

UNITED WE STAND:

The Role of Social Capital in Disaster Recovery in Indonesia

Wahyu Stiawan

1. Graduate Program in Economics,
Faculty of Economics and Business, Universitas Indonesia,
Depok, Indonesia
(wahyu.stiawan@gmail.com)

2. Graduate School of Economics,
College of Economics, Ritsumeikan University,
Kusatsu, Japan
(wahyu.stiawan@gmail.com)

Abstract

This research investigated how social capital took parts in the process of disaster recovery in Indonesia using two outcome proxies i.e. the days that the victims spent in the temporary housing and the housing reconstruction that households built. The study is referred to previous studies capturing the significant effects of social capital to the recovery process. OLS and 2SLS models were applied to estimate the outcome, including the uniformity of religion and ethnicity as control variables. The estimation results show that during the initial phase of disaster management in Indonesia, participation in head of village voting had a significant positive relationship to the days that the victims spent in temporary shelter. Meanwhile, social capital did not significantly give impact to the housing reconstruction option due to the financial issue as the households' main concern. To obtain a more comprehensive insight, a further research that includes households' pre-disaster mitigation like insurance and technology implementation needs to be conducted.

Keywords: *Social capital, natural disasters, disaster recovery*
JEL: *C31, H84, Q54*

I. INTRODUCTION

For a long period of time, scientists have struggled to come up with sophisticated ways to predict when the disasters will occur and how to deal with them effectively. Yet, there is still no way to accurately predict natural disasters and the victims need to deal with the dreadful aftermath situation. This has always been the major issue for every country. The same situation is applied in Indonesia. Being known as one of the world's most active disaster hot spots, Indonesia even recognizes some disasters as akin to "annual events" that the government must address every year.

Reference [2] defined a disaster as "*an occurrence that interrupts normal events and intimidates or causes severe, community wide damage*". Meanwhile, regarding its specific situation, the Indonesian government has their own definition of disaster. According to the Law of the Republic of Indonesia No. 24/2007 concerning Disaster Management, disaster shall mean "*an event or a series of events threatening and disturbing the community life and livelihood, caused by natural and/or non-natural as well as human factors resulting in human fatalities, environmental*

damage, loss of material possessions, and psychological impact" [1]

Several studies have presented interesting results regarding the disaster recovery process, particularly using social capital as one of the observed independent variables [3, 4]. Previous study in [7] examined the case of social capital application in the past earthquake rehabilitation and reconstruction programs in two research subjects: the city of Kobe, Japan in comparison with Gujarat, India. In both studies, the communities which were equipped with high level of social capital were found to be efficient in the process of rescue and relief. Hence, although these two case-studies contrast in cultural frameworks and socio-economic, the communities' social capital and leadership are proven to be the most practical components in both studies in improving mutual actions and disaster recovery.

It has been recognized quantitatively that social capital plays significant roles in the recovery process, inspiring people to return homes and stay [8]. Reference [11] also conducted similar research observing the social capital role in the disaster recovery process after Sichuan Earthquake in 2008. They concluded that if the extent of the Spring Festival network could be enlarged, the likelihood of households conducting house reconstruction towards complete recovery would increase compared to other households with a smaller Spring Festival network.

In practice, most people still turned to their relatives, neighbors, and other social networks for first aid and recovery support. In the aftermath of the 2004 Tsunami, community-built housing was selected since it cost less but gave higher rates of satisfaction and bedrock for better community reconstruction [10]. By the same notion, [5] discussed the local wisdom-base that was implemented in the Bantul district, Yogyakarta, Indonesia after the earthquake happened in 2006. Thus, it is essential to assess the relationship of social capital to the disaster recovery process in Indonesia.

Reviewing the situation in general, the wide coverage area and different landscape of Indonesia mainly contribute to the vulnerability of the region. Taking the data of the number of disaster events occurred during 2000-2007, it is uncontested that 2/3 of the area have experienced numerous disasters (see Figure 1), supporting the title as disaster-



Fig.1. Map of Disaster Dissemination in Indonesia 2000-2007 (Sources: Indonesia National Disaster Management Agency; dibi.bnpp.go.id)

prone country in Southeast Asia. This condition poses a challenge in preparing for and responding to disasters.

