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Interregional Migration Flows in Indonesia

Nashrul Wajdi, Leo J.G. van Wissen and Clara H. Mulder

Population Census and Intercensal Population Survey data permit description of the origin–destination patterns that characterize interregional migration flows in Indonesia. Application of the framework of population redistribution proposed by Long (1985) results in indications of over-urbanization, sub-urbanization and metropolitan-to-non-metropolitan migration. However, indications of sub-urbanization and metropolitan-to-non-metropolitan migration are weak, as migrants originate in diverse areas of the country but move mostly to particular areas of Java — mainly Jakarta and its surroundings.

Keywords: Indonesia, migration, population redistribution, urbanization, sub-urbanization, metropolitan and non-metropolitan areas.

While it accounts for just 6.8 per cent of Indonesia's territory, Java accounts for 57.5 per cent of the total population of the country. In comparison, that part of the island of New Guinea lying in Indonesia accounts for 21.8 per cent of the country's territory but only 1.5 per cent of its population. And Sumatera, inhabited by 21.3 per cent of the total population of Indonesia, represents 25.2 per cent of its territory. In light of these patterns of population distribution, migration may represent an important mechanism of population redistribution.

Previous research has focused on migration flows to and from Java (Alatas 1993; Firman 1994), migration flows to and from Jakarta (Chotib 1998), inter-island migration (Rogers et al. 2004) and inter-provincial migration flows (Darmawan and Chotib 2007; Firman 1994). Yet, work on migration flows between metropolitan and non-metropolitan areas or between metropolitan areas, particularly

work undertaken using a population redistribution framework, remains rare. This article aims to address interregional migration flows in Indonesia employing such a framework. It seeks to answer the following questions. Where do the main streams of migrants come from? What are their destinations? In what phase of population redistribution does Indonesia currently find itself? With so much interregional migration, is there any pattern of regional concentration involving a specific set of origin–destination regional flows? To answer these questions we use three large data sets, the Population Censuses of 2000 and 2010 and the Intercensal Population Survey of 2005. We divide Indonesia into thirteen regions consisting of metropolitan and non-metropolitan areas and analyse these data using logistic regression and the migration Gini index. We argue that Java retains its position as the preferred destination for migration, though migration flows have gradually shifted in favour of destinations outside Java. Furthermore, findings of significant migration flows from large cities to their surroundings indicate that Indonesia is entering the sub-urbanization phase of population redistribution, and findings showing metropolitan-to-non-metropolitan movement and decreasing preferences for metropolitan areas indicate that Indonesia is entering the sixth of Long's phases of population redistribution.

Literature Review

As a demographic factor, migration plays an important role in altering population distribution and thus in affecting the growth of large cities in developing countries. It is responsible for a considerable part of demographic concentration and also for population redistribution in such countries (Hogan and Pinto da Cunha 2001, p. 7733). At the same time, regional development is closely related to migration (De Haas 2010, pp. 228–29; Fan 2005, p. 295; Zelinsky 1971, pp. 237–38). Zelinsky (1971, pp. 221–22) proposed the mobility transition model to explain changes in spatial mobility linked to the theory of demographic transition and modernization. The model offers a generalization of the transition occurring in both the rate and scale

of migration as society changes over time. That is, it views migration in the context of the economic and social change that accompanies the modernization process (Boyle et al. 1998, p. 60; Hagen-Zanker 2008, p. 9).

There are five stages of mobility transition — those characterizing pre-modern traditional society, early transitional society, late transitional society, advanced society and future super-advanced society. Zelinsky argued that mobility transition is an ideal and flexible scheme for explaining movement in space and time and for describing or predicting the specific patterns of migration or circulation to an area or set of areas. However, the scheme lacked the ability to explain distance, time and rate of migration. Despite the importance of this theory as a comprehensive framework to explain human mobility, it ignores important characteristics of an advanced society, sub-urbanization and counter-urbanization (Bijak 2006, p. 14; Zelinsky 1971, p. 229).

Zelinsky's theory does not explain the extent to which mobility acts as an agent of population redistribution. It explains only the migration phase, without addressing the impact of this phase on population distribution. Long's theory of migration offers a more comprehensive approach to the relationship between the stage of development and the degree of population concentration in contexts in which migration is used as a major component of social engineering in the form of population redistribution. Long divides population redistribution trends into six phases: initial urbanization, frontier settlement, traditional urbanization, over-urbanization, sub-urbanization and metropolitan-to-non-metropolitan migration (Long 1985, pp. 34–37).

In the phase of initial urbanization the establishment of the early administrative and commercial centres to support the transition from autonomous subsistence societies to an agrarian market economy leads to frontier settlement, during which the population of destination areas is relatively small compared to the number of migrants. This frontier settlement violates the so-called gravity approach, according to which migration between two places is proportional to the

populations at origin and destination, and inversely proportional to distance (Long 1985, p. 34).

The next phase, traditional urbanization, is characterized by massive rural–urban movement. This phase sees the concentration of large masses of population in central cities and the connection of rural and urban areas through migration and commercial relations. "[C]ommercial relations between the urban center and the hinterland" refers to rural areas' transmission of agricultural products and of products emanating from cottage industry to urban areas and receipt of services and manufactured goods in return (Long 1985, p. 35). Urban areas provide commercial transactions and marketing services. Both urban and rural zones form a specific part of developing urban areas during this phase (ibid.). This traditional urbanization phase has a parallel in economic geography, in Christaller's central place theory (Christaller 1933).

The next phase, over-urbanization, is measured by the urban population as a percentage of the total population at a given level of economic development. This phase occurs when a society has good links to technology and participates in international trade but at the same time has limited transportation infrastructure and poorly developed networks of commercial organization. As a result of these deficiencies, almost the entire modern industrial and commercial sector of a nation is located in urban areas. The limited regular exchange of goods leads to the physical movement of people to urban areas, where they can engage in face-to-face communication. As cities grow relative to the countryside, rural-to-urban movement becomes so large that the modern urban economy can no longer quickly absorb the total urban workforce (Long 1985, p. 35).

After over-urbanization has reached its peak, the processes of sub-urbanization and metropolitan-to-non-metropolitan migration occur. Sub-urbanization is the later stage of urbanization in developed societies, during which commuting patterns permit the channelling of social interactions. It results in the increasing separation of workplace and residence. Metropolitan-to-non-metropolitan migration occurs as a result of strong preferences for low-density locations. It represents

a reaction to congestion and therefore counterproductive social interactions in metropolitan areas. The improved communications and transportation of an advanced economy, which make many social and economic transactions possible at a distance, also help account for metropolitan-to-non-metropolitan movement (Long 1985, p. 36).

In the United States during the 1960s and 1970s, the population in non-metropolitan areas increased, and population decline in metropolitan counties followed. In developed countries more generally, the acceleration of the ageing of the population resulting from low fertility and other changes in family formation are becoming the principal demographic trends. The term "counter-urbanization" describes both the population growth that occurs in non-metropolitan areas and the population decline in metropolitan areas. Regardless of the absolute flows, which are not usually large, the declining metropolitan population and increasing rural population are not necessarily directly linked (Boyle et al. 1998, p. 14). Sub-urbanization and metropolitan-to-non-metropolitan movement are processes of de-concentration for urban areas (Mitchell 2004, pp. 16–18). These de-concentrating processes are due not only to migration but also to natural increases in population and to the changing status of regions.

It is clear that Indonesia has passed Long's initial urbanization and frontier settlement phases of population redistribution. Example of these phases in the Indonesian context are the movement of people from Java to Lampung on Sumatera as a result of the Dutch resettlement programme known as colonization (*kolonisatie*) starting in 1905. The architects of this programme assumed that Javanese would have enough skills as pioneers to clear the jungle and develop irrigated rice fields (Nitisastro 1970, p. 89).

Rogers et al. (2004, p. 4) state that Indonesia has entered the fourth phase of Zelinsky's mobility transition, characterized by massive rural–urban migration towards the largest cities. Their case is strengthened by evidence of widespread non-permanent mobility in Indonesia since the 1970s (Hugo 1982, p. 60). In addition, indications are thus that Indonesia has passed through the over-urbanization phase and is entering the next phases of population redistribution.

TABLE 1
Summary of Population Redistribution Phases, Their Characteristics and Indicators

Phase	*Characteristic*	*Indicators*
I. Initial urbanization	Establishment of new administrative and commercial centres.	Small share of urban population.
II. Frontier settlement	The population at destination is quite small relative to the size of the migration movement.	
III. Traditional urbanization	Massive rural–urban shifts in population.	High out-flow to urban areas. High ratio of rural–urban population.
IV. Over-urbanization	Modern industrial and commercial sector is located in urban areas. Large movement from rural to urban areas. Congestion problems.	High migration volume to urban areas. High preference for metropolitan areas. High concentration of out-migration origins.
V. Sub-urbanization	Increase in commuting. Congestion in central cities.	High out-flow to surrounding areas of metropolises. High preference for areas surrounding metropolises.
VI. Metropolitan-to-non-metropolitan migration	Increasing preference for low density areas. Movement of industry from central city.	High out-flow to non-metropolitan areas. Decreasing preference for metropolitan areas.

Source: Adopted from Long (1985, pp. 34–36) and authors' elaboration.

Findings of significant migration flows from large cities to their surroundings would indicate Indonesia is entering the sub-urbanization phase of population redistribution. Findings showing metropolitan-to-non-metropolitan movement and decreasing preferences for metropolitan areas would indicate that Indonesia is entering the sixth of Long's phases of population redistribution. At the same time, regional variations in phases of population redistribution might see some regions in earlier phases even as more advanced regions are entering a new phase. These regional variations might be due

to the unequal level of regional development. The development of Eastern Indonesia has changed migration patterns. Migration flows have gradually shifted from Java to outside of Java. A decreasing percentage of the country's population — 68.7 per cent in 1930 and 60 per cent in 1990 — has lived on Java; an increasing percentage of the population has lived on Sumatera and in other parts of Indonesia (Firman 1994, p. 6; Tjiptoherijanto 1995, pp. 372–73). Moreover, differing destinations of migration may reflect different motivations, as influenced by social ties, informal networks and responses to labour market fluctuations (Frey and Liaw 1998, p. 401).

Because positive natural population increase in Indonesia (Rogers et al. 2004, p. 2) and the changing status of a region from urban to rural are very rare, this de-concentrating process is most likely due to migration. When this process is attributed to movement rather than natural increase, the term "counter-urbanization" is used (Mitchell 2004, p. 18).

Data and Methodology

The data modelled in this paper are transition (status) data. Transition represents a change of residence, determined by comparing current and previous residence across an observation interval of five years. As used here, then, the term "migration" refers to a transition in place of residence during a five-year period. The data represent inter-regional migration streams based on the Indonesian censuses of 2000 and 2010 (Population Censuses 2000, 2010) and the Indonesian Intercensal Population Survey of 2005, also known as SUPAS 2005.

