source of concentration was less likely from a collusion. Instead, it resulted from the firms' idiosyncratic characteristics such as cost efficiency:

> [I]t may be that the members of the employee team derive their higher productivity from the knowledge they possess about each other in the environment of the particular firm in which they work, a source of productivity that may be difficult to transfer piecemeal (Demsetz 1973, 2).

Such cost advantage more likely arose from an economy of scale, from technology innovation, and from employees' social capital. These characteristics determine market concentration and profitability. Demsetz's study is related to the concept of bridging social capital in which social connections with a broader society widely disseminate knowledge, which is a crucial source of labor productivity. Thus, bridging social capital lowers the effective cost of labor, and it directly affects profit. Bridging social capital also affects profit indirectly through market concentration.

Explicit studies of social capital on business success, such as Gomez and Santor (2001), Fafchamps and Minten (2002), and Annen (2013), confirmed the positive contribution of social capital on business success. Gomez and Santor (2001) investigated whether being a member in a social organization improved business performance. Their sample was self-employed individuals who borrowed from Calmeadow

Metrofund, the largest nonprofit microfinance organization in Canada, where a majority of the borrowers participated in group lending. The group borrowers were asked to form a peer group as a condition of credit extension. They found that being a member of a social organization, that meet regularly, was significantly correlated to business success. On average, members earned more than nonmembers. Moreover, individuals who believed that the membership of a network was useful earned more than those who believed that the membership was unuseful. Their study, however, did not differentiate group borrowers from individual borrowers. It could be that the characteristics of individuals who join group lending differ from those who join individual lending. To join group lending the borrowers need peers, and thus, they must have a high propensity to join a social activity.

Annen (2013) studied the effect of social capital on sales in small firms, in Bolivia, and found that social capital was a substitute for being a formal firm. Formal firms have the advantage of operating stores in favorable areas and selling in noticeable locations. Informal firms typically produce in the outskirts and sell in street markets. Annen found that social capital provided informal firms security benefits at their production location and increased their accessibility in their selling location. The formal firms, in general, sold more than the informal firms did, but the informal firms, with more social connections, were able to sell as much as the formal firms who had no social connections. Neither Annen's study nor Gomez and Santor's, however, took into account the effect of social capital on market concentration. Besides being a substitute for formal status, social capital could deter entry by demanding registration fees, which would boost the incumbent profit.

Fafchamps and Minten (2002) investigated the effects of social capital on a firm's performance as well as on collusion. Using the data on Madagascarian agricultural traders, social capital was defined in terms of their relation with other

traders, relation with potential lenders, and relation with family members. They found that, on average, the better connected traders had significantly more sales than the less connected traders. Relations with other traders and with potential lenders raised productivity, but relations with family members reduced productivity probably because it blurred the firm's boundaries. This finding indicates that bridging social capital is good for lowering transaction costs, but bonding social capital is not. In addition, Fafchams and Minten found no evidence to support that social capital promoted collusion among traders.

To analyze the determinants of profit, single equation models have been commonly used in the earlier empirical studies. Although the validity of these models were questionable because of the potential endogeneity between profitability and market concentration (Geroski 1982), the endogeneity issue was not serious. Strickland and Weiss (1976) compared the estimation results from simultaneous regressions that treated advertising, concentration, and profit as endogenous to the results from single equation models. Using the U.S. data from the 1963 Census of Manufactures, they found that the simultaneous bias was not so important in structure performance relationships; thus, the single equation models were valid.

3 Theoretical Background

This section provides a theoretical model to show how social capital affects business profitability. In the theoretical model, the village economy is closed. However, to capture the effect of broader market on price and profit, I extend the model to an open economy in the empirical section.

The theoretical model was developed from Cowling and Waterson's (1976) model linking price cost margin to market structure. To capture the effect of so-

cial capital on market competition and profit in the structure-conduct-performance (SCP) paradigm, I introduced bridging social capital as a factor of labor productivity, and I placed bonding social capital as a component of the fixed cost, namely, capacity building. As an entry deterrent strategy, firms may collude to overinvest in the capacity building (Baumol and Willig 1981; Gilbert and Vives 1986; Waldman 1987), and bonding social capital can facilitate that collusion. However, the model does not specifically address in detail the entry deterrent mechanism.

3.1 Production and Cost

Consider a village with N household-managed firms producing a homogenous product. Each firm has an identical production function given by

$$Y_i = \kappa_B(K_s, \psi, \theta)L_i, \qquad \text{for } i = (1, 2, \cdots, N) \tag{1}$$

where Y_i and L_i are the output and number of workers for firm i, respectively. $\kappa_B(K_s, \psi, \theta)$ is the village level of bridging social capital, which is also the level of labor productivity. The firm pays a fixed cost $F_i = F_i(\kappa_D(K_s, \psi, \theta))$ and a variable labor cost $c(Y_i) = wL_i$ where $\kappa_D(K_s, \psi, \theta)$ is the village level of bonding social capital and w is the wage. The wage rate is constant due to a competitive labor market. Specifically, the firm's cost function is

$$C_i = c(Y_i) + F_i = wL_i + F_i. \tag{2}$$

I assume that the level of trust was sufficient to guarantee cooperation in economic activities.[4]

[4]The incumbents often choose to overinvest capacity level to prevent entry. If the entry deterence is a public good (Waldman 1987), the presence of bonding social capital ensures the in-

A firm can hire any amount of available workers, but only after choosing the output to maximize profit in a given level of industry competition. Given the optimal output choice Y^*, described below, the firm hires a specific number of workers, based on (1), which leads to the cost function of

$$C_i(w, Y_i) = \frac{w}{\kappa_B(K_s, \psi, \theta)} Y_i^* + F_i(\kappa_D(K_s, \psi, \theta)), \tag{3}$$

which has the feature of the marginal cost equal to the average variable cost.