This research examines the effects of social capital involvement on the days the victims spent in temporary housing and its relation to victims' willingness in reconstructing their house as the early stage of the recovery process, despite the reconstruction being done by themselves or with aid from others.

There are several major contributions offered in this research: (1) it can enhance the literature of disaster management in Indonesia, since it lacks in numbers; (2) it gives analytical reviews of how social capital works in the disaster recovery process in Indonesia; and (3) this research completes few previous studies contributing to the investigations of social capital role in the disaster recovery process in Indonesia, specifically using the micro data context.

This article is prearranged as follows. Section 2 explains briefly the data and model used in this research. Section 3 delivers descriptive statistics and the estimation results, and section 4 concludes the research.

II. DATA & METHODOLOGY

This study employed data taken from the Indonesia Family Life Survey (IFLS) of RAND Corporation. Queries involving disaster handling had been introduced since IFLS4 or as per 2007 and were continuously included in the following waves [9]. Regarding the objective of the research which is to investigate the role of social capital in disaster recovery process, this study utilized the IFLS4 (2007) which consists of data about disaster response due to the massive number of disaster occurrences within the survey coverage period (2000-2007). The data were narrowed by focusing on natural disasters that have bigger impacts on the community. Moreover, the time frame of 2000-2007 was selected since during that period, numerous catastrophic events occurred: the Indian Ocean Tsunami in December 2004, Yogyakarta Earthquake in May 2006, West Sumatera Earthquake in March 2007, and several immense floods that happened throughout the country.

From the dataset, there are 3,117 disaster events recorded within the last 5 years prior to the survey, with 3,005 of them are categorized as natural disasters. Among

those events, 777 households responded that they were severely affected and encountered damage. Finally, this study limits observation to samples that furnished all the supplementary information, resulting in the final number of 240 households. Such large reduction in sample size is due to a multitude of missing observations in social capital proxies that were used and the amount of disaster aid received by the households. Nevertheless, the proxies are the main observed variables which make them essential to be included in the estimation; and disaster aid amount can determine the households' decision to return and start the recovery process.

Using data provided by IFLS4, this research selected the following three variables as proxies: "participation in Arisan", "joining religious activities", and "inclusion in head of village elections". All proxies were established before the disaster events and although the data can be subject to error in recollection, it ought to be arbitrary and shall slightly reduce the importance of the estimated effects.

This study employed two different outcome variables: the period of evacuation (in days) and housing reconstruction to represent the recovery stage of disaster victims. Inspired by studies done by [11] and [8], this study estimates the following model for OLS:

$$Y_{1i} \text{ or } Y_{2i} = \beta_0 + \beta_1 SC_i + \alpha_i + X\gamma + \mu_i \quad (1)$$

in which:

- $Y_{1i} \text{ or } Y_{2i}$ = evacuation period/house recon., respectively;
- SC_i = social capital proxies;
- α_i = household characteristics;
- X = other explanatory variables;
- μ_i = error term

The regression model shows the role of social capital by estimating the effects of pre-disaster social capital on post-disaster recovery; the effect should not be subject to reverse causality [11]. One may debate that the model of this study should instead utilize the logit/probit estimation, if a 0 or 1 dummy is used as the dependent variable. However, in some of the sample villages obtained, there are no households that had been interviewed, managed to reconstruct or repair their houses. Logit/probit estimation disregards all the sample households in those villages from the estimation after controlling the village fixed effect, resulting in considerable sample loss. Hence, this study assumes that OLS is the suitable model for this estimation.

Nevertheless, (1) may suffer from endogeneity which is primarily biased caused by omitting variables. This is due to unobserved group characters such as the diversity in ethnic and religious status that affect the extent to which people are likely interacting with others as well as their willingness to accelerate their recovery process, especially in Indonesia [6]. δ is assumed as the unobserved group traits of the community, which makes (1) become the following equation:

$$Y_{1i} \text{ or } Y_{2i} = \beta_0 + \beta_1 SC_i + \alpha_i + X\gamma + \delta_i + \varepsilon_i \quad (2)$$

where:

δ_i = time invariant group traits;

ε_i = error term

To enact a causal claim, instrument variables are employed to estimate (2). The instruments, denoted as z , should satisfy two conditions: $E(SC|z) \neq 0$ and $E(z|\mu) = 0$. The instruments utilized in the analysis are dummy variables of ethnic and religious similarity among the household heads with the community majority. This also applies to the religious factors. Moreover, the years of education attainment of the household heads are employed, which can contribute to their decisions in utilizing social capital.