The use of SUPAS data along with data from the 2000 and 2010 censuses allows analysis of migration during the 2000–10 period in a more detailed way. SUPAS is designed to provide demographic data complementary to that in the censuses by filling the needs for demographic data between census dates. Its sample size is relatively small, but it is a national survey designed to permit estimation at the level of the 415 districts. Since we divide Indonesia into thirteen regions, the number of observations in the SUPAS data is therefore

sufficient. We seek not to estimate exact numbers of migrants but rather to determine migration patterns in these thirteen regions.

The focus of analysis in this paper is on migration flows and on the spatial focusing of in-migration and out-migration. The thirteen regions used in the analysis consist of metropolitan and non-metropolitan areas. A metropolitan city is a city occupied by more than one million people, and metropolitan areas consist of several metropolitan cities, or of core cities and inner and outer cities adjacent to the core cities. Not all regions with more than one million inhabitants can be defined as metropolitan, because the activities in these areas are not urban in character (Handiyatmo 2009, p. 17; Sahara 2010, p. 14).

According to Indonesia's Government Regulation no. 26 of 2008 (Peraturan Pemerintah Republik Indonesia 2008, pp. 69–80), there are nine metropolitan areas in Indonesia. However, these nine metropolitan regions exclude most of the country's territory. Therefore, we specified regions on the basis both of Government Regulation no. 26 (2008) and data on metropolitan agglomeration size published by the World Bank (2012). The regions consist of some administrative areas below the provincial level, namely districts (*kabupaten*) and municipalities (*kota*). The thirteen regions used in the analysis here are listed in Table 2, and their locations shown in Figures 1 and 2.

Following Jones and Mamas (1996, pp. 54–55), we distinguish Jakarta from the surrounding Bodetabek region because Jakarta is much more urbanized than that region. Moves from Jakarta to Bodetabek can therefore be seen as sub-urbanization, typical of the fifth phase of population redistribution.

The first part of the analysis below is the presentation of flow maps (Figures 3–5) showing flows by means of lines connecting the flow sources and destinations. We utilize JFlowMap, a graphical tool offering various visualization techniques for producing and analysing flow maps and developed by Boyandin et al. (2010). Straight lines on the maps represent the flows, and their shade indicates the directions of the flows. JFlowMap is also capable of node clustering and flow

TABLE 2
Summary Information on the Division of Indonesia into Thirteen Regions

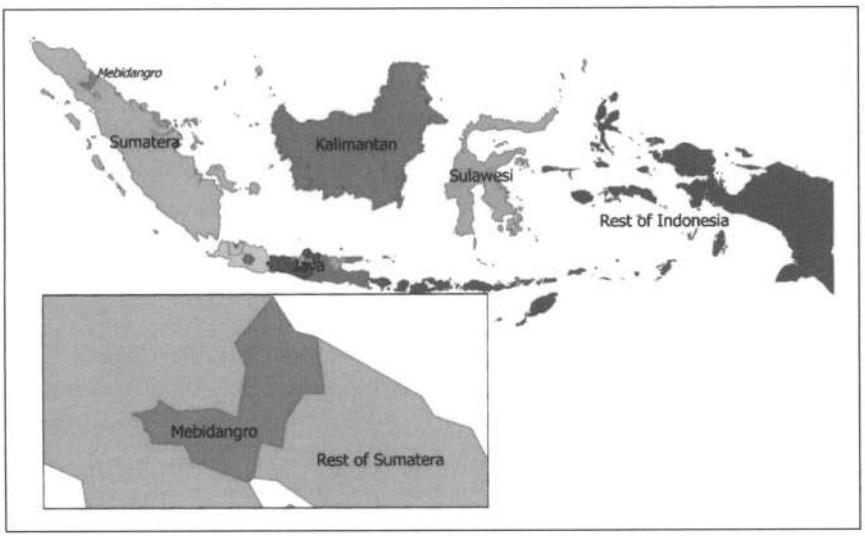
Name of Region	*Description*
1. Jakarta	Jakarta — the Special Capital Region of Jakarta/DKI Jakarta — is Indonesia's megacity in terms of both population size and economic dominance. In 2005 Jakarta was the world's eleventh largest city, one of sixteen megacities in developing countries and of twenty-one in the world (Spreitzhofer 2005, p. 4; World Bank 2012, p. 54). Jakarta consists of one district — Kepulauan Seribu — and five municipalities — Jakarta Selatan, Jakarta Timur, Jakarta Pusat, Jakarta Barat and Jakarta Utara.
2. Bodetabek	The area surrounds Jakarta and consists of three districts — Bogor, Bekasi and Tangerang — and four municipalities — Kota Bogor, Kota Bekasi, Kota Depok, and Kota Tangerang. This area is also known as part of the Jakarta metropolitan area or Jabodetabek.
3. Bandung Raya	This metropolitan area is located in West Java Province and consists of two districts — Bandung and Bandung Barat — and two municipalities — Kota Bandung and Kota Cimahi.
4. Rest of West Java and Banten (RoWJB)	The region consists of the areas in West Java and Banten Provinces excluding Bodetabek and Bandung Raya.
5. Kedungsepur	This is the metropolitan area located in Central Java Province, consisting of four districts — Grobogan, Demak, Semarang and Kendal — and two municipalities — Kota Salatiga and Kota Semarang.
6. Rest of Central Java and Yogyakarta (RoCJY)	The region includes areas in Central Java and Yogyakarta Provinces except those in Kedungsepur. Yogyakarta is not considered as a single metropolitan area because most of its population works in the agricultural sector (Handiyatmo 2009, p. 17; Sahara 2010, p. 17).
7. Gerbangkertosusila	Gerbangkertosusila stands for Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo and Lamongan. It is a metropolitan area located in East Java Province, and consisting of five districts — Sidoarjo, Mojokerto, Lamongan, Gresik, Bangkalan — and two municipalities — Kota Mojokerto and Kota Surabaya.
8. Rest of East Java (RoEJ)	This region consists of areas in East Java Province, excluding the Gerbangkertosusilo metropolitan area.

continued on next page

TABLE 2 — *cont'd*

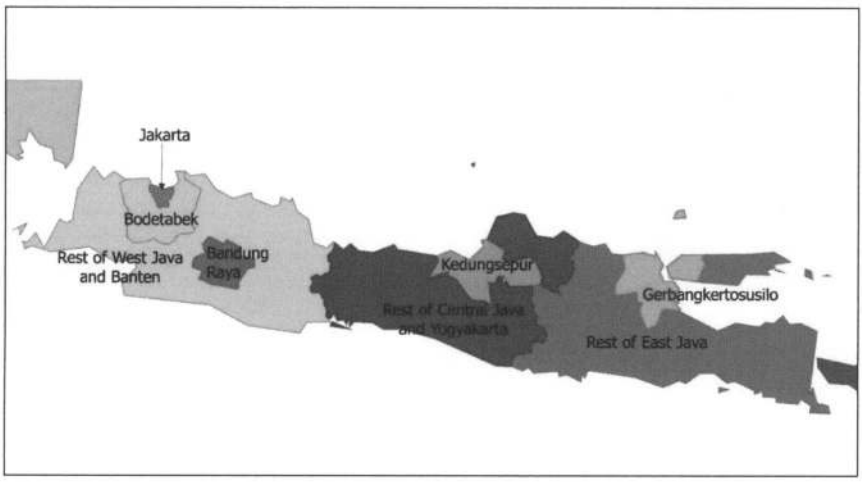
Name of Region	*Description*
9. Mebidangro	Mebidangro is an acronym for Medan, Binjai, Deli Serdang and Tanah Karo, all comprising a metropolitan area in northern Sumatera Island. This metropolitan area consists of two districts — Karo and Deli Serdang — and two municipalities — Kota Medan and Kota Binjai.
10. Rest of Sumatera (RoS)	This region consists of the rest of Sumatera.
11. Kalimantan	Kalimantan is the Indonesian part of Borneo and consists of five provinces.
12. Sulawesi	The island of Sulawesi consists of six provinces.
13. Rest of Indonesia (RoI)	This region consists of seven provinces namely — Bali, West Nusa Tenggara, East Nusa Tenggara, Maluku, North Maluku, Papua and West Papua.

FIGURE 1 Map of Indonesia, Showing Regions Used in Analysis, with Inset Showing Map of Mebidangro



Source: Figure prepared by authors.

FIGURE 2 Map of Java, Showing Regions Used in Analysis



Source: Figure prepared by authors.

aggregation, which are useful in offering a summarized overview of data. After creating graphic representations of the flows, we applied two logit models to describe the level and the distribution of migration. In the models, $n_{ij}(x)$ is the number of persons of age x who live in region i at the beginning of the observation period and who live in region j at the end of the observation period. According to Rogers et al. (2001, p. 234), this number can be broken down into three components: (1) the number of persons of age x who reside in region i at the beginning of the observation period, (2) the share of migrants of age x leaving region i, and (3) the conditional probability that a migrant leaving i in the observation period resides in region j at the end of the observation period. Therefore, following Rogers et al. (2001, pp. 233–45), we use the framework of logit modelling to describe the level and the distribution of migration.

The first logit model describes the level of migration. The level of migration is expressed by the proportion of migrants, determined by distinguishing between movers and stayers. If m denotes migrant status, with $m = 1$ denoting migrants and $m = 0$ denoting stayers, n_{mi}

stands for the number of persons living in region i at the beginning of the interval by migration status m. The logit model, which predicts the odds of being a migrant as against being a stayer, incorporates two independent variables, namely region of origin and time period (see Appendix 1).

The *mstatus* effects (migrant status effects $/v_i^O$) are odds ratios, equal to the ratio of two separate sets of odds: (1) the odds of being a migrant from region i as opposed to being a migrant from the region that we call Rest of Indonesia during the 2005–10 period to (2) the odds of being a stayer in region i as opposed to being a stayer in the Rest of Indonesia during the 2005–10 period. The three-way interaction parameters (*migrant status–region–time* effect v_{it}^{OT}) are ratios of two odds ratios. This *migrant status–region–time* effect parameter is useful to analyse population mobility over time, which represents the change of migration propensities over time.

As suggested by Van Imhoff et al. (1997, p. 158), a model of gross migration flows with a good fit requires origin–destination interaction. Therefore, to examine the spatial structure of migration destinations, a saturated multinomial logit model that includes origin–destination variables interaction is applied.

The second logit model describes the distribution component; that is, the i to j linkages. This is a saturated multinomial logit model. The dependent variables in this model are the areas of destination, while the independent variables are the areas of origin and time (Appendix 2).

The logit model for the distribution component for analysing the spatial structure of migration destinations with time variable included to produce the period-specific distribution can be specified as:

$$\theta_{jt|i} = \frac{S_{jt|i}}{S_{kt|i}} = v_{j|i} v^T_{t|ij}$$

where $v_{j|i}$ is the intercept for destination j, denoting the odds of choosing destination region j relative to reference destination region k given the origin region i, and $v^T_{t|ij}$ is the period effect for the origin–destination pair (i, j), while S denotes the number of migrants.