3.2 Market Competition

To maximize profit Π, each firm chooses the output level Y, taking into account its impact on market price p. In other words, firm *i's* problem is

$$\max_{\{Y_i\}} \Pi_i = \max_{\{Y_i\}} \{pY_i - c(Y_i) - F_i\}, \tag{4}$$

which is the revenue $R_i = pY_i$ minus the costs given in (2). The inverse demand function $f(Y)$ is given by

$$p = f(Y) = f(Y_1 + Y_2 + \cdots + Y_N). \tag{5}$$

The first order condition for optimality is, therefore, given by

$$\frac{\partial \Pi_i}{\partial Y_i} = p + Y_i f'(Y) \frac{dY}{dY_i} - c_i'(Y_i) = 0 \tag{6}$$

combents' cooperative behavor to prevent entry as well as to control prices.

where $\frac{dY}{dY_i} = 1 + \frac{d\sum_{j \neq i} Y_j}{dY_i} \equiv 1 + \lambda_i$. Multiplying (6) by Y_i and summing up for all firms yield

$$\sum pY_i + \sum \frac{Y_i^2}{Y^2} f'(Y)(1 + \lambda_i)Y^2 - \sum c_i'(Y_i)Y_i = 0. \tag{7}$$

Dividing (7) by pY and rearranging it produces

$$\frac{\sum pY_i - \sum c_i'(Y_i)Y_i}{pY} = -\sum \left(\frac{Y_i}{Y}\right)^2 \frac{f'(Y)Y^2}{PY}(1 + \mu) \tag{8}$$

where $\mu = \sum Y_i^2 \lambda_i / \sum Y_i^2$. The first term of the right hand side of (8) is the Herfindahl index of concentration ratio (H), and the second term is the inverse elasticity of demand (η^{-1}). By using the cost function given in (3), the left hand side of (8) can be replaced by $(pY_i - c_i'(Y_i)Y_i)/pY_i$. This term could be written as the ratio of profit plus the fixed cost ($\Pi + F$) to the revenue (R). Thus, (8) could be represented as

$$\frac{\Pi_i + F_i}{R_i} = -\frac{H(1 + \mu)}{\eta}. \tag{9}$$

Thus, by rearranging (9) and using (1) and (5), the firm profit is a function of the concentration ratio, the elasticity of demand, and the level of social capital

$$\Pi_i = -\frac{H(1 + \mu)}{\eta} R_i(\kappa_B(K_s, \psi, \theta), \kappa_D(K_s, \psi, \theta)) - F_i(\kappa_D(K_s, \psi, \theta)). \tag{10}$$

Furthermore, because output is a function of social capital by (1), (8) implies that the concentration ratio H and the elasticity of demand η are also a function of social capital. Therefore, the profit function can be written as the function of social

capital only

$$\Pi_i = \Phi_i(\kappa_B(K_s, \psi, \theta), \kappa_D(K_s, \psi, \theta)). \tag{11}$$

The effect of bridging and bonding social capital on profit, through the revenue and cost, is ambiguous. On the one hand, a high level of bridging social capital contributes to a low business cost because of its influence on labor productivity. As a consequence, the firms would have an incentive to increase output at any given price. On the other hand, a high level of bridging social capital corresponds to higher competition because it eases entry. As a result, the firms are forced to lower the price. In a similar way, a high level of bonding social capital prevents entry by the firms' spending in a high capacity building, but that implies a high business cost. Thus, the effect of the two dimensions of social capital on profit mimics the concept of the demand price elasticity: the quantity and price effects on revenue may cancel each other out. Hence, the net effect of social capital on profit depends on the magnitude of those opposite effects.

4 Empirical Strategy and Data

4.1 Estimation Strategy

To estimate the effect of social capital on a firm's profit (π_{gm}), I adopted a specification of the determinants of profitability that include both household-level ($\mathbf{X}_{gm}$)

and village-level ($\mathbf{Z}_g$) variables.

$$\pi_{gm} = \alpha + \beta_1 \kappa_B(K_s, \psi, \theta)_g + \beta_2 \kappa_D(K_s, \psi, \theta)_g + \sum_{i=3}^{Z} \beta_i Z_{ig} + \sum_{j=1}^{X} \gamma_j X_{jgm} + v_{gm} \quad (12)$$

$$\text{for } m = 1, \cdots, M_g, \text{ and } \ g = 1, \cdots, G$$

where g indexes the village, m indexes households within the village, M_g is the village size, and G is the number of villages. The term v_{gm} is the error term on which model specification would be focused. The village level variables include social capital, distance to the nearest market,[5] and the availability of a financial institution within the village. The household level variables consist of the number of workers, the education level of the head of the household, the degree of risk aversion, and the market concentration ratio.[6] My main interest is on the coefficients of bridging and bonding social capital, β_1 and β_2, respectively.