Due to the fact that social capital is a binary variable, the model suffers from a forbidden regression [12]. To overcome this issue, the 2SLS estimation uses linear projection of social capital as an instrument. After the predicted value is obtained, it is used to substitute SC_i in equation (1) to run the second stage [12]. Lastly, to gain more comprehensive interpretation of the model, the sub-district fixed effect is included to account for any unobserved village characteristics.

III. RESULTS & DISCUSSION

Some attributes of the household samples that had been obtained are displayed in Table 1. The first outcome variable is the days that the disaster victims spent in temporary housing. The average time that the victims spent is 110 days or more than 3 months. Meanwhile, about 64% of the respondents stated that they had reconstructed or repaired their houses, due to disaster. The maximum amount of aid that they received in the aftermath of disaster was IDR 45,000,000.- with the nominal average was around IDR 11,500,000.- (US\$ 1,258.-)¹. It is worth to be noted that all respondents received aid from various sources to reduce the impacts of disaster.

For social capital measures, most households participated in the community events or programs held in their neighborhoods. The least participated activity was Arisan, with only 45% of households joining the program. It can be accepted since most participants in Arisan are housewives and dealing with money to be contributed to each meeting; which is the household's main concern to take part in Arisan. The most involved activity was religious activities, which showed 79% of the sample participated in at least one of the events. This is not surprising since Indonesia can be considered a religious country where almost 95% of its people associate with a religion and vigorously practice it in their daily lives. As for participation in head of village elections, the sample shows that almost 94% of the households voted. Thus, in general, the sample shows a reliable social capital values that are enacted in the community.

TABLE 1. Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Min	Max
Participation in "Arisan"	240	0.446	0.498	0	1
Participation in Religious Activities	240	0.792	0.407	0	1
Head of Village election	240	0.938	0.243	0	1
Days spend in the temporary shelter.	240	110.9	128.4	1	900
Housing recon.	240	0.637	0.482	0	1
The amount of disaster aid received (in IDR 1,000.-)	240	11,562	6,991	15	45,000
Damage incurred from disaster (in IDR 1,000.-)	240	19,504	44,291	0	650,000
Total members of household	240	5.412	2.413	1	15
Impoverished status	240	0.583	0.494	0	1
Location of HH	240	0.742	0.439	0	1
Age of HH Head	240	47.10	13.80	19	85
Gender of HH Head; 1 if male	240	0.863	0.345	0	1
Home status	240	0.904	0.295	0	1
Total income of HH (in IDR 1,000.-)	240	11,812	13,183	80	114,000

Source: author's calculation using IFLS4

Households averagely suffered about IDR 19.5 million due to disasters, with almost 75% of them living in urban areas. Around 58% of the households received subsidized rice, which were then categorized by the government as impoverished, even though most of them owned their own houses. Most household heads are considered quite mature with the average age is 47 years old. Households on average consist of 5 members, which accounted for a typical total household income of IDR 11.8 million.

The evacuation day is considered as proxy to disaster recovery, since theoretically, the earlier the disaster victims can return home, the faster they can initiate their recovery process. Table 2 presents the estimated results of the effects of households' social event participation on the days that they spent in temporary shelters. The value of Cragg Donald F test is also given, which in this study shows that the instruments are weakly correlated with the social capital variables.

This is an intriguing notion since the Hansen J test depicts that the null hypothesis of the instruments having no correlation with the error term cannot be rejected. In addition to that, the endogeneity test comes with a surprising result that the suspected endogenous variables i.e. social capital can be treated as exogenous. Based on these mixed results, interpretation is heavily based on the OLS result.