The interaction parameters $v^T_{t|ij}$ are odds ratios, which are equal to the ratio of (1) odds of migrants from i to j at time t relative to (2) odds of migrants from i to j in the reference period. These odds ratios are measures of the change in preference for the origin–destination pair (i,j) relative to the reference period. High odds ratios indicate high preference. Odds ratios significantly different from 1.0 indicate a significant change, and odds ratios equal to or close to 1.0 indicate relative stability (Rogers et al. 2001, p. 245).

After describing the spatial structure of the migration system, we compare the degree to which the sources of in-migration and the destinations of out-migration are spatially focused using the Gini index. The use of the Gini index to measure spatial focusing is analogous to measuring equality in any distribution of numerical values. The spatial focusing is the inequality that exists in the relative volumes of a set of origin-destination-specific migration flows. A high degree of spatial focusing will occur when most in-migrants are moving selectively to only a few destinations while most out-migrants are leaving only a few regions; a situation in which migrants are moving among all the possible origins and destinations in relatively equal numbers will result in a low degree of spatial focusing (Plane and Mulligan 1997, p. 251).

Results

Migration Pattern (The Generation Component Logit Model)

Table 3 presents the parameter values for the generation component logit model. The overall effect parameter (v), which corresponds to the odds of being a migrant as opposed to being a stayer from the Rest of Indonesia (RoI) in the 2005–10 period, is 0.0104, meaning that the odds of being a migrant as against being a stayer in RoI during the 2005–10 period are about 10 to 1000. The smallest odds of being a migrant as against being a stayer are the odds for RoI and the biggest odds are the odds for Jakarta (0.1240). In fact, in terms of total numbers, the population of RoI is two times greater than the population of Jakarta (Appendix 3). The odds for another

TABLE 3
The Odds, Odds Ratios and Ratios of Odds Ratios of Migrant Status, Origin and Time

Region	Odds			Odds Ratio			Ratio of Odds Ratio		
	1995–2000	*2000–2005*	*2005–2010*	*1995–2000*	*2000–2005*	*2005–2010*	*1995–2000*	*2000–2005*	*2005–2010*
1. Jakarta	0.1345	0.0973	0.1240	7.3942	10.5079	11.8683	*Reference category*	1.4211	1.6051
2. Bodetabek	0.0256	0.0162	0.0199	1.4099	1.7544	1.9090		1.2444	1.3540
3. Bandung Raya	0.0339	0.0283	0.0317	1.8623	3.0556	3.0323		1.6408	1.6283
4. RoWJB	0.0345	0.0176	0.0262	1.8987	1.9023	2.5083		1.0019	1.3210
5. Kedungsepur	0.0447	0.0253	0.0321	2.4587	2.7332	3.0722		1.1116	1.2495
6. RoCJY	0.0435	0.0246	0.0383	2.3895	2.6560	3.6708		1.1115	1.5362
7. Gerbangkertosusila	0.0253	0.0229	0.0275	1.3884	2.4739	2.6299		1.7819	1.8942
8. RoEJ	0.0266	0.0179	0.0240	1.4624	1.9329	2.2936		1.3217	1.5683
9. Mebidangro	0.3010	0.0417	0.0631	16.5532	4.5057	6.0437		0.2722	0.3651
10. RoS	0.0148	0.0117	0.0107	0.8131	1.2631	1.0268		1.5533	1.2628
11. Kalimantan	0.0088	0.0101	0.0106	0.4814	1.0857	1.0159		2.2551	2.1102
12. Sulawesi	0.0121	0.0100	0.0138	0.6658	1.0783	1.317		1.6196	1.9806
13. Rest of Indonesia	0.182	0.0093	0.0104	*Reference category*					

Source: Authors' statistical results.

region, Rest of Sumatera (RoS), with a population ten times larger than that of Mebidangro, are 0.0107, while the odds for Mebidangro are 0.0631.

The migrant status–region effect (v_i^O) implies that in 2005–10 the relative chance of a person being an out-migrant from region i rather than from RoI is v_i^O. Given the reference category RoI, the most mobile population was the population leaving Jakarta (v_1^O = 11.8683), followed by the population from Mebidangro (v_9^O = 6.0437) and the Rest of Central Java and Yogyakarta (RoCJY, v_6^O = 3.6708). People leaving the Rest of Sumatera (RoS) and Kalimantan are almost as mobile as those leaving the Rest of Indonesia, with migrant status–region effects of v_{10}^O = 1.0268 and v_{11}^O = 1.0159, respectively.

These findings suggest that migration propensities are not related to size of population, since migration is selective. The fact that migration is selective means that migrants are not a random sample of the population of the area of origin. People respond differently to push and pull factors. Moreover, each person has different abilities to overcome intervening obstacles to migration (Lee 1966, p. 56; Todaro 1980, p. 377).

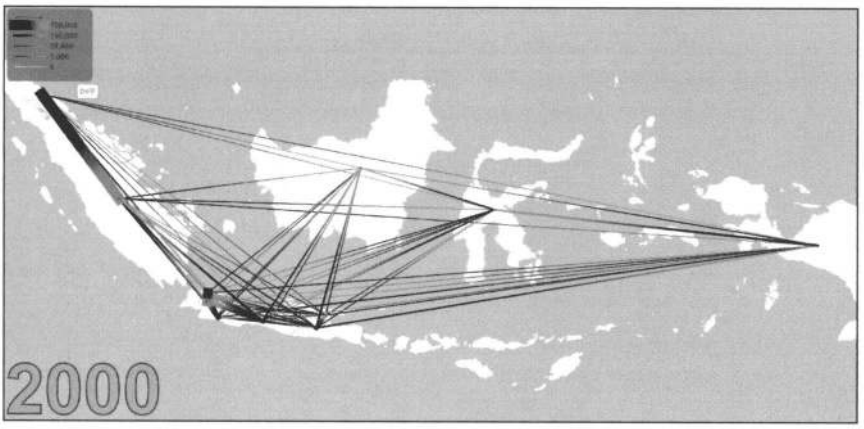
In terms of volume of migration, Mebidangro and several regions on Java have larger out-flows of migrants than in-flows, as illustrated in Figures 3–5; they are thus shaded black. The other regions are mostly shaded grey, meaning that they have larger in-flows of migrants than out-flows. This general pattern remains unchanged over time.

The high volume of migration from Mebidangro contradicts Lee's theory (Lee 1966, p. 52) that the volume of migration varies with the diversity of people, where low diversity among people should result in a lower rate of migration compared to high diversity. In terms of diversity, most of Mebidangro is inhabited by Bataks. Some ethnic groups in Indonesia are known for their high mobility, such as the Bataks of Sumatera, the Bugis and the Makassar people of Sulawesi, the Banjar of Kalimantan and the Madurese (Rogers et al. 2004, p. 1; Tirtosudarmo 2009, p. 5).

The case of Mebidangro indicates the phase of sub-urbanization because the largest flow is an out-flow to the nearby regions of RoS, which are less densely populated than Mebidangro. However, a high volume of out-migration from Mebidangro to other, more developed metropolitan areas must be taken into account in assigning a population redistribution phase. Movements from "less-developed metropolitan" to "more-developed metropolitan" — that is, metropolitan-to-metropolitan movement — are also found for Bandung Raya, Kedungsepur and Gerbangkertosusila.

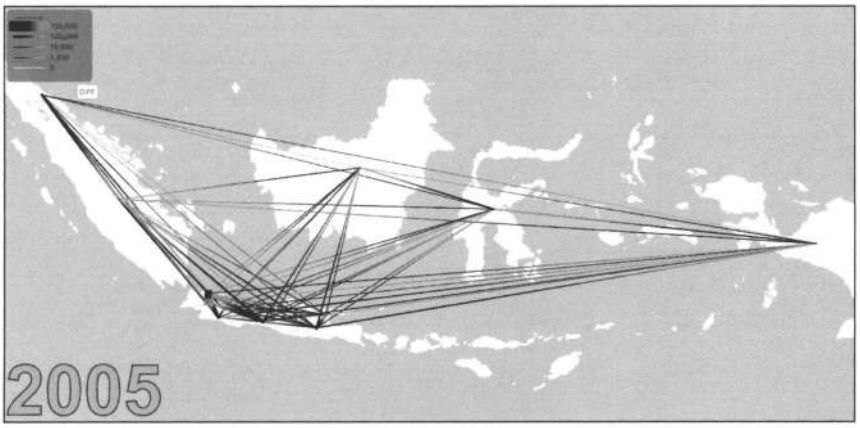
Jakarta had larger out-flows than the corresponding in-flows to Bodetabek, RoS, Kalimantan, Sulawesi and RoI during the 1995–2010 period. The larger out-flow than in-flow to Bodetabek might result from the fact that Bodetabek enjoys spillover effects due to its proximity to Jakarta. This type of movement can be regarded as the sub-urbanization phase of population redistribution. The other flows from Jakarta, for which Jakarta has bigger out-flows to regions outside Java — that is, RoS, Kalimantan, Sulawesi and RoI — than the corresponding in-flow, indicate metropolitan to non-metropolitan movement or the sixth phase of population redistribution. This

FIGURE 3 Interregional Migration Flows in Indonesia 1995–2000



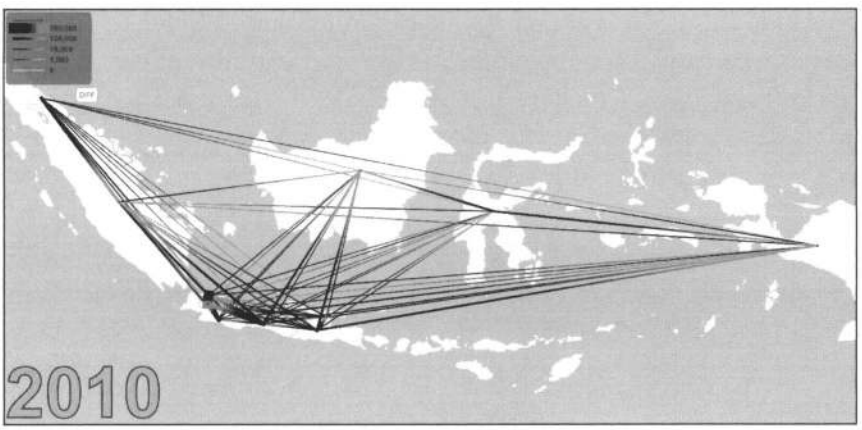
Source: Figure prepared by authors.

FIGURE 4 Interregional Migration Flows in Indonesia 2000–05



Source: Figure prepared by authors.

FIGURE 5 Interregional Migration Flows in Indonesia 2005–10



Source: Figure prepared by authors.

movement might be due to high preferences for low-density locations as a result of the congestion of counterproductive social interactions in the metropolitan areas (Long 1985, p. 36). On the other hand, the larger in-flows to Jakarta are the flows from regions on Java and from Mebidangro.

Bodetabek, the areas surrounding Jakarta, had an unchanged pattern of migration during the 1995–2000, 2000–2005 and 2005–10 periods. Bodetabek was a "net importer" of migrants. The largest flows of in-migrants entering Bodetabek came from Jakarta, followed by migrants from the Rest of West Java and Banten (RoWJB) and RoCJY.