4.1.1 Specification

Equation (12) contains both individual and group variables in which the error terms need to be examined to prevent bias in the standard error of estimates (Moulton 1990). Wooldridge (2003; 2010) discussed estimation techniques related to the cluster-sample method, as in (12), which focused on the treatment of the error terms. Following Wooldridge (2003), suppose that the error terms contain a common group effect, as in

$$v_{gm} = c_g + u_{gm} \quad \text{for } m = 1, \cdots, M_g \quad (13)$$

[5] The distance to the nearest market is included to see the effect of trade to the village economy. In other words, the variable expands the village economy from a closed to an open economy model.

[6] The index of concentration ratio is an industry variable. Every household within the same industry in a particular village has an identical concentration ratio.

where c_g is an unobserved village effect and u_{gm} is the idiosyncratic error. My focus was on the case of a large number of small villages. In this case, the estimation technique is related to the case of short panel and whether or not the explanatory variables in (12) are exogenous.

Under (13), the exogeneity issue could be broken down by considering c_g and u_{gm}, separately. Suppose that the covariates are exogenous in the sense that

$$E(v_{gm}|\mathbf{X}_g, \mathbf{Z}_g) = 0 \quad \text{for } m = 1, \cdots, M_g \quad \text{and } g = 1, \cdots, G \tag{14}$$

where $\mathbf{X}_g$ contains all household variables X_{gm} for $m = 1, \cdots, M_g$, and $\mathbf{Z}_g$ contains all village variables including social capital. Then, a pooled ordinary least-square (POLS) estimator, where π_{gm} is regressed on 1, z_g, and $x_{gm}(m = 1, \cdots, M_g; g = 1, \cdots, G)$, is consistent and $\sqrt{G}$-asymptotically normal. However, a robust variance matrix is needed to account for the correlation within the villages' heterogeneity in $Var(v_{gm}|\mathbf{X}_g, \mathbf{Z}_g)$.

Suppose, instead, that under (13) the assumptions are

$$\begin{aligned} E(u_{gm}|\mathbf{X}_g, \mathbf{Z}_g, c_g) &= 0 \quad \text{for } m = 1, \cdots, M_g \text{ and} \\ E(c_g|\mathbf{X}_g, \mathbf{Z}_g) &= E(c_g) = 0. \end{aligned} \tag{15}$$

Then, one could use a generalized least-square (GLS) to estimate the coefficients in (12). Moreover, if the assumptions include

$$\begin{aligned} E(u_g u_g'|\mathbf{X}_g, \mathbf{Z}_g, c_g) &= \sigma_u^2 \mathbf{I}_{M_g}, \text{ and} \\ E(c_g^2|\mathbf{X}_g, \mathbf{Z}_g) &= \sigma_c^2, \end{aligned} \tag{16}$$

then, the GLS estimator is the well-known random effect (RE) estimator (Wooldridge 2010). Under these usual RE assumptions, as in (15) and (16), the RE estimator is asymptotically more efficient than the POLS.

If, however, c_g is correlated with $(\mathbf{X}_g, \mathbf{Z}_g)$, the RE estimator is inconsistent; the fixed effect (FE) estimator would result in consistent estimates. The drawback of the FE model is that the coefficients of village variables, such as social capital, are not identified, although one could still estimate the γs. Thus, because my main interest is on village variables, the FE estimator could not be used. Moreover, since the instrument for both dimensions of social capital were not supported by the data, the RE estimator would be the only choice (Wooldridge 2010, 867).

To overcome the problem of village heterogeneity, I included province dummy variables for all villages in the explanatory variables, and I assumed that the villages within a province had similar characteristics. When province dummies are controlled, the village heterogeneity presumably disappears. Thus, after controlling the village heterogeneity, the POLS or RE models remained consistent. In addition, to prove my result is robust, I used the linear hierarchical or mixed effect model (Mixed) with province and village variance components.[7]

4.2 Data

The data for this study were taken from the fourth wave of the Indonesian Family Life Survey (IFLS) collected in 2007 and available from the RAND Corporation.[8]

[7] The Mixed that incorporates the province level transforms (12) into:

$$\pi_{kgm} = \cdots + b_k + c_{kg} + u_{kgm}$$

where k refers to provinces. The "cdots" indicate that the fixed part of the model in (12) is not shown. This model, also known as the three level variance-component model, assumes that all random components are uncorrelated with each other (for details, see Rabe-Hesketh and Skrondal 2005).

[8] http://www.rand.org/labor/FLS/IFLS.html

The IFLS is the only large scale longitudinal survey available in Indonesia. Its first wave was administered in 1993, representing about 83% of the Indonesian population that lived in 13 of the nation's 27 provinces (Strauss et al. 2009). Because of the longitudinal survey, the IFLS drew its sample from the previous waves and stratified them on provinces and urban and rural locations. Provinces were selected to maximize representation of the population and to capture the cultural and socioeconomic diversity of Indonesia. Within each of the 13 provinces, enumeration areas (EAs) were randomly chosen from a nationally representative sample frame. The IFLS randomly selected 321 enumeration areas representing urban and rural areas and Javanese and non-Javanese comparisons. Households were then randomly selected within the chosen EAs. Hence, the household was nested within the EA, which was nested within the province.

From the IFLS data set, I selected all households that owned at least one nonfarm business, and I analyzed the most important business of the family. This criterion selected 1,977 households from 16 provinces, 156 districts, and 300 villages (EAs). I analyzed these nested data by the cluster sample method similar to the panel data method. The number of households observed in each village varied from 1 to 32, and therefore, was considered an unbalanced panel.

