

IDE Research Bulletin

**Research project summary based on papers for academic journals
with the aim of contributing to the academic community**

The Impact of Urbanization in Indonesia: Analysis of Firm Productivity and Labor Migration

Project Leader

HIGASHIKATA, Takayuki

March 2019

IDE-JETRO

The Impact of Urbanization in Indonesia: Analysis of Firm Productivity and Labor Migration

Organizer

Takayuki Higashikata (Southeast Asian Studies Group I, Area Studies Centre)

Co-researcher

Yoshihiro Hashiguchi (Global Value Chains Studies Group, Interdisciplinary Studies Center)

Background:

The main purpose of this project is to investigate the impact of urbanization on the productivity of companies and the welfare level of Indonesian people.

In our recent project, “Analysis of Urbanization in Indonesia using Village Census Data from 1999 to 2014,” conducted from 2015 to 2017, we constructed our original dataset of urban areas, which consists of highly dense and contiguous communities with a total population of more than 100,000 people (Hashiguchi and Higashikata 2017; Higashikata and Hashiguchi 2017). Based on this dataset, we make a quantitative analysis of (1) the role of individual firms located in agglomeration areas in generating aggregate fluctuations and (2) the impact of migration on labor outcomes of natives.

Brief summary of the project:

This project consists of two studies. “Firm Agglomeration and Aggregate Fluctuations” examines the role of individual firms located in agglomeration areas in generating aggregate fluctuations. We used two sets of balanced panel data: (1) the balanced panel from 1996 to 2014, and (2) the balanced panel from 2006 to 2014. The methodology is based on the decomposition method proposed by Giovanni et al. (2014), which enabled us to decompose aggregate fluctuations into (sector-level) macroeconomic shocks and firm-level shocks.

Our main findings are as follows. First, like Giovanni et al.’s (2014) empirical results, firm-level shocks mainly contribute to aggregate fluctuations instead of sector-level macroeconomic shocks. Table 1 shows that firm-specific shocks contribute more than 80% to the aggregate fluctuations. Second, firm-to-firm linkages play an important role in explaining the magnitude of firm-specific shocks. As column (1) of Table 2 shows, the covariance of shocks among firms (LINK) is much greater than the variance of individual shocks (DIRECT). Third, we decomposed the effect of firm-specific shock into two groups: (1) firms located in higher agglomeration areas and (2) firms in lower agglomeration areas. We found that firms in higher agglomeration areas have greater

firm-specific fluctuations (Table 2). Fourth, a comparison of DIRECT and LINK effects, as seen in Table 2, revealed that a relatively large difference between the higher and lower agglomeration groups lies in the LINK effect. Therefore, aggregate fluctuations in the Indonesian manufacturing sector are mainly caused by fluctuations of firms located in higher agglomeration areas. In particular, the co-movement among those firms is a key driver of aggregate fluctuations.

In “The Effects of Internal Migration on the Labor Market in Indonesia,” we analyze the effects of migration on the labor market outcomes of native residents. We treated natural geological disasters such as earthquakes, tsunamis, and volcanic eruptions from 2005 to 2008 as quasi-experimental events that lead to a pushing out of migrants from those districts, to identify the causal effects of migration on natives who lived in their communities at least from 2000 to 2014. In order to analyze the effects on labor outcome, we used a panel dataset of individuals from the Indonesian Family Life Survey after merging the data with our original urban area dataset by community (Figure 1).

Tables 3 and 4 show the main results of our benchmark analysis; a 10km radius around communities was regarded their labor market. We found that the predicted share of migration on employment is not statistically significant after we control for community-level characteristics. On the other hand, as shown in Table 4, we found that the effects of inflow of migrants on income of individuals are statistically significant if natives live in urban areas. According to columns (8), a one-percentage-point change of the migration share increases the income of natives living in urban areas by around 7%. We also checked the robustness of our estimation by 1) changing the labor market size from a 5km radius to 20km, (2) analyzing only labor outcomes of males, and (3) using different weights for IV. We found positive and statistically significant effects of migration on the income of natives in urban areas in the analysis of robustness check.

Reference

- Hashiguchi, Yoshihiro and Higashikata, Takayuki. 2017. “Human Capital Externalities in Indonesian Cities.” IDE Discussion Paper No.672, Institute of Developing Economies (IDE-JETRO).
- Higashikata, Takayuki and Hashiguchi, Yoshihiro. 2017. “The Causal Effect of Urbanization on Rural Poverty Reduction: Quasi-Experimental Evidence using Indonesian Urban Area Data.” IDE Discussion Paper No.673, Institute of Developing Economies (IDE-JETRO).