Between 1995 and 2010, RoWJB — surrounding Jakarta, Bodetabek and Bandung Raya — became a predominantly migrant out-flow region. Most out-migrants from RoWJB migrated to Bodetabek, Jakarta and Bandung Raya, and most in-migrants to RoWJB came from RoCJY and the Rest of East Java (RoEJ). This finding might be due to migrants' tendency to migrate to regions surrounding metropolitan areas before migrating to the metropolitan areas. A study by de Jong and Sell (1977, p. 137) shows that, although many people want to live in a small town or a rural environment, they also want to be near a metropolitan centre.

Migration flows from RoCJY and RoEJ can also be seen as traditional urbanization because RoWJB is more developed than RoCJY and RoEJ. Other flows exemplifying traditional urbanization are the migration flows from RoEJ, from which the flow to Gerbangkertosusila is bigger than the flows to other regions.

The above descriptions offer strong indications that distance is the dominant factor affecting the migration flows (Ravenstein 1885, p. 198; Lee 1966, p. 48). The origin–destination matrix (Appendices 7–9) also shows that intra-island migration on Java and inter-island migration to Java are relatively high. Java contains the most attractive destination regions for migrants. Almost one-third of the total migrants migrate to Java. The latest census data show that 87.5 per cent of migrants from Sumatera migrated to Java. Appendices 10–12 show that 62.3 per cent of migrants to Java came from Sumatera, 15.6

per cent from RoI, 14.5 per cent from Kalimantan and 7.6 per cent from Sulawesi.

To borrow terms used by Firman (1994, p. 14), the general pattern of migration flows in Indonesia closely resembles a "Java-centric" pattern because most migrants come from and migrate to areas on Java. Java still holds dominance as both a receiver and sender of migrants.

The three-way interaction parameters migrant status–origin–time (v_{it}^{OT}) show that nine out of twelve regions have consistently increasing out-migration propensities over all three periods from 1995 to 2010. The regions that consistently show an increase are Jakarta, Bodetabek, Bandung Raya, RoWJB, Kedungsepur, RoCJY, Gerbangkertosusila, RoEJ and Sulawesi. This result suggests that the rate of migration tends to increase over time, while the regional differences in the volume and rate of migration are due to the differential progress of regional development (Lee 1966, p. 53).

When viewed by the level of development, there is a positive relationship between migrant propensities and levels of development. Metropolitan areas — Jakarta, Mebidangro, Kedungsepur, Bandung Raya and Gerbangkertosusila — tend to have higher migration propensities than the surrounding areas and non-metropolitan areas. This difference supports the previous findings of Rogers et al. (2004, p. 4) that several metropolitan cities in Indonesia have entered the fourth phase of Zelinsky's mobility transitions, characterized by vigorous inter-urban movements.

Migration Structure (The Distribution Component Logit Model)

To explore the Java-centric pattern of migration in Indonesia further, we examine the spatial structure of migration destinations by applying a saturated multinomial logit model. The multiplicative regression coefficients for this model are shown in Tables 4–6. The intercept is the odds that a migrant who leaves region i during the reference period (2005–10) selects region j as the destination rather than the reference region k.

The first explanation for the Java-centric pattern of migration in Indonesia is the fact that Jakarta is the favoured migration destination.

Migrants from about three quarters of migration origin areas prefer Jakarta as their destination, as is indicated by 98 of 132 intercept values of less than 1.0. The second most favoured destination is Bodetabek; ten out of twelve intercepts in Bodetabek's model are above 1.0. This result suggests that migrants from outside Bodetabek, with the exception of those from Kalimantan and Sulawesi, prefer to migrate to Bodetabek rather than to Jakarta. Migrants from Kalimantan and Sulawesi are more likely to choose Jakarta than Bodetabek, with parameter values of 0.9408 for Kalimantan and 0.8615 for Sulawesi, respectively; see Table 4.

What emerges from these results is that the preference for developed metropolitan regions in Indonesia remains high. For instance, Table 4 shows that migrants from RoWJB prefer Jakarta rather to Bandung Raya ($v^T_{3|4}$ = 0.8104) and that migrants from RoCJY choose Jakarta as their destination rather than Kedungsepur ($v^T_{5|6}$ = 0.3964). That migrants from Bandung Raya prefer RoWJB to Jakarta but migrants from RoWJB prefer Jakarta to Bandung Raya and that migrants from Kedungsepur prefer RoCJY to Jakarta but migrants from RoCJY choose Jakarta as their destination rather than Kedungsepur imply that the preference for developed metropolitan areas remains high despite the long distance often involved in migration. The negative effect of distance on migration is not applicable here, in all likelihood because of relatively large differences in incomes earned between region of origin and destination (Lucas 1997, pp. 730–31; Todaro 1980, p. 377). Such movement of people to more-developed metropolitan areas suggests that the over-urbanization phase is ongoing; the degree of population concentration in metropolitan regions is still increasing in Indonesia.

Some patterns indicating a de-concentration process — sub-urbanization and metropolitan-to-non-metropolitan movement — are also evident. Migrants from Bandung Raya are more likely to choose RoWJB than Jakarta as their destination, migrants from Kedungsepur are more likely to choose RoCJY than the capital, and migrants from Gerbangkertosusila are more likely to choose RoEJ than Jakarta. Another case is that of migration from Mebidangro

to RoS and from RoS to Mebidangro, in which the preference for the non-metropolitan area is higher than the preference for the metropolitan region. The intercept of Mebidangro to RoS ($v^T_{10|9}$ = 13.5294) is higher than the intercept of migration flow from RoS to Mebidangro ($v^T_{9|10}$ = 1.7311).

Another pattern is observable in cases in which population redistribution does not accompany migration. Rather, in those cases large gross flows of in- and out-migration are associated with relatively small net migration. These turnover migration cases include those of migrants from Gerbangkertosusila who prefer RoEJ to Jakarta as a destination ($v^T_{8|7}$ = 4.6189) and also those from RoEJ who prefer Gerbangkertosusila to Jakarta ($v^T_{7|8}$ = 5.5233). However, since the odds of migration from RoEJ to Gerbangkertosusilo are larger than the odds of migration from Gerbangkertosusilo to RoEJ, the preference for migration from RoEJ to Gerbangkertosusilo is larger than that for migration from Gerbangkertosusilo to RoEJ.

The intercepts from our model (Table 4) show there are six intercepts for migration from Jakarta with values of less than 1.0 — migration to Kedungsepur, Gerbangkertosusila, RoEJ, Mebidangro, Kalimantan and Sulawesi. These results mean that the migrants' preference to leave Jakarta for these regions is smaller than their preference to migrate to the Rest of Indonesia. The "favourite" destinations for migrants from Jakarta are Bodetabek, Sumatera other than Mebidangro, Central Java other than Kedungsepur, RoWJB and Bandung Raya. Migrants from Jakarta are more likely to choose non-metropolitan areas, with the exception of Bodetabek. This preference suggests the phase of metropolitan-to-non-metropolitan migration. The high preference for migration from Jakarta to Bodetabek is the expression of a preference for smaller towns within commuting distance, which can be seen as an indication of the sub-urbanization phase.

From the perspective of population redistribution in Indonesia, this movement has no effect; such metropolitan-to-non-metropolitan migration occurs entirely within Java. However, the preference of migrants from Jakarta for Bodetabek relative to the Rest of

Indonesia during the past ten years has decreased ($v^T_{21|1}$ = 0.9664 and $v^T_{22|1}$ = 0.8151). A similar pattern also occurred for the flows from Jakarta to Bandung Raya and Kedungsepur, which manifested a decreasing preference of migrants from Jakarta for Bodetabek, Bandung Raya and Kedungsepur relative to the Rest of Indonesia. However, the odds ratio is relatively high, indicating that the preference for the area surrounding Jakarta remains high.

There is an increase in the preference for choosing Jakarta instead of other regions as a destination for migration during 1995–2010. Migrants from Bodetabek show an increase in the preference for choosing Jakarta relative to Bandung Raya, RoWJB and RoI; migrants from Bandung Raya show an increase in the preference for choosing Jakarta relative to Bodetabek; migrants from RoCJY show an increase in the preference for choosing Jakarta relative to Gerbangkertosusila; migrants from RoEJ show an increase in the preference for choosing Jakarta relative to RoWJB; migrants from Mebidangro show an increase in the preference for choosing Jakarta relative to RoS; migrants from Kalimantan show an increase in the preference for choosing Jakarta relative to RoS; migrants from Sulawesi show an increase in the preference for choosing Jakarta relative to RoCJY; and migrants from RoI show an increase in preference for choosing Jakarta relative to RoWJB.

Kedungsepur in Central Java demonstrates a pattern marked by a decreasing preference for choosing RoCJY — areas surrounding Kedungsepur — to choosing Jakarta during 1995–2010. But the preference of migrants from Kedungsepur for Mebidangro, RoS and Sulawesi relative to Jakarta has increased. Most migrants from Kedungsepur preferred long-distance moves during the past ten years, meaning that the negative effect of distance on migration is not applicable in this case. This pattern also characterized migration from RoCJY, which shows a decreasing preference for choosing Gerbangkertosusila to choosing Jakarta as a destination and an increasing preference for choosing RoS and Sulawesi to choosing Jakarta. A second example of long-distance migration is migration from RoEJ, the area surrounding Gerbangkertosusilo, which shows an increasing preference for choosing Mebidangro and RoS relative

TABLE 4
Regression Coefficient of Saturated Multinomial Logit of Origin and Destination ([O][D]), 2005–2010

Origin	*Destination*												
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Jakarta	—	34.5028	1.1023	3.3270	0.5921	3.9262	0.4447	0.9566	0.4273	4.7727	0.8977	0.9308	*
2. Bodetabek	*	—	0.1410	0.5897	0.0466	0.4078	0.0271	0.0904	0.0230	0.4392	0.0584	0.0420	0.0577
3. Bandung Raya	*	1.7365	—	3.3197	0.0991	0.8358	0.1166	0.2242	0.0993	1.5002	0.3447	0.1884	0.2875
4. RoWJB	*	1.6615	0.8104	—	0.0405	0.3143	0.0300	0.0719	0.0097	0.4823	0.1436	0.0534	0.0694
5. Kedungsepur	*	1.0768	0.1503	0.2741	—	2.3420	0.1934	0.3066	0.0335	0.9455	0.7311	0.2211	0.3205
6. RoCJY	*	1.1954	0.1814	0.2985	0.3964	—	0.0855	0.1558	0.0124	0.5436	0.4187	0.0688	0.1210
7. Gerbangkertosusila	*	1.1347	0.2336	0.3321	0.2172	0.8032	—	4.6188	0.0556	0.7626	1.5182	0.5845	1.3246
8. RoEJ	*	1.3138	0.2175	0.3294	0.1962	1.1504	5.5232	—	0.0289	1.6489	2.7466	0.4843	2.4173
9. Mebidangro	*	1.4157	0.4272	0.3907	0.0721	0.3208	0.0812	0.1391	—	13.5290	0.3906	0.1230	0.1887
10. RoS	*	1.4712	0.3678	0.5496	0.1168	0.8223	0.0697	0.3307	1.7311	—	0.3056	0.1432	0.1925
11. Kalimantan	*	0.9408	0.3205	0.3764	0.3092	1.8356	0.4496	1.7231	0.0710	1.1391	—	2.4369	0.7316
12. Sulawesi	*	0.8615	0.3541	0.2474	0.1548	0.7275	0.3507	0.5647	0.0480	1.2366	7.6738	—	8.2282
13. Rest of Indonesia	*	1.0683	0.3840	0.3237	0.3615	1.8878	0.8654	2.0998	0.0868	1.4641	2.2371	4.7520	—

*: reference category
Source: Authors' statistical results.