Appendix table A1 presents the households' fields of business. A majority of the households had a business related to food (e.g., restaurants, grocery stores) and nonfood products (e.g., pharmacies, hardware stores), which accounted for more than 60% of all household managed businesses; services was the second major business, which accounted for about 17%; and industrial sectors was the third major business, which accounted for about 12%. In addition, almost 80% of the businesses were conducted in a face-to-face transaction in which social relations and trust were important. In other words, social capital tends to play a crucial role in the busi-

ness's success.

4.2.1 Variables

The business performance (`profit`) is represented by the net profit recorded by approximation because of the small nature of the businesses that lacked bookkeeping technology. The respondents were asked, "What is the approximate amount of Rupiah (IDR) of net profit generated by your business during the past 12 months?" The answer ranged from a loss of IDR 1.3 million to a profit of IDR 600 million, with an average of IDR 9.72 million.[9] But when they were asked about the approximate revenues and costs, the majority of the respondents did not answer, which indicates the nature of their business: the households only care about their daily or monthly profit rather than the detailed transactions.

The questions for bridging and bonding social capital were answered by a village representative and measured by a 1-4 Likert scale corresponding to 1. "strongly disagree," 2. "disagree," 3. "agree," and 4. "strongly agree." The bridging social capital score (`vbridging`)was developed through their responses to the following three statements, respectively: 1. "People in this village are always looking out for each other," 2. "Most people in the village are willing to help if you need it," and 3. "In this village one has to be alert or someone is likely to take advantage of you." The bonding social capital score (`vbonding`) was developed through their answers to two statements: 1. "In this village, residents from the same ethnicity trust each other more than they trust those from a different ethnicity" and 2. "In this village, residents from the same religion trust each other more than they trust those from a different religion." The village representatives who answered the above statements presumably revealed the true condition of their area.

[9] In 2007, the exchange rate was about 8,000 Indonesian Rupiahs per U.S. dollar.

The representatives' responses to the above statements are in appendix table A2. Bridging and bonding social capital were measured separately by adding the response value to each component of each dimension of social capital because summation is more consistent to the Likert property than creating an index.[10] A higher score corresponded to a higher social capital. The bridging and bonding social capital score ranged from 6 to 11 and from 2 to 8, respectively, and were independent of each other as reflected by a low and insignificant correlation of -.004 (see table A4).

Because the data on output were not available, the Hirchmann-Herfindahl index of market concentration (H) was measured by assuming that the output of each firm was proportional to the number of workers. Therefore, the H index was directly calculated from the number of workers of in all firms within the same field of business in each village. The H index of firm i with business field s in village j was calculated by

$$H_{isj} = \sum_{i \in s_j} (l_i / L_s)^2 \tag{17}$$

where s_j indicates the set of firms in business field s in village j, l_i indicates the number of workers in firm i, and L_s is the total number of workers who worked in business field s in village j. The possible value of H index is from 0 to 1, and in each village firms in the same field of business have an identical concentration ratio.

Appendix table A3 shows the range of the H index was from .31 to 1, with an average of .55. Because a significant number of firms enjoyed a complete monopoly

[10] Social capital (SC) $j \in \{bridging, bonding\}$ was measured by

$$SC_j = \sum_i Q_{ji}$$

where Q_{ij} was the score of statement i of social capital j.

(H = 1), Tobit estimation was used to verify the causal relationship between social capital and the market concentration. Since the data came from a survey and therefore did not include all firms, the index may not be the true concentration ratio. However, the index could still represent the market concentration because households were randomly drawn from the village population.

Risk aversion (trisk) was measured based on the respondent's preference for several hypothetical lottery options, about which they were asked twice. The first option was with a low income guarantee (IDR. 0.8 million), and the second was with a high income guarantee (IDR. 1.6 million). For the low income guarantee, one of the questions was "Suppose you are offered two ways to earn money. With option 1, you are guaranteed IDR. 0.8 million per month; with option 2, you have an equal chance of receiving either IDR. 1.6 million per month or IDR. 0.4 million per month. Which option would you choose?" To measure risk aversion, the survey changed the combination for option 2 to read as IDR. 1.6 million or IDR. 0.6 million, and IDR. 1.6 million or IDR. 0.2 million, respectively. Similar questions were asked for the high income guarantee but with a different combination for option 2. Based on their choices, I ranked the respondents from the least to the most risk aversed. A higher value of the risk aversion coefficient corresponds to the more risk aversed respondent. The variable trisk was the summation of the risk aversion coefficient from the two levels of income guarantees.

The definition and summary of all variables used in the estimations were presented in appendix table A3. Besides vbridging and vbonding, vbank and dmarket were also village variables that represented banks in the village and the distance of the village to the central business district, respectively. The household variables were the number of workers hired by their firms (fwork), the head of the household's years of education (educ), and the head of the household's level of risk aver-

sion (`trisk`). The market concentration index (`H`) was an industry variable at the village level.

The correlation matrix among selected variables is shown in appendix table A4. Bridging social capital had a significantly negative correlation to market concentration ratio `H`, whereas bonding social capital had an insignificant correlation to `H`. Their correlation result revealed that the higher level of bridging social capital corresponded to the higher number of firms in the market, which was a crucial transition for social capital to lower profit.