Table 1: Aggregate impact of firm-specific shocks on aggregate fluctuations
Balanced panel from 1996 to 2014

	Model 1		Model 2	
	Variance	Relative	Variance	Relative
Aggregate volatility	0.9043	1.0000	0.9043	1.0000
Firm-specific shock	0.8020	0.8869	0.7618	0.8424
Macroeconomic shock	0.1299	0.1436	0.1828	0.2022

	Model 1		Model 2	
	Variance	Relative	Variance	Relative
Aggregate volatility	2.1980	1.0000	2.1980	1.0000
Firm-specific shock	2.1385	0.9729	2.0552	0.9350
Macroeconomic shock	0.0940	0.0428	0.1281	0.0583

Table 2: Channels for firms' contribution to aggregate fluctuations (Model 2)
Balanced panel from 1996 to 2014

	Model 2			
	All firms	Firms in Agg.	Firms in not Agg.	Cov Agg & NonAgg
	(1)	(2)	(3)	(4)
Firm-specific	0.7618	0.4152	0.0894	0.2572
DIRECT	0.2632	0.2071	0.0561	0.0000
LINK	0.4985	0.2081	0.0333	0.2572
	Ratios			
Firm-specific	1.0000	0.5450	0.1173	0.3376
DIRECT	1.0000	0.7868	0.2132	0.0000
LINK	1.0000	0.4174	0.0667	0.5159
	Balanced panel from 2006 to 2014			
	Model 2			
	All firms	Firms in Agg.	Firms in not Agg.	Cov Agg & NonAgg
	(1)	(2)	(3)	(4)
Firm-specific	2.0552	1.2780	0.1504	0.6268
DIRECT	0.5082	0.4417	0.0665	0.0000
LINK	1.5470	0.8363	0.0839	0.6268
	Ratios			
Firm-specific	1.0000	0.6218	0.0732	0.3050
DIRECT	1.0000	0.8692	0.1308	0.0000
LINK	1.0000	0.5406	0.0543	0.4052

Table 3: Estimation results: The effects of migration on employment

	All				Urban area				Non-urban area			
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV	(9) OLS	(10) IV	(11) OLS	(12) IV
ln(Share of Migrant)	-0.007* (0.004)	-0.005 (0.006)	-0.001 (0.005)	0.021 (0.012)	-0.017** (0.005)	-0.022** (0.007)	0.001 (0.008)	0.001 (0.017)	0.001 (0.005)	0.023 (0.013)	0.003 (0.006)	0.019 (0.012)
Individual Characteristics	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Community & District Characteristics	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
Observations	4225	4225	4225	4225	1848	1848	1848	1848	2377	2377	2377	2377
First Stage Estimation	Dependent Variable: ln(Share of Migrant)											
Weighted Economic Damage by Natural Disaster (Rp, in log)		0.2457*** (0.0040)		0.1529*** (0.0054)		0.3749*** (0.0055)		0.2717*** (0.0097)		0.1632*** (0.0069)		0.1749*** (0.0061)
F Statistics		3680.0		811.3		4658.4		790.2		553.8		822.1

Note: Robust standard errors are presented in parentheses. * significant at 5%, ** significant at 1%, and *** significant at 0.1%.

Table 4: Estimation results: The effects of migration on income

	All				Urban area				Non-urban area			
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV	(9) OLS	(10) IV	(11) OLS	(12) IV
ln(Share of Migrant)	0.173*** (0.020)	0.208*** (0.030)	0.079** (0.027)	0.046 (0.070)	0.241*** (0.031)	0.298*** (0.038)	0.248*** (0.052)	0.470*** (0.098)	0.086** (0.030)	-0.003 (0.075)	0.045 (0.033)	-0.093 (0.074)
Individual Characteristics	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Community & District Characteristics	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
Observations	3637	3637	3637	3637	1623	1623	1623	1623	2014	2014	2014	2014
First Stage Estimation	Dependent Variable: ln(Share of Migrant)											
Weighted Economic Damage by Natural Disaster (Rp, in log)	0.2548*** (0.0046)		0.1605*** (0.0062)		0.3786*** (0.0058)		0.2763*** (0.0102)		0.1701*** (0.0080)		0.1802*** (0.0071)	
F Statistics	3114.3		672.8		4260.0		737.2		447.3		638.7	

Note: Robust standard errors are presented in parentheses. * significant at 5%, ** significant at 1%, and *** significant at 0.1%.

Figure 1: Urban area and IFLS community