TABLE 5
Regression Coefficient of Saturated Multinomial Logit Origin, Destination and Time ([O][D][T=1]), 2000–2005

Origin	*Destination*												
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Jakarta	—	0.9664	0.8014	1.2145	0.9459	1.8175	1.0258	4.6444	1.2095	1.7515	0.6454	1.2883	*
2. Bodetabek	*	—	0.9130	0.5408	1.0750	2.0692	4.2489	3.2742	0.6531	1.3739	0.7037	1.1277	0.6867
3. Bandung Raya	*	0.9811	—	1.4187	1.9993	1.9281	2.4089	2.2353	0.4875	1.3177	1.2804	3.0801	1.3680
4. RoWJB	*	0.4683	0.5739	—	0.2348	0.5109	1.3164	0.6129	0.3737	0.8245	0.2990	0.9850	0.2718
5. Kedungsepur	*	1.0698	0.4849	0.5919	—	0.8621	0.6721	0.7962	—	1.5589	0.8573	1.6249	0.9734
6. RoCJY	*	0.6841	0.5390	0.3503	0.5726	—	0.9504	0.4623	1.8822	0.9763	0.5486	1.0596	0.8673
7. Gerbangkertosusila	*	0.4894	0.2856	0.8170	0.5366	1.2777	—	1.7999	0.2512	1.3564	0.7377	0.9741	0.7468
8. RoEJ	*	0.5558	0.2871	0.6933	0.4697	0.9229	1.1005	—	1.0298	1.1901	0.7769	0.8801	0.9835
9. Mebidangro	*	0.7620	1.1668	0.6122	—	2.2670	0.4242	2.2018	—	0.4272	2.1306	2.5464	3.6314
10. RoS	*	1.0797	0.5308	0.7732	1.4608	1.2018	1.6617	3.0262	1.3416	—	0.5506	0.3958	0.9240
11. Kalimantan	*	1.1568	0.4189	2.9848	0.8266	2.3583	2.0268	3.7893	—	1.9763	—	2.2610	1.1900
12. Sulawesi	*	1.2292	0.3127	0.3888	0.3252	0.6322	1.1483	2.8050	4.6940	1.2899	1.7246	—	2.0358
13. Rest of Indonesia	*	1.9571	0.0264	0.7664	1.0465	2.1315	9.6856	9.9522	1.6317	3.9513	1.5840	1.4239	—

*: reference category
Source: Authors' statistical results.

TABLE 6
Regression Coefficient of Saturated Multinomial Logit Origin, Destination and Time ([O][D][T=2]), 2005–2010

Origin	*Destination*												
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Jakarta	—	0.8151	0.7328	0.7371	0.6286	0.7786	0.9860	1.5431	0.7913	1.2812	0.9150	1.3792	1.0000
2. Bodetabek	*	—	0.6514	0.4764	1.2385	1.2550	1.6814	2.3300	1.2343	1.7564	1.0247	1.8198	0.6828
3. Bandung Raya	*	0.9311	—	0.9189	0.7865	1.1338	1.2560	1.5236	1.0235	1.8777	1.2585	1.3537	1.3415
4. RoWJB	*	0.7573	0.7407	—	0.5227	0.7447	1.1922	1.1222	1.2789	1.4672	0.9806	1.6733	0.6564
5. Kedungsepur	*	1.4330	0.6718	0.7739	—	0.6918	0.6745	0.9221	1.4152	1.9867	1.6387	2.2292	1.9826
6. RoCJY	*	1.2512	0.8631	0.6199	0.7830	—	0.8557	0.5721	1.0357	1.2984	1.6004	1.3468	1.1720
7. Gerbangkertosusila	*	1.4904	1.2244	0.9939	0.6898	1.0901	—	1.4698	1.2930	1.8612	1.3144	1.5258	1.7466
8. RoEJ	*	1.2507	0.8741	0.6749	0.9875	1.0688	1.1683	—	1.4303	1.5572	1.5030	1.5445	1.8671
9. Mebidangro	*	1.3678	1.3343	1.1325	1.2631	1.1456	2.0452	3.8859	—	0.3943	2.3849	2.1539	2.7360
10. RoS	*	1.2404	0.9889	1.0101	1.0728	1.0006	1.6876	2.1588	1.0657	—	1.1580	0.6312	1.2637
11. Kalimantan	*	1.3872	1.1590	0.8727	1.1132	1.0879	1.0996	2.7275	0.8486	1.6966	—	2.5268	0.8685
12. Sulawesi	*	2.1284	1.6223	0.7525	0.5096	0.5263	2.1302	2.5982	1.0153	1.4350	2.2382	—	4.1787
13. Rest of Indonesia	*	1.1321	0.7942	0.3835	1.2712	0.8827	1.9699	3.0497	1.3261	1.7524	1.0427	0.5768	—

*: reference category
Source: Authors' statistical results.

to choosing Jakarta. A last example of long-distance migration is that of migrants from Mebidangro, who show an increasing preference for choosing Bandung Raya, Kedungsepur, RoEJ and Kalimantan relative to Jakarta, while their preference for choosing RoS relative to Jakarta has decreased.

The foregoing discussion indicates that migrants who reside in a metropolitan city — in this case, Jakarta — tend to move to the areas close by, in a pattern of sub-urbanization. But migrants who live far from the central metropolitan areas of Jakarta and Bodetabek tend to move long distances, in a pattern of urbanization. Another conclusion that can be drawn from the analysis concerns an increasing preference among migrants from the areas surrounding Jakarta — Bodetabek and Bandung Raya — for choosing Jakarta (urbanization) rather than choosing the adjacent areas of Jakarta and an increasing preference among migrants from the same surrounding areas for choosing regions outside Java rather than choosing Jakarta (metropolitan-to-non-metropolitan migration). The data thus suggest that, in terms of population redistribution phases in Indonesia, three types of migration are in progress: urbanization, sub-urbanization and metropolitan to non-metropolitan migration.

Spatial Focusing of Migration

To explore the extent to which migration in Indonesia is spatially focused, Gini index values are used to analyse the interregional migration system in Indonesia. Table 7 shows both the raw and the standardized coefficients for the components of the total flows index for the 1995–2000, 2000–05 and 2005–10 periods.

Despite the fact that unequal migration distribution occurred in all three periods, interregional migration flows in Indonesia became less spatially focused over time; that is, migration selectivity has decreased, with migrants increasingly moving among all possible origins and destinations. Lee's argument (Lee 1966, p. 53) that the volume of migration tends to increase over time, among other reasons because of increasing diversity among different areas, the fact that migration in Indonesia has become more dispersed over

TABLE 7
Total Flows Gini Index Values for 1995–2000, 2000–05, 2005–10 Interregional Migration in Indonesia

Component	*1995–2000*		*2000–2005*		*2005–2010*	
	Raw index value	*Standardized value (%)*	*Raw index value*	*Standardized value (%)*	*Raw index value*	*Standardized value (%)*
Rows (Out-migration)	0.0462	6.51	0.0453	6.66	0.0437	6.56
Columns (In-migration)	0.0473	6.67	0.0452	6.63	0.0432	6.49
Exchanges	0.0033	0.46	0.0021	0.31	0.0028	0.42
Other flows	0.6126	86.36	0.5883	86.41	0.5763	86.52
Overall total flows	0.7093		0.6809		0.6660	

Source: Authors' statistical results.

time, and the findings of Rogers et al. (2004, p. 4) that Indonesia has entered the fourth phase of Zelinsky's mobility transition all indicate that migration as a part of economic and social change is in line with the modernization process. It thus confirms the principal idea of the mobility transition.

Table 7 shows that, except for the 1995–2000 period, the Gini indices in the rows are greater than the Gini indices in the columns. This means that out-migration is more spatially concentrated than in-migration. The pattern seems continuous; the standardized values of the Gini index for the rows, reflecting the distributions of places of origin, increase while those for the columns, reflecting the distributions of destinations, decrease. These figures indicate that, over time, migrants are expected increasingly to come from a range of regions but to migrate to particular destination regions. They imply that some regions retain a strong attraction for migrants. This finding is in line with that of Plane and Mulligan for the case of the American migration system in the 1980s. They argued that although their finding was at odds with Ravenstein's theory (Ravenstein 1885, p. 187) that each migrant stream tends to generate a counter stream, the relatively small differences in the indices could be due to the differences in the volumes of migration between large and small regions (Plane and Mulligan 1997, p. 255). Therefore, it is necessary

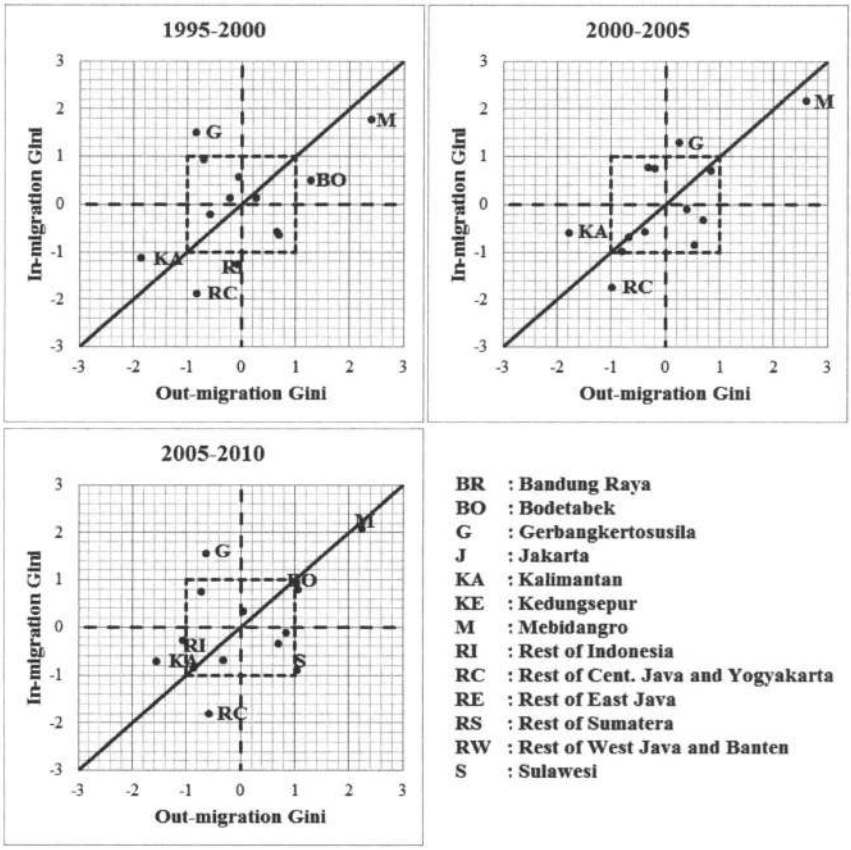
to explore the regional concentration of in- and out-migration for each specific region.