5 Estimation Results and Robustness

5.1 Social Capital and Market Concentration

For social capital to have an effect on profit, it must go through market competition. Specifically, bridging social capital must have a negative impact on market concentration for it to possibly lower profit. This claim is based on the assumption that bridging social capital increases output and eases transactions. If, instead, bridging social capital were to increase market concentration, then it would further increase profit. Bonding social capital, on the contrary, is more likely to increase market concentration because it has characteristics that potentially mediate collusion. However, bonding social capital is less likely to reduce transaction costs or improve labor productivity. Therefore, the relationship between bridging and bonding social capital with competition needs to be established as a necessary condition for the ambiguity of the effect of social capital on profit.

Table 1 presents the POLS and Tobit estimates of the village-average concentration ratio `H` on all village variables, and my interest is on the coefficients of

Table 1. H Index and Social Capital

Dependent Variable: Village average H index				
	All Industries		Two Major Industries	
	POLS	Tobit	POLS	Tobit
1	2	3	4	5
vbridging	-0.048***	-0.050***	-0.053***	-0.054***
	(0.005)	(0.005)	(0.006)	(0.006)
vbonding	-0.007	-0.007	-0.004	-0.004
	(0.004)	(0.005)	(0.005)	(0.005)
vbank	-0.016	-0.019	-0.022*	-0.024*
	(0.009)	(0.010)	(0.011)	(0.011)
dmarket	0.002	0.003	0.002	0.003
	(0.001)	(0.002)	(0.002)	(0.002)
_cons	0.987***	1.008***	0.996***	1.010***
	(0.045)	(0.049)	(0.056)	(0.060)
N	1918	1918	1214	1214
R^2	0.036		0.050	
Log likelihood	428.726	113.231	344.051	177.111

Note: robust standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

`vbridging` and `vbonding`. The POLS estimates show that the coefficient of bridging social capital was negative, which implies its negative contribution to market concentration. Thus, in areas with a higher level of bridging social capital, more firms were in operation. The effect of all other village variables, including bonding social capital, on market competition was insignificant.

Tobit estimates were used as a comparison to the POLS's because the `H` index was truncated at 1. The Tobit results confirmed the negative effect of bridging social capital, which supports the argument that bridging social capital promotes competition. All other village variables had an insignificant effect on market concentration.[11] The POLS and Tobit results confirmed that social capital creates a healthy business environment: a greater number of firms operated in areas where communities were more inclusive, making competition unavoidable.

The relation between social capital and market competition, in my study, con-

[11] The results remained consistent when the regressions were separately conducted on the two main industries.

firms the results from Annen (2013) and Fafchamps and Minten (2002). Annen's study defined social capital as being linked to other individuals, which is related to bridging social capital. According to his study, bridging social capital increased the accessibility of informal firms within their selling location and provided security benefits in their production location. Thus, bridging social capital enabled informal firms to compete with formal firms, which led to a lower market concentration. Fafchcamps and Minten (2002) defined one of their three types of social capital as the relationship among traders, which is related to bonding social capital. Their study found no evidence that the trader's connection necessarily promoted collusion, which confirmed that bonding social capital had no effect on market concentration.

5.2 Social Capital and Profit

Having established the necessary condition for a causal relationship between social capital and profitability, this section discusses the empirical result of the relationship. Initially, I regressed profitability only on social capital to create the base model where the village economy is closed. In this model, social capital was presumably exogenous because the village level of trust depended on external forces, and, in part, was inherited from the earlier generations. As trust develops over a period of time, trust is likely to be exogenous to the firms. In addition, to take the village heterogeneity into account, I incorporated province dummy variables with the assumption that villages are homogenous within the province[12]. The inclusion of province dummies was to ensure that the changes in profit were from changes in social capital rather than from the unobserved village invariant factors.

[12]Provinces in Indonesia are mainly the union of neighboring areas where people from a similar culture live (see Abdullah 1972 for a detailed explanation).

5.2.1 The Base Model

Table 2 presents the results from the base model that used three estimators: POLS, RE, and Mixed models. The first column of each model shows the estimation results without province dummies, and the second column represents those with province dummies. The coefficient of bridging social capital (`vbridging`), in all models, was significantly negative. The negative effect remained valid even after including the province dummies into the regressors. The coefficient of bonding social capital (`vbonding`), in all models, was insignificant, which implies that its effect on profit was not supported by the data.

Table 2. Profit and Social Capital: The Base Model

Dependent Variable: profit (IDR. million)						
	POLS		RE		MIXED	
1	2	3	4	5	6	7
vbridging	-1.901**	-1.479**	-2.091***	-1.637**	-1.877***	-1.573**
	(0.573)	(0.535)	(0.601)	(0.529)	(0.476)	(0.493)
vbonding	0.057	-0.101	0.323	0.184	0.110	-0.061
	(0.522)	(0.448)	(0.682)	(0.681)	(0.591)	(0.556)
_cons	25.104***	24.810***	25.871***	23.107***	25.113***	24.994***
	(5.374)	(5.043)	(5.438)	(5.592)	(5.895)	(5.282)
prov. dummy	No	Yes	No	Yes	No	Yes
N	1,977	1,977	1,977	1,977	1,977	1,977
R^2	0.003	0.020				
$R^2_{overall}$			0.003	0.018		
$R^2_{between}$			0.007	0.072		
R^2_{within}			0.000	0.000		
σ_g			16.321	16.082		
σ_u			23.509	23.509		
ρ			0.325	0.319		
log likelihood	-9190.342	-9173.191			-9182.834	-9171.445

Note: Village cluster robust standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

The magnitudes of the coefficient of bridging social capital were slightly different among the models, but all showed negative sign. The RE and Mixed models showed a relatively higher significant level, and they were more efficient than the POLS. In particular, without the province dummies, the coefficient of `vbridging`

was significant at a .001 level in the RE and Mixed models, but it was only significant at a .01 level in the POLS. This difference is not surprising because, under the assumption of serial correlation in error terms, the RE estimator is more efficient. The interclass correlation of the error $\rho = .325$ showed the relative superiority of the RE to the POLS. In addition, because the regressors were all village variables, the within $R^2 = 0$ confirmed no variation within villages.