The result shows significance only when the households take part in head of the village elections. However, the coefficient shows a positive relationship even if other social capital variables are controlled. It can be inferred that when the households voted for their leader, it could add approximately 51 days to the days spent in the temporary shelter.

The value stands corrected even if the other capital proxies are added to control the effect. One possible

¹ Using yearly exchange rate provided by OECD at 2007 (1 USD = IDR 9,141.-), <https://data.oecd.org/conversion/exchange-rates.htm>

explanation is that by voting for their leader, they put their absolute trust in the said leader. In times of crisis, the leader

should be able to promptly make urgent decisions, but in reality the information is not reliable.

TABLE 2. The Effects of Social Capital on Days Spent in Temporary Shelter

Variables	Evacuation Days						
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS
Participation in Arisan	11.373 [17.951]	-32.675 [98.613]					7.986 [20.521]
Participation in Religious Act.			-0.384 [15.222]	-115.430 [244.993]			-17.379 [23.990]
Head of Village election					51.761*** [15.323]	116.847 [181.363]	51.449*** [13.944]
Amount of aid received	0.004*** [0.001]	0.004*** [0.002]	0.004*** [0.001]	0.005 [0.003]	0.002* [0.001]	0.002** [0.001]	0.002* [0.001]
Total damage incurred	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Total member of HH	0.545 [1.380]	0.367 [1.601]	0.522 [1.483]	0.757 [1.985]	-1.452 [2.024]	-0.989 [3.015]	-1.340 [2.147]
Impoverished Status	15.216 [12.194]	12.760 [12.066]	15.409 [14.281]	7.858 [20.496]	21.102* [11.682]	23.402*** [8.198]	23.010* [12.111]
Urban/Rural	-6.347 [27.937]	-4.363 [28.084]	-9.325 [27.131]	-22.919 [43.592]	10.442 [31.804]	12.649 [28.179]	5.258 [31.140]
Gender of HH Head	-23.911 [19.617]	-38.101 [36.445]	-25.475 [21.960]	-40.370 [35.802]	-34.803 [27.371]	-35.531 [26.332]	-31.241 [27.607]
Age of HH Head	0.111 [0.424]	0.061 [0.370]	0.163 [0.379]	0.552 [0.990]	0.382 [0.660]	0.309 [0.737]	0.589 [0.551]
HH Home ownership	5.636 [21.598]	8.531 [20.258]	6.711 [22.812]	18.732 [33.222]	-29.156 [34.030]	-41.059 [44.908]	-23.681 [31.826]
Total Income	-0.001** [0.000]	-0.001** [0.000]	-0.001** [0.000]	-0.001* [0.000]	-0.000 [0.000]	-0.000 [0.001]	-0.000 [0.000]
Constant	60.717 [49.143]	86.002 [80.269]	67.838 [54.344]	132.792 [149.158]	63.614 [59.902]	12.258 [142.017]	64.187 [68.300]
Observations	332	332	321	321	248	248	240
R-squared	0.118	0.088	0.108	-0.060	0.065	0.051	0.062
Adjusted R-Squared	0.0903	0.0599	0.0791	-0.0946	0.0258	0.0111	0.0125
F-statistic	111.7	62.21	131.2	10.63	19.03	23.96	214.8
Cragg Donald F Stat		7.870		2.670		2.059	
Hansen-J test		0		0		0	
Endogeneity test		0.596		0.635		0.727	