The Gini indices in Table 7 do not reveal the regional concentration of in- and out-migration for each specific region; Gini field indices for each region are calculated and shown in Appendix 13. If metropolitan regions show increasingly dispersed out-migration, then metropolitan-to-non-metropolitan migration is occurring. This type of movement could lead to a dispersed metropolitan society characterized by a higher level of social and economic interaction but a lower degree of population concentration relative to those of advanced metropolitan societies (Long 1985 p. 36). For more interpretable results, we follow Plane and Mulligan (1997, pp. 255–57) and present these indices in *z*-score standardized indices in Figure 6.

Following Plane and Mulligan (ibid.), the figure is divided into quadrants through which a line at a forty-five degree angle is drawn. This line is used to distinguish outward redistributors from inward redistributors. Regions plotted above this line are called outward redistributors because these regions have larger in-migration than out-migration field indices; out-migration from them is relatively dispersed among destinations, while the origins of in-migration to them are relatively concentrated. Regions plotted below this line are called inward redistributors, meaning in-migration to them is relatively uniform across all origins, whereas out-migration from them is more highly focused on selective destinations.

Figure 6 makes possible classification of the regions into consistent outward, consistent inward, inward-to-outward and outward-to-inward redistributor regions. Regions classified as consistent inward redistributors during the whole period under study are Jakarta, Bodetabek, RoWJB, RoCJY and Mebidangro. This is further evidence that Java is the main destination of migration. The fact that Jakarta and Bodetabek remain as major destinations for migrants indicates Jakarta and its surrounding area are still attractive for migrants. However, migrants from Jakarta, Bodetabek, RoWJB, RoCJY and Mebidangro show a high selectivity of destinations; the result is a higher concentration of population in those destination

FIGURE 6 Migration Field Gini Index Values, 1995–2000, 2000–05 and 2005–10



Source: Figure prepared by authors.

regions. Migrants from RoCJY, RoWJB and Mebidangro have a high preference for migrating to Jakarta, while migrants from Jakarta have a high preference for migrating to Bodetabek.

During the 1995–2010 period, three regions were consistently outward redistributor regions — namely Kedungsepur, Gerbangkertosusila and Kalimantan. These three regions have larger in-migration than out-migration field indices, meaning that the origins of in-migration to these regions are relatively more highly focused,

whereas out-migration from them is relatively uniform across all destinations.

Bandung Raya and RoI are the regions which changed from inward redistributor to outward distributor regions between 1995–2000 and 2005–10. In fact, Bandung Raya and RoI are more likely to be outward redistributors over time, meaning that migrants who migrated to Bandung Raya and RoI mainly came from selected regions, while out-migration from these regions disperse to various destinations. RoEJ and Sulawesi, on the other hand, changed from outward redistributor to inward redistributor status over time. Migrants from RoEJ and Sulawesi became more selective in choosing their destinations over time, while in-migrants to these regions came from a range of places of origin.

Following Plane and Mulligan (1997, pp. 256–57), we also classified the regions plotted outside the small boxes in the centre of the three graphs in Figure 6 into regions with focused fields, regions with broad fields and pure outward redistributor regions. The regions plotted outside the box are the regions with index values — Gini indices in *z*-score standardized indices — greater than one standard deviation above or below the mean.

Regions with focused fields characterized by two positive indices are Mebidangro and Bodetabek, meaning that these regions have spatially focused destinations for their out-migrants and spatially focused source regions for their in-migrants. As shown in the previous section, migrants from Bodetabek mostly migrate to Jakarta, and migrants from Jakarta mostly migrate to Bodetabek. Migrants from Mebidangro mostly migrate to RoS and migrants from RoS mostly migrate to Mebidangro.

Regions with broad fields characterized by two negative indices are RoCJY, Kalimantan and RoI. They show substantially below-average spatial focusing. One region with positive index of in-migration and negative index of out-migration is Gerbangkertosusila. Gerbangkertosusila has strongly focused sources of in-migrants but a moderately broad out-migration field. Thus it can be called a "pure" outward redistributor of population.

The fact that some regions outside Java — that is, RoS, Kalimantan and RoI — are outward redistributor regions sending migrants to almost all possible destinations and receiving migrants only from selected regions, and that Jakarta, Bodetabek, RoWJB, RoCJY and RoEJ, all located on Java, are inward redistributor regions, shows that Java is still the main migration destination. That migrants from Java only migrated to a number of particular destinations, as indicated by out-migrant Gini indices that are high relative to in-migrant Gini indices, results in an increasing concentration of population on Java. This effect is compounded by the migration from RoWJB and RoCJY, which tends to be directed towards Jakarta, and by migration from Jakarta, which is more likely to be directed towards Bodetabek.

Conclusion

This study investigates interregional migration in Indonesia in terms of metropolitan and non-metropolitan migration in a population redistribution context. We found indications of a Java-centric pattern of interregional migration in Indonesia, in which Java remains the main destination of migration. This pattern is due to high preference for metropolitan areas on Java, especially Jakarta. Despite some new metropolitan area formation, the gravitational pull of Jakarta, its surroundings and other metropolitan areas on Java in attracting migrants remains high. The attraction of metropolitan areas on Java is such that distance is not a significant obstacle to migration to Java.

Analysis of the three-way interaction parameters (migrant status–origin–time, v_{it}^{OT}) confirmed our idea that migration propensities increase consistently over time. They are also in line with Lee's theory that the rate of migration tends to increase over time, as do regional differences in the volume and rate of migration because of different trajectories of regional development (Lee 1966, p. 53). The regions that consistently show an increase in migration propensities are Jakarta, Bodetabek, Bandung Raya, RoWJB, Kedungsepur, RoCJY, Gerbangkertosusila, RoEJ and Sulawesi. When levels of development are taken into account, there is a positive relationship

between the propensities for migration and the level of development. Metropolitan areas — Jakarta, Mebidangro, Kedungsepur, Bandung Raya, Gerbangkertosusila — generally have higher migration propensities than the surrounding areas and non-metropolitan areas. This finding supports the notion that several metropolitan cities in Indonesia have entered the fourth phase in Zelinsky's mobility transition, characterized by vigorous inter-urban movement. Three types of migration related to population redistribution are under way in Indonesia, reflecting the phases of urbanization, sub-urbanization and metropolitan-to-non-metropolitan migration. Examples of the urbanization phase are migration from RoCJY and RoEJ to RoWJB and migration from RoEJ to Gerbangkertosusila. Migration from Mebidangro to RoS and from Jakarta to Bodetabek are examples of sub-urbanization, while migration from Jakarta to RoI can be labelled as metropolitan-to-non-metropolitan movement.

In general, we may conclude that Indonesia is currently in a phase of over-urbanization. Indications of sub-urbanization and metropolitan-to-non-metropolitan migration are still weak; the country shows a high preference for metropolitan regions and a high out-migration Gini index for metropolitan areas, which will cause population density on Java to increase. Although the percentage of the population living on Java has declined since the 1930s, population density there has actually increased (Wajdi 2010, p. 39).

The population redistribution framework proposed by Long (1985, pp. 34–36) does not seem sufficient for explaining migrant movement patterns. The fourth phase in this framework is said to occur when a society has good links to technology and international trade but at the same time has a limited infrastructure of transportation networks and commercial organization. In fact, in terms of infrastructure, Jakarta has several alternative forms of public transport allowing for commuting. In addition, migration from large metropolitan areas to small metropolitan areas and vice versa are not incorporated in Long's framework. But this type of migration flow has been typical of Indonesia in the past decade — migration from, for example, Mebidangro to Jakarta, from Bandung to Bodetabek and from Gerbangkertosuilsa to Jakarta.

This article has not incorporated socio-demographic factors such as age, sex or education level in its exploration of migration propensities to particular areas. It is also necessary to consider the places of birth of migrants to see if they migrate directly from those places to given destination areas or to other places first. These matters await further research.

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REFERENCES

Alatas, Secha. "Macro Patterns of Internal Migration in Indonesia, 1971–1990". *Indonesian Journal of Demography* 20, no. 40 (1993): 21–47.

Bell, Martin, and Philip Rees. "Comparing Migration in Britain and Australia: Harmonisation through Use of Age — Time Plans". *Environment and Planning A* 38, no. 5 (2006): 959–88.

Bijak, Jakub. "Forecasting International Migration: Selected Theories, Models, and Methods". Central European Forum for Migration Research (CEFMR) Working Paper, no. 4/2006. Warsaw: Central European Forum for Migration Research, 2006.

Borjas, George J. "Migration, Economics of". In *International Encyclopedia of the Social and Behavioral Sciences*, edited by Neil J. Smelser and Paul B. Baltes. Oxford: Pergamon, 2001.

Borjas, George J., Stephen G. Bronars, and Stephen J. Trejo. "Self-Selection and Internal Migration in the United States". *Journal of Urban Economics* 32, no. 2 (1992): 159–85.

Boyandin, Ilya, Enrico Bertini, and Denis Lalanne. "Using Flow Maps to Explore Migrations Over Time". Geospatial Visual Analytics Workshop in conjunction with The 13th AGILE International Conference on Geographic Information Science. Guimarães, 2010.

Boyle, Paul, Keith Halfacree, and Vaughan Robinson. *Exploring Contemporary Migration*. New York: Addison Wesley Longman, 1998.

Chotib. "Skedul Model Migrasi dari DKI Jakarta/Luar DKI Jakarta: Analisis Data SUPAS 1995 Dengan Pendekatan Demografi Multiregional" [Model migration schedule for Jakarta and outside Jakarta: An analysis on the

1995 SUPAS data using multiregional demographic approach]. Master's thesis, University of Indonesia, 1998.

Christaller, Walter. *Die zentralen Orte in Suddeutschland.* Jena: Gustav Fischer, 1933.

Clark, William A.V. "Recent Research on Migration and Mobility: A Review and Interpretation". *Progress in Planning* 18, (1982): 1–56.

Darmawan, Beny, and Chotib. "Perkiraan Pola Migrasi Antarprovinsi di Indonesia Berdasarkan Indeks Ketertarikan Ekonomi" [Estimated interprovincial migration patterns in Indonesia based on the economic attraction indices]. Paper presented in Parallel Session IIIC: Poverty, Population & Health. Jakarta: Demographic Institute, University of Indonesia, 2007.

De Haas, Hein. "Migration and Development: A Theoretical Perspective". *International Migration Review* 44, no. 1 (2010): 227–64.