By controlling village heterogeneity, the POLS estimation seems to be as efficient as the other two models. The R^2 from the OLS jumped almost sevenfold from .003 to .020 after the province dummies were taken into account, which showed a better ability of the regressors to explain the variation in profits. The RE estimates still performed better than the OLS, which was indicated by the interclass correlation around .32. Nevertheless, most important was that bridging social capital significantly reduced an individual firm's profit, while bonding social capital had no effect on the profit.

Appendix tables A5 and A6 provide the random components of the Mixed models and the likelihood ratio test for those components, respectively. The random parts were obtained by running the three-level variance component model: households nested in a village that nested in a province. Appendix table A5, columns (2) and (3), corresponds to the random parts of the base model, discussed above. After the province dummies were included in the model, the province level variance dropped significantly toward zero, while the village and individual level variances showed little change, which means that there was almost no variation among provinces after controlling the province heterogeneity; but there were some variations among villages within a province. Table A6 provides the results from the test of significance for those variance components. The first test was whether village heterogeneity across provinces was significant. This test is equivalent to testing the

difference between the POLS and RE models ($c_g = 0$). The result showed that village heterogeneity was significant at a 1% level when province dummies were excluded in the regressors, and it was insignificant when province dummies were included. This test confirmed the superiority of the RE model to the POLS model. The second test was whether the village heterogeneity within a province was important. The result showed that, without the province dummies, the village heterogeneity was significant at a 5% level; but with the province dummies, the village heterogeneity was insignificant. This result confirmed the effective use of province dummies to control for village heterogeneity in the models.

5.2.2 Robustness

To test the robustness of the base model, I extended the base model to an open economy model by adding more village and individual firm variables into the POLS, RE, and Mixed regressions. The results of this comprehensive model are in table 3. The first and second columns of each estimation are the regression without the province dummy, and the third column is with the province dummy. I also ran regressions by including and excluding the number of workers, `fwork`. The number of workers appears to be endogenous because of the high correlation between bridging social capital and the number of workers via the concentration ratio. Therefore, including the number of workers could overestimate the effect of social capital on profit. Thus, running regressions with and without the number of workers could help to determine the consistency of the effect of social capital on profit.

The estimation results of the comprehensive model showed that the coefficient of bridging social capital was consistently and significantly negative in all variations of the models. This consistency suggests that bridging social capital negatively contributes to an individual firm's profit. Although the importance of bridg-

Table 3. Profit and Social Capital: The Model Comparison

Dependent Variable: profit (IDR. million)									
	POLS			RE			MIXED		
1	2	3	4	5	6	7	8	9	10
vbridging	-1.314**	-1.417**	-1.017*	-1.569**	-1.489***	-1.192*	-1.228***	-1.316***	-1.017**
	(0.499)	(0.447)	(0.478)	(0.531)	(0.445)	(0.480)	(0.301)	(0.247)	(0.333)
vbonding	0.404	-0.117	0.118	0.545	-0.117	0.342	0.326	-0.180	0.118
	(0.474)	(0.402)	(0.434)	(0.644)	(0.413)	(0.669)	(0.500)	(0.429)	(0.475)
vbank	0.080	0.148	-0.358	-0.521	0.064	-0.614	-0.170	-0.176	-0.358
	(1.367)	(1.157)	(1.255)	(1.549)	(1.151)	(1.296)	(0.924)	(0.991)	(0.828)
dmarket	0.004	-0.107	0.007	-0.077	-0.141	-0.025	-0.007	-0.114	0.007
	(0.143)	(0.139)	(0.158)	(0.115)	(0.135)	(0.137)	(0.106)	(0.093)	(0.138)
H	3.889*	0.350	3.783*	3.551*	0.073	3.442*	3.742*	0.148	3.783*
	(1.822)	(1.534)	(1.795)	(1.726)	(1.572)	(1.707)	(1.874)	(1.325)	(1.905)
educ	0.838***	0.524***	0.810***	0.696***	0.497***	0.685***	0.822***	0.508***	0.810***
	(0.201)	(0.128)	(0.201)	(0.176)	(0.126)	(0.174)	(0.225)	(0.125)	(0.232)
trisk	-0.797*	-0.401	-0.855*	-0.736	-0.423	-0.754	-0.807*	-0.471	-0.855*
	(0.327)	(0.312)	(0.358)	(0.410)	(0.322)	(0.426)	(0.393)	(0.405)	(0.414)
fwork		4.601***			4.599***			4.614***	
		(1.197)			(1.201)			(1.233)	
_cons	16.622**	10.800*	17.438**	19.206***	12.056*	17.009*	16.913**	11.103*	17.438**
	(5.162)	(5.083)	(5.925)	(5.362)	(5.149)	(6.730)	(5.178)	(5.127)	(6.304)
prov. dummies	No	No	Yes	No	No	Yes	No	No	Yes
N	1,891	1,891	1,891	1,891	1,891	1,891	1,891	1,891	1,891
R^2	0.035	0.309	0.048						
$R^2_{overall}$				0.034	0.309	0.045			
$R^2_{between}$				0.123	0.711	0.158			
R^2_{within}				0.013	0.228	0.013			
σ_g				14.671	3.507	14.402			
σ_u				23.561	20.831	23.561			
ρ				0.279	0.028	0.272			
log likelihood	-8768.196	-8451.671	-8754.581				-8766.107	-8446.791	-8754.581