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

TABLE 3. The Effects of Social Capital on Housing Reconstruction

Variables	Housing Reconstruction						
	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS
Participation in Arisan	0.045 [0.047]	-0.259 [0.307]					0.005 [0.049]
Participation in Religious Act.			-0.008 [0.056]	-0.112 [0.827]			-0.007 [0.056]
Head of Village election					0.062 [0.122]	-0.320 [1.641]	0.043 [0.126]
Amount of aid received	0.000** [0.000]	0.000** [0.000]	0.000** [0.000]	0.000* [0.000]	0.000* [0.000]	0.000** [0.000]	0.000* [0.000]
Total damage incurred	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Total member of HH	-0.003 [0.012]	-0.007 [0.011]	-0.004 [0.012]	-0.005 [0.013]	-0.005 [0.016]	-0.008 [0.011]	-0.005 [0.017]
Impoverished Status	0.224*** [0.045]	0.206*** [0.052]	0.216*** [0.051]	0.210*** [0.063]	0.234*** [0.055]	0.232*** [0.058]	0.226*** [0.063]
Urban/Rural	0.127 [0.088]	0.158 [0.113]	0.125 [0.096]	0.118 [0.129]	0.183* [0.096]	0.167 [0.119]	0.182* [0.103]
Gender of HH Head	0.102 [0.062]	0.019 [0.097]	0.084 [0.072]	0.071 [0.136]	0.087 [0.075]	0.097 [0.088]	0.082 [0.087]
Age of HH Head	0.002 [0.002]	0.002 [0.001]	0.002 [0.002]	0.002 [0.004]	0.004* [0.002]	0.004* [0.003]	0.004** [0.002]
HH Home ownership	0.239*** [0.062]	0.279*** [0.068]	0.244*** [0.063]	0.265* [0.139]	0.163 [0.121]	0.234 [0.247]	0.157 [0.123]
Total Income	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]	-0.000** [0.000]	-0.000*** [0.000]	-0.000** [0.000]	-0.000*** [0.000]
Constant	-0.288*** [0.095]	-0.158 [0.138]	-0.251* [0.122]	-0.198 [0.454]	-0.371** [0.150]	-0.081 [1.259]	-0.340* [0.179]
Observations	429	429	401	401	320	320	296
R-squared	0.291	0.211	0.285	0.277	0.301	0.271	0.295
Adjusted R-Squared	0.274	0.192	0.267	0.258	0.278	0.247	0.265
F-statistic	72.55	104.7	44.22	101.2	71.35	50	104.5
Cragg Donald F-test		9.660		3.220		1.408	
Hansen-J test		0		0		0	
Endogeneity test		0.385		0.900		0.817	

Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The leader then relies on the government officials in order to come up with decision and do anything to keep their community from harm. Based on experiences within this research period, the Indonesian government still handles disaster events in a bureaucratic manner, going through layers of institutions and requires more time to resolve. This condition makes the victims have to spend more days in temporary shelter, while waiting for safety approval from their leader. Which in turn, it's resulting in the delay of the disaster recovery process.

In other views, the effects of social participation on housing reconstruction efforts that the disaster victims have done are also examined. Being able to reconstruct their houses is considered as one of the initial signs that the disaster recovery process has been initiated. Table 3 summarizes the regression results.

This also challenges the previous study conducted by [11] stating that the size of the Summer Festival network (used as one of their social capital proxies) has significant positive impact on housing reconstruction in the case of the Sichuan Earthquake in 2008. But despite that, strong positive relationships between housing recovery and the amount of aid received can be viewed. This supports the initial assumption to consider the financial issue as the main concern of households to rebuild their houses. It suggests that households still rely more on external funding sources to assist them in house reconstruction rather than the assistance given by their relatives or community. In addition, the first stage test shows that beside years of education, the similarity in religion also gives a significant positive impact to the social capital proxies used.

Having known the effects of social capital on the disaster recovery process, the effects are then examined on several channel variables. Table 4 displays the results on aid received by the households. Households who take part in religious activities in their community have more probability by 6.67 points to receive disaster aid compared to those who do not join. On the other hand, joining Arisan and participating in the Head of Village election do not significantly contribute to the possibility of receiving aid, but it does

increase the chances of receiving higher amounts of aid.

TABLE 4. The Effects of Social Capital on Disaster Aid

VARIABLES	Receiving Disaster Aid	Disaster Aid Amount
Participation in Arisan	0.0669 [0.0502]	2,146** [957.2]
Participation in Religious Act.	0.0667* [0.0386]	-100.6 [1,612]
Head of Village election	0.127 [0.0947]	2,966* [1,456]
Total damage incurred	1.50e-06 [1.00e-06]	0.0295* [0.0157]
Total member of HH	-0.00331 [0.00815]	-352.8 [319.0]
Impoverished Status	0.179** [0.0755]	2,056 [1,255]
Urban/Rural	0.319*** [0.0908]	1,647 [2,386]
Gender of HH Head	0.0788 [0.0785]	1,259 [841.3]
Age of HH Head	-0.00133 [0.00160]	36.10 [44.60]
HH Home ownership	0.196** [0.0770]	3,639** [1,524]
Total Income	-1.73e-08 [3.79e-07]	-0.00124 [0.00563]
Constant	0.0485 [0.158]	-99.19 [2,883]
Observations	416	296
R-squared	0.202	0.097
Adjusted R-Squared	0.180	0.0623
F-statistic	31.38	10.30