De Jong, Gordon F., and Ralph R. Sell. "Population Redistribution, Migration and Residential Preferences". *Annals of the American Academy of Political and Social Science* 429, no. 1 (1977): 130–44.

Fan, C. Cindy. "Interprovincial Migration, Population Redistribution, and Regional Development in China: 1990 and 2000 Census Comparisons". *Professional Geographer* 57, no. 2 (2005): 295–311.

Fielding, Anthony J. "Counterurbanisation in Western Europe". *Progress in Planning* 17, (1982): 1–52.

Fields, Gary S. "Place-to-Place Migration: Some New Evidence". *Review of Economics and Statistics* 61, no. 1 (1979): 21–32.

Firman, Tommy. "Migrasi Antarprovinsi dan Pengembangan Wilayah di Indonesia [Inter-province migration and development of regions in Indonesia]". *Prisma* 7, year 23 (1994): 3–15.

Frey, William H., and Kao-Lee Liaw. "The Impact of Recent Immigration on Population Redistribution within the United States". In *The Immigration Debate: Studies of Economic, Demographic and Fiscal Effects of Immigration*, edited by James P. Smith and Barry Edmonston. Washington, D.C.: National Academy Press, 1998.

Geiger, Martin, and Antoine Pecoud. "Migration, Development and the 'Migration and Development Nexus'". *Population, Space and Place* 19 (2013): 369–74.

Goldscheider, Calvin. "Modernization, Migration, and Urbanization". In *Population Movements: Their Forms and Function in Urbanization and Development,* edited by Peter A. Morrison. Liége: International Union for the Scientific Study of Population, 1983.

Greenwood, Michael J. "Internal Migration (Further Types): Industrialized Countries". In *International Encyclopedia of the Social & Behavioral*

Sciences, edited by Neil J. Smelser and Paul B. Baltes. Oxford: Pergamon, 2001.

Hackenberg, Robert A. "New Patterns of Urbanization in Southeast Asia: An Assessment". *Population and Development Review* 6, no. 3 (1980): 391–419.

Hagen-Zanker, Jessica. "Why Do People Migrate? A Review of the Theoretical Literature". Maastricht Graduate School of Governance Working Paper No. MGSOG/2008/WP002, 2008.

Halliday, Joyce, and Mike Coombes. "In Search of Counterurbanisation: Some Evidence from Devon on the Relationship between Patterns of Migration and Motivation". *Journal of Rural Studies* 11, no. 4 (1995): 433–46.

Handiyatmo, Dendi. "Penggunaan Jenis Transportasi oleh Pelaku Mobilitas Ulang Alik di Enam Kawasan Metropolitan; Analisis Data Supas 2005" [Moda choice of transportation by commuters in six metropolitan areas; SUPAS 2005 Data Analysis]. Master's thesis, University of Indonesia, 2009.

Harris, John R. "Urban and Industrial Deconcentration in Developing Economies: An Analytical Framework". *Regional and Urban Economics* 1, no. 2 (1971): 139–52.

He Jiaosheng, and Jim Pooler. "The Regional Concentration of China's Interprovincial Migration Flows, 1982–90". *Population and Environment* 24, no. 2 (2002): 149–82.

Henderson, John V. "Urbanization in a Developing Country: City Size and Population Composition". *Journal of Development Economics* 22, no. 2 (1986): 269–93.

Hogan, Daniel J., and José M. Pinto da Cunha. "Internal Migration: Developing Countries". In *International Encyclopedia of the Social & Behavioral Sciences,* edited by Neil J. Smelser and Paul B. Baltes. Oxford: Pergamon, 2001.

Hugo, Graeme J. "Circular Migration in Indonesia". *Population and Development Review* 8, no. 1 (1982): 59–83.

———. "New Conceptual Approaches to Migration in the Context of Urbanization: A Discussion Based on the Indonesian Experience". In *Population Movements: Their Forms and Function in Urbanization and Development*, edited by Peter A. Morrison. Liége: International Union for the Scientific Study of Population, 1983.

———. "Urbanisation in Asia: An Overview". Paper Prepared for Conference on African Migration in Comparative Perspective, 4–7 June 2003, Johannesburg. Adelaide: University of Adelaide, 2003.

Hutchinson, Francis E. "Southeast Asia's Largest Economy Needs Vast Improvements in Infrastructure". *ISEAS Perspective*, no. 23, 5 September

2013 <http://www.iseas.edu.sg/ISEAS/upload/files/ISEAS-Perspective-2013-23-Southeast-Asia's-Largest-Economy-Needs-Vast-Improvements-in-Infrastructure.pdf> (accessed 26 February 2014).

Jones, Gavin W., and Si Gde Made Mamas. "The Changing Employment Structure of the Extended Jakarta Metropolitan Region". *Bulletin of Indonesian Economic Studies* 32, no. 1 (1996): 51–70.

Kamiar, Mohammad. "Changes in Spatial and Temporal Patterns of Development in Iran". *Political Geography Quarterly* 7, no. 4 (1988): 323–37.

King, Russell. "Theories and Typologies of Migration: An Overview and a Primer". Willy Brandt Series of Working Papers in International Migration and Ethnic Relations, no. 3/12. Malmö: Malmö Institute for Studies of Migration, Diversity and Welfare (MIM), Malmö University, 2012.

Lee, Everett S. "A Theory of Migration". *Demography* 3, no. 1 (1966): 47–57.

Long, John F. "Migration and the Phases of Population Redistribution". *Journal of Development Economics* 17, no. 1–2 (1985): 29–42.

Lucas, Robert E.B. "Internal Migration in Developing Countries". In *Handbook of Population and Family Economics* Volume 1, Part B, edited by Mark Richard Rosenzweig and Oded Stark. Amsterdam: Elsevier, 1997.

Massey, Douglas S. "Migration, Theory of". In *International Encyclopedia of the Social & Behavioral Sciences*, edited by Neil J. Smelser and Paul B. Baltes. Oxford: Pergamon, 2001.

Milbourne, Paul. "Re-Populating Rural Studies: Migrations, Movements and Mobilities". *Journal of Rural Studies* 23, no. 3 (2007): 381–86.

Mincer, Jacob. "Migration and the Phases of Population Redistribution by J.F. Long". *Journal of Development Economics* 17, no. 1–2 (1985): 43–45.

Mitchell, Clare J.A. "Making Sense of Counterurbanization". *Journal of Rural Studies* 20, no. 1 (2004): 15–34.

Moomaw, Ronald L., and Ali M. Shatter. "Urbanization and Economic Development: A Bias toward Large Cities?". *Journal of Urban Economics* 40, no. 1 (1996): 13–37.

Muhidin, Salahudin. *The Population of Indonesia.* Amsterdam: Rozenberg, 2002.

Nitisastro, Widjojo. *Population Trends in Indonesia.* Ithaca, New York: Cornell University Press, 1970.

Nowok, Beata, and Frans Willekens. "A Probabilistic Framework for Harmonization of Migration Statistics". *Population, Space and Place* 17, no. 5 (2011): 521–33.

Peraturan Pemerintah Republik Indonesia. *Peraturan Pemerintah Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional* [Government regulation number 26 year 2008 on national spatial planning]. 2008

<http://www.minerba.esdm.go.id/library/sijh/pp26-2008.pdf> (accessed 11 March 2015).

Plane, David A., and Gordon F. Mulligan. "Measuring Spatial Focusing in a Migration System". *Demography* 34, no. 2 (1997): 251–62.

Ravenstein, Ernest G. "The Laws of Migration". *Journal of the Statistical Society of London* 48, no. 2 (1885): 167–235.

Rees, Philip. "Internal Migration (Rural–Urban): Industrialized Countries". In *International Encyclopedia of the Social & Behavioral Sciences*, edited by Neil J. Smelser and Paul B. Baltes. Oxford: Pergamon, 2001.

Robert, S., and W.G. Randolph. "Beyond Decentralization: The Evolution of Population Distribution in England and Wales, 1961–1981". *Geoforum* 14, no. 1 (1983): 75–102.

Rogers, Andrei. "Migration Patterns and Population Redistribution". *Regional Science and Urban Economics* 9, no. 4 (1979): 275–310.

Rogers, Andrei, Frans Willekens, and James Raymer. "Modeling Interregional Migration Flows: Continuity and Change". *Mathematical Population Studies* 9, no. 3–4 (2001): 231–63.

Rogers, Andrei, Salut Muhidin, Lisa Jordan, and Megan Lea. "Indirect Estimates of Age-Specific Interregional Migration Flows in Indonesia Based on the Mobility Propensities of Infants". Research Program on Population Processes Working Paper no. WP-04-1. Boulder: Population Program Institute of Behavioral Science, University of Colorado, 2004.

Rogers, Andrei, and Stuart Sweeney. "Measuring the Spatial Focus of Migration Pattern". *Professional Geographer* 50, no. 2 (1998): 232–42.

Saefuloh, Asep Ahmad. "Urbanisasi, Kesempatan Kerja Dan Kebijakan Ekonomi Terpadu" [Urbanization, employment opportunities and integrated economic policy]. *Buku Lintas Kajian Tim 2*. Jakarta: DPR RI, 2012.

Sahara, Ida. "Pola Waktu Tempuh Pekerja Dalam Melakukan Mobilitas Ulang-alik di Kota Metropolitan Indonesia Tahun 2008" [Commute time for worker in executing a commuting mobility in metropolitan Indonesia in 2008]. Master's thesis, University of Indonesia, 2010.

Spreitzhofer, Günter. "Post-Suharto's Jabotabek Region: New Issues of Demographic and Socio-Economic Change in Western Java". *Geografia: Malaysian Journal of Society and Space* 1, no. 1 (2005): 1–10.

Tienda, Harta, and Ding-Tzann Lii. "Migration, Market Insertion and Earnings Determination of Mexicans, Puerto Ricans, and Cubans". *Institute for Research on Poverty Discussion Paper* 830, no. 87 (1987): 1–40.

Tirtosudarmo, Riwanto. "Mobility and Human Development in Indonesia". Human Development Research Paper (HDRP) Series 19, no. 2009 (2009) <http://mpra.ub.uni-muenchen.de/19201/> (accessed 20 September 2013).

Tjiptoherijanto, Prijono. "Partisipasi Masyarakat dalam Menarik Migrasi

Penduduk ke Luar Jawa" [Community participation in attracting the population migration to outside Java]. *Jurnal Ekonomi dan Keuangan Indonesia* 43, no. 4 (1995).

Todaro, Michael. "Internal Migration in Developing Countries: A Survey". In *Population and Economic Change in Developing Countries*, edited by Richard A. Easterlin. Chicago: University of Chicago Press, 1980.

Van Imhoff, Everet, Nicole van der Gaag, Leo van Wissen, and Philip Rees. "The Selection of Internal Migration Models for European Regions". *International Journal of Population Geography* 3 (1997): 137–59.

Wajdi, Nashrul. "Migrasi Antarpulau di Indonesia: Analisis Model Skedul Migrasi dan Model Gravitasi Hybrida" [Inter-islands migration in Indonesia: Model migration schedules and hybrid gravity model analysis]. Master's thesis, University of Indonesia, 2010.