Note: Village cluster robust standard errors are in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

ing social capital seems to decrease as more variables were taken into account, the decrease was not an indication of spuriousness. When the province dummies were included in the regressors, the coefficients of `vbridging` were all significant. Although the effect of bridging social capital on profit also became weaker, the coefficients of `vbridging` remained consistently negative after including more village and household variables into the regressors. Thus, the negative effect of social capital on profit was a causal relationship. Because bridging social capital helped to promote competition more than to ease transaction, bridging social capital triggered more reduction in price than in cost.

The ability to explain variation in profit depends on the validity of the regressors. When `fwork` was excluded from the regressors, the POLS estimates showed the coefficient of determinacy $R^2 = .048$ and $R^2 = .035$ with and without the province dummy, respectively. The difference in R^2 indicates the relative importance of village heterogeneity in the models. When the number of workers, `fwork`, replaced the province dummy, the coefficient of determinacy became much higher, $R^2 = .309$, which suggests that the number of workers played a more important role on profit than village heterogeneity did; but the variable might suffer from the endogeneity issue. However, regardless of the value of R^2 and the inclusion of `fwork`, the coefficient of bridging social capital was consistently negative, which is the main concern of this study.

Furthermore, table 3 shows that the RE results were similar to the POLS results; but the RE model is more efficient because it corrects the serial correlation errors. Column (5) presents the RE estimates when the number of workers and province dummies were excluded: the coefficient of bridging social capital, `vbridging,` was significantly negative, and the standard error of the group's specific components, σ_g, was about half of the idiosyncratic components, σ_u. When

the number of workers was included in the model, column (6), the group's specific components σ_g were even smaller. These results imply that the random effect component was less important than the idiosyncratic error, which confirmed that the RE and POLS estimates were similar. In addition, the interclass correlation of error ρ for the three models were .28, .03, and .27, respectively. The small value of ρs also indicates the relative similarity of the RE and POLS models.

The Mixed linear estimator was used to take into account the effect of household, village, and province heterogeneity. Its estimates showed that the coefficient of bridging social capital was significantly negative, which was similar to the POLS and RE estimates. Appendix table A5, columns (4)-(6), provides the random components of this Mixed estimator. In each model, the village variance was small, which indicates that the village heterogeneity within a province was unimportant. The province variance was moderate when the province dummy was excluded from the regressors, but it became negligible when the province dummies were included. These results support the inclusion of province dummies into the regression. More important, all variations of the Mixed model supported the negative contribution of bridging social capital on profit.

5.2.3 Contribution of Other Variables

Other variables that have significant coefficients affecting profit were the index of concentration ratio `H`, the respondents' years of schooling `educ`, and the number of workers `fwork`. The coefficient of the industry variable, `H` index, was positively significant at a 5% level when the number of workers, `fwork`, was excluded from regressors but it was insignificant when `fwork` was included. This result was more likely to occur because of the high correlation between `H` index and `fwork`, since `H` index was developed from the data on the number of workers. The positive con-

tribution of H toward profit was expected, because a higher concentration ratio let firms operate at the profit maximizing level of output. However, H was suspected to be endogenous; and its inclusion into the regressors was only to test the robustness of the base model. Two additional village variables, namely, the presence of a bank in the village, vbank, and the distance to the nearest market, dmarket, were insignificant, which confrims that the closed economy model was a good framework to analyze business performances at the village level.

Household variable educ and fwork were consistently significant. The coefficient of educ was significantly positive in all models: the entrepreneurs' education was an important determinant of business success. The coefficient of fwork was also significantly positive, but it may suffer from an endogeneity issue due to the reverse causality. The other household variable, namely, risk aversion coefficient, trisk, was inconsistent in its significant level, but its magnitude was always negative, as expected: more risk-averse business owners make less profit.

6 Conclusion

I studied two dimensions of village-level social capital and their effect on profitability: bridging and bonding social capital. I defined social capital as the village level of trust that enabled the community members to cooperate in economic relations. My model argued that social capital resulted from social relationships, norms of good conduct, and community enforcement. I developed a theory of how social capital affected profitability in the structure conduct performance framework, which showed that social capital had an ambiguous effect on profit.

Bridging social capital presumably promoted cooperation and lowered transaction costs, which in turn raised profit. But this dimension of social capital re-

laxed the potential entry into the market and increased competition, which harmed profit. Bonding social capital presumably limited cooperation only among the people from the same demographic background and facilitated collusion among them. This collusion can be used to influence market conduct to increase profit. Yet, bonding social capital prevented the spread of information useful for labor productivity. Thus, both dimensions of social capital have an ambiguous effect on profit.