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

IV. CONCLUSION

The findings show that social capital did not play significant roles in ways that it could directly contribute to the disaster recovery process in Indonesia. However, it could give more opportunity to receive financial assistance, which in turn, helped the victims start their recovery process. With this scheme, households can utilize social capital to open more channels for financing the house reconstruction and to better overcome the effects of disaster events. Although, it is worth to be noted that this study needs to introduce more alternative instruments to test the robustness of the result.

The findings also raise an important concern that requires immediate attention from the government. Among all the disaster-damaged households, remote communities in rural areas with fewer social networks suffered the most. A more focused design of government relief and rehabilitation aid plan should be established which not only fixates on the damage encountered by the households, but also opens their access to social capital such as accommodating more community meeting, establishing community-based disaster awareness program, etc.

In conducting this study, several limitations were found that restricted the outcomes. Only a limited number of observations were obtained. This limited the options and left to choose the OLS model. Since the cross section data are the only data obtained, only the short-term effects on the recovery process were performed. Considering that recovery is a volatile subject to each household's capability, the speed of recovery can be different for each respondent.

For a better insight on how social capital works in disaster recovery in Indonesia, it would be prudent to obtain more detailed data shortly after a natural disaster in order to construct a more reliable data set. Moreover, information regarding disaster mitigation efforts at the household level can be a very good variable to be included in further study.

V. REFERENCES

- [1] Agency, N., & Management, D. (2007). Law of the Republic of Indonesia Number 24 of 2007 Concerning Disaster Management. Management.
- [2] Aldrich, D. P. (2012). Building Resilience: Social Capital in Post-disaster Recovery.
- [3] Chang, S. E. (2010). Urban Disaster Recovery: A Measurement Framework and Its Application to The 1995 Kobe Earthquake. *Disasters*, 34(2), 303–327.
- [4] Joshi, A., & Aoki, M. (2014). The Role of Social Capital and Public Policy in Disaster Recovery: A Case Study of Tamil Nadu State, India. *International Journal of Disaster Risk Reduction*, 7, 100–108.
- [5] Kusumasari, B., & Alam, Q. (2012). Local Wisdom-based Disaster Recovery Model in Indonesia. *Disaster Prevention and Management: An International Journal*, 21(3), 351–369.
- [6] Mavridis, D. (2015). Ethnic Diversity and Social Capital in Indonesia. *World Development*, 67, 376–395.
- [7] Nakagawa, Y., & Shaw, R. (2004). Social Capital: A Missing Link to Disaster Recovery. *International Journal of Mass Emergencies and Disasters*, 22(1), 5–34.
- [8] Shimada, G. (2015). The Role of Social Capital After Disasters: An Empirical Study of Japan Based on Time-Series-Cross-Section (TSCS) Data from 1981 to 2012. *International Journal of Disaster Risk Reduction*, 14, 388–394. *references*
- [9] Strauss, J., Beegle, K., Sikoki, B., Dwiyanto, A., Herawati, Y., & Witoelar, F. (2009). The Fourth Wave of the Indonesia Family Life Survey: Overview and Field Report. RAND Working Paper, WR-675/1-N(April 2009), i-82.
- [10] The Consultative Group on Indonesia. (2005). Indonesia: Preliminary Damage and Loss Assessment The December 26, 2004 Natural Disaster, 99.
- [11] Tse, C.-W., Wei, J., & Wang, Y. (2014). Social Capital and Disaster Recovery: Evidence from Sichuan Earthquake in 2008. Mimeo, (December), 1–37. *references*
- [12] Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data* (Vol. 2nd ed). Cambridge, Mass: MIT Press.