Using the data from the fourth wave of Indonesian Family Life Survey, I found the net effect of social capital on market competition and profit: bridging social capital contributed positively to market competition, which is good from the consumer's perspective, but it harmed profit; bonding social capital had no significant effect on either competition or profit. These results were robust to a various combination of covariates and estimation techniques. The OLS, RE, and Mixed models supported that bridging social capital worked more toward establishing a healthy business condition, which encouraged more firms to penetrate the markets. This dominant effect of bridging social capital lowered prices, and therefore, harmed profit.

That bridging social capital harms profit was unexpected, because previous studies on this dimension of social capital tended to capture its positive relation to household income, health conditions, and social wellbeing. Thus, the expectation is that it would contribute to higher profit. Nevertheless, the result is supported by the study of Oi (1961), which argued that competitive firms prefer price instability over price stability. Bridging social capital seems to work toward price stability, which therefore negatively contributes to profit. Although the findings clarified the understanding about the causal effects of social capital on profit, they did not exhaust the impact social capital had on producers. Further research on how social capital affects other factors, such as investment decisions and market regulations,

needs to be addressed.

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Appendix

Table A1. Fields of Business

Field	**%**	**n**
Agriculture, Forestry, Fishery	0.9	17
Mining and Quarrying	0.5	9
Construction	0.6	11
Transportation and Communication	2.3	46
Finance, Insurance, Real Estate	2.0	40
Restaurants, Food sales	33.2	657
Industry: Food processing	5.4	106
Industry: Clothing	1.2	23
Industry: Other	5.7	112
Sales: Non food	28.2	557
Services : Teacher	0.2	4
Services : Professionals	1.7	34
Services : Transportation (cabs, pedicabs, motorcycle taxis)	4.8	95
Services : Other (tailor, hairdresser)	10.5	207
Other	3.0	59
Total	100.0	1,977

Source: IFLS4.

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Table A2. Components of Social Capital

Bridging Social Capital	%	N
A - *People look out for each other*		
1-strongly disagree	0.0	0
2-disagree	1.3	25
3-agree	81.4	1,610
4-strongly agree	17.3	342
Total	100.0	1,977
B - *Most people are willing to help*		
1-strongly disagree	0.1	2
2-disagree	2.4	47
3-agree	81.1	1,603
4-strongly agree	16.4	325
Total	100.0	1,977
C - *Someone is likely to take advantage of you*		
1-strongly agree	13.9	275
2-agree	77.4	1,530
3-disagree	8.7	172
4-strongly agree	0.0	0
Total	100.0	1,977
Bonding Social Capital	%	N
D - *People from the same ethnicity trust each other more*		
1-strongly disagree	2.7	54
2-disagree	42.8	846
3-agree	50.2	992
4-strongly agree	4.3	85
Total	100.0	1,977
E- *People from the same religion trust each other more*		
1-strongly disagree	1.9	38
2-disagree	39.1	773
3-agree	54.9	1,085
4-strongly agree	4.1	81
Total	100.0	1,977

Source: IFLS4

Table A3. Social Capital and Profit: Variable Description

		Summary				
Name	Label	Obs	Mean	Sd	Min	Max
`profit`	profit (IDR. million)	1,977	9.72	25.32	-1.3	600.0
`vbridging`	bridging social capital	1,977	8.25	0.74	6	11
`vbonding`	bonding social capital	1,977	5.17	1.10	2	8
`vbank`	1 = if bank in the village	1,977	0.36	0.48	0	1
`dmarket`	distance to the market (km)	1,977	1.74	3.09	0.0	50.0
`vid`	village id	1,977			1	300
`distid`	district id	1,977			1	156
`provid`	province id	1,977			1	16
`H`	Herfindahl-Hirschman Index	1,918	0.55	0.31	0.046	1.000
`fwork`	number of workers	1,977	2.29	2.89	1	81
`educ`	years of formal schooling	1,977	6.79	4.57	0	19
`trisk`	degree of risk aversion	1,950	7.68	2.10	2	9

Table A4. Correlation Among Selected Variables

	vbridging	vbonding	H	fwork
vbridging	1			
vbonding	-0.00494	1		
H	-0.110***	-0.0247	1	
fwork	-0.00933	0.0299	0.0987***	1
N	1,977			

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Table A5. Random Parts of the Mixed Model

	Base		Comprehensive		
1	2	3	4	5	6
province dummies	No	Yes	No	No	Yes
$var(province)$	5.636	4.10e-17	4.143	5.124	4.27e-16
	(3.002)	(8.52e-15)	(2.464)	(2.656)	(4.64e-14)
$var(village)$	30.67	22.87	0.000000303	4.90e-13	1.76e-15
	(32.46)	(58.54)	(0.0000655)	(5.84e-11)	(5.58e-14)
$var(residual)$	605.1	606.5	619.6	441.1	614.8
	(229.9)	(386.7)	(239.8)	(144.2)	(238.4)
N	1,977	1,977	1,891	1,891	1,891
Log likelihood	-9182.8	-9171.4	-8766.1	-8446.8	-8754.6

Standard errors are in parentheses.

Table A6. Testing Variance Components: Likelihood Ratio Test

$H_0 : var(j) = 0$ vs. $H_a : var(j) > 0$	$\chi^2_{(1)}$	p (two-way)
village heterogeneity across province	10.76	.0010
village heterogeneity across province with province dummies	3.49	.0617
village heterogeneity within province	5.89	.0152
village heterogeneity within province with province dummies	3.49	.0617