World Bank. *Indonesia — The Rise of Metropolitan Regions: Towards Inclusive and Sustainable Regional Development.* Washington, D.C.: World Bank, 2012.

Yap, Lorene Y.L. "The Attraction of Cities: A Review of the Migration Literature". *Journal of Development Economics* 4, no. 3 (1977): 239–64.

Zelinsky, Wilbur. "The Hypothesis of the Mobility Transition". *Geographical Review* 61, no. 2 (1971): 219–49.

Zhang, Kevin Honglin, and Shunfeng Song. "Rural–Urban Migration and Urbanization in China: Evidence from Time-Series and Cross-Section Analyses". *China Economic Review* 14, no. 4 (2003): 386–400.

APPENDIX 1
List of Variables for Migrant Status–Origin–Time Model

Variable	*Category*		*Remark*
Dependent Variable			
Migrant status	m	1: migrant	
		0: stayer (reference category)	
Independent variables			
Region of origin	O	1: Jakarta	
		2: Bodetabek	Bogor, Depok Tangerang and Bekasi
		3: Bandung Raya	
		4: RoWJB	Rest of West Java and Banten
		5: Kedungsepur	
		6: RoCJY	Rest of Central Java and Yogyakarta
		7: Gerbangkertosusila	
		8: RoEJ	Rest of East Java
		9: Mebidangro	
		10: RoS	Rest of Sumatera
		11: Kalimantan	
		12: Sulawesi	
		0: RoI (reference category)	Rest of Indonesia
Time period	T	1: 1995–2000	
		2: 2000–2005	
		0: 2005–2010 (reference category)	

APPENDIX 2
List of Variables for Saturated Multinomial Logit Origin–Destination–Time Model

Variable		*Category*	*Remark*
Dependent Variable			
Region of origin	O	1: Jakarta	Reference category for other regions
		2: Bodetabek	Bogor, Depok Tangerang and Bekasi
		3: Bandung Raya	
		4: RoWJB	Rest of West Java and Banten
		5: Kedungsepur	
		6: RoCJY	Rest of Central Java and Yogyakarta
		7: Gerbangkertosusila	
		8: RoEJ	Rest of East Java
		9: Mebidangro	
		10: RoS	Rest of Sumatera
		11: Kalimantan	
		12: Sulawesi	
		0: RoI (Rest of Indonesia)	Reference category for Jakarta
Independent variables			
Region of destination	D	1: Jakarta	Reference category for other regions
		2: Bodetabek	Bogor, Depok Tangerang and Bekasi
		3: Bandung Raya	
		4: RoWJB	Rest of West Java and Banten
		5: Kedungsepur	
		6: RoCJY	Rest of Central Java and Yogyakarta
		7: Gerbangkertosusila	
		8: RoEJ	Rest of East Java
		9: Mebidangro	
		10: RoS	Rest of Sumatera
		11: Kalimantan	
		12: Sulawesi	
		0: RoI (Rest of Indonesia)	Reference category for Jakarta
Time period	T	0: 1995–2000 (reference category)	
		1: 2000–2005	
		2: 2005–2010	

APPENDIX 3
Population of Indonesia by Migrant Status, 1995–2000, 2000–2005 and 2005–2010

Period	*Region of Origin*	*Migrant*	*Stayer*	*Total*	*Migrants Proportion*
1995–2000	1. Jakarta	989,427	7,357,654	8,347,081	0.1185
	2. Bodetabek	321,058	12,521,197	12,842,255	0.0250
	3. Bandung Raya	206,198	6,088,144	6,294,342	0.0328
	4. RoWJB	823,893	23,859,265	24,683,158	0.0334
	5. Kedungsepur	232,205	5,192,854	5,425,059	0.0428
	6. RoCJY	1,191,945	27,427,636	28,619,581	0.0416
	7. Gerbangkertosusila	200,828	7,953,422	8,154,250	0.0246
	8. RoEJ	688,250	25,877,476	26,565,726	0.0259
	9. Mebidangro	857,690	2,849,014	3,706,704	0.2314
	10. RoS	522,441	35,327,573	35,850,014	0.0146
	11. Kalimantan	95,053	10,856,094	10,951,147	0.0087
	12. Sulawesi	172,182	14,219,589	14,391,771	0.0120
	13. Rest of Indonesia	253,760	13,953,050	14,206,810	0.0179
2000–2005	1. Jakarta	783,930	8,055,317	8,839,247	0.0887
	2. Bodetabek	236,364	14,547,010	14,783,374	0.0160
	3. Bandung Raya	189,139	6,683,584	6,872,723	0.0275
	4. RoWJB	454,277	25,784,752	26,239,029	0.0173
	5. Kedungsepur	140,930	5,567,414	5,708,344	0.0247
	6. RoCJY	708,829	28,816,036	29,524,865	0.0240
	7. Gerbangkertosusila	192,309	8,393,287	8,585,596	0.0224
	8. RoEJ	483,155	26,989,356	27,472,511	0.0176
	9. Mebidangro	167,195	4,006,691	4,173,886	0.0401
	10. RoS	427,770	36,568,105	36,995,875	0.0116
	11. Kalimantan	120,139	11,947,991	12,068,130	0.0100
	12. Sulawesi	155,739	15,594,082	15,749,821	0.0099
	13. Rest of Indonesia	148,801	16,066,695	16,215,496	0.0092
2005–2010	1. Jakarta	1,059,632	8,548,155	9,607,787	0.1103
	2. Bodetabek	358,706	17,990,701	18,349,407	0.0195
	3. Bandung Raya	234,074	7,390,803	7,624,877	0.0307
	4. RoWJB	707,460	27,004,154	27,711,614	0.0255
	5. Kedungsepur	184,104	5,737,527	5,921,631	0.0311
	6. RoCJY	1,104,716	28,813,801	29,918,517	0.0369
	7. Gerbangkertosusila	243,698	8,871,787	9,115,485	0.0267
	8. RoEJ	663,515	27,697,757	28,361,272	0.0234
	9. Mebidangro	266,310	4,218,845	4,485,155	0.0594
	10. RoS	489,649	45,656,127	46,145,776	0.0106
	11. Kalimantan	144,767	13,643,064	13,787,831	0.0105
	12. Sulawesi	236,012	17,135,770	17,371,782	0.0136
	13. Rest of Indonesia	198,880	19,041,312	19,240,192	0.0103

Source: Various Indonesian censuses.

APPENDIX 4
Number of Interregional Migrants by Origin and Destination, Population Census 2000

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	672,017	23,878	71,652	14,955	80,050	7,160	9,841	8,571	59,140	15,574	10,714	15,875	989,427
2. Bodetabek	97,149	—	21,022	120,247	3,654	31,568	1,563	3,771	1,813	24,292	5,536	2,241	8,202	321,058
3. Bandung Raya	22,649	42,242	—	81,823	2,853	16,695	2,102	3,332	2,197	18,096	6,203	3,152	4,854	206,198
4. RoWJB	149,879	328,822	163,976	—	11,605	63,247	3,777	9,603	1,132	49,264	21,951	4,784	15,853	823,893
5. Kedungsepur	30,795	23,140	6,887	10,906	—	104,257	8,827	10,239	728	14,655	13,739	3,054	4,978	232,205
6. RoCJY	272,623	260,462	57,298	131,270	138,009	—	27,254	74,237	3,254	114,141	71,321	13,928	28,148	1,191,945
7. Gerbangkertosusila	21,759	16,567	4,151	7,271	6,852	16,032	—	68,376	936	8,915	25,133	8,335	16,501	200,828
8. RoEJ	51,730	54,340	12,870	25,245	10,279	55,679	244,554	—	1,045	54,778	94,536	16,219	66,975	688,250
9. Mebidangro	22,741	23,538	7,281	7,845	1,298	6,367	902	814	—	780,314	3,724	1,298	1,568	857,690
10. RoS	80,441	95,404	29,922	43,765	8,755	66,109	3,324	12,322	130,668	—	21,225	18,254	12,252	522,441
11. Kalimantan	11,951	8,105	3,305	5,155	3,319	20,165	4,886	7,550	1,000	8,024	—	11,526	10,067	95,053
12. Sulawesi	16,674	6,749	3,639	5,481	5,064	23,046	2,745	3,624	788	14,369	57,169	—	32,834	172,182
13. Rest of Indonesia	14,014	13,224	6,776	11,826	3,985	29,971	6,156	9,649	917	11,709	30,067	115,466	—	253,760
Total	792,405	1,544,610	341,005	522,486	210,628	513,186	313,250	213,358	153,049	1,157,697	366,178	208,971	218,107	6,554,930

Source: Authors' calculation using data from Population Census 2000.

APPENDIX 5
Number of Interregional Migrants by Origin and Destination, Intercensal Survey 2005

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	453,769	13,371	60,804	9,884	101,657	5,132	31,935	7,243	72,376	7,023	9,644	11,092	783,930
2. Bodetabek	72,616	—	14,347	48,605	2,936	48,825	4,964	9,229	885	24,946	2,912	1,889	4,210	236,364
3. Bandung Raya	15,311	28,017	—	78,472	3,856	21,761	3,423	5,035	724	16,119	5,369	6,563	4,489	189,139
4. RoWJB	136,038	139,771	85,418	—	2,473	29,326	4,513	5,342	384	36,866	5,958	4,277	3,911	454,277
5. Kedungsepur	20,305	16,322	2,202	4,256	—	59,261	3,912	5,375	—	15,064	7,766	3,272	3,195	140,930
6. RoCJY	223,980	146,380	25,375	37,781	64,923	—	21,281	28,196	5,032	91,550	32,148	12,125	20,058	708,829
7. Gerbangkertosusila	17,766	6,620	968	4,850	3,002	16,725	—	100,484	192	9,873	15,139	6,629	10,061	192,309
8. RoEJ	38,551	22,507	2,754	13,044	3,598	38,296	200,563	—	802	48,581	54,731	10,638	49,090	483,155
9. Mebidangro	9,034	7,125	3,375	1,908	—	5,734	152	712	—	132,428	3,152	1,313	2,262	167,195
10. RoS	59,973	76,797	11,841	25,228	9,535	59,236	4,118	27,801	130,701	—	8,713	5,387	8,440	427,770
11. Kalimantan	7,941	6,230	920	10,224	1,823	31,598	6,580	19,010	—	10,537	—	17,316	7,960	120,139
12. Sulawesi	10,580	5,264	722	1,352	1,045	9,245	2,000	6,450	2,347	11,761	62,560	—	42,413	155,739
13. Rest of Indonesia	3,915	7,230	50	2,532	1,165	17,847	16,657	26,827	418	12,925	13,305	45,930	—	148,801
Total	616,010	916,032	161,343	289,056	104,240	439,511	273,295	266,396	148,728	483,026	218,776	124,983	167,181	4,208,577

Source: Authors' calculation using data from Intercensal Survey 2005.

APPENDIX 6
Number of Interregional Migrants by Origin and Destination, Population Census 2010

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	691,383	22,087	66,668	11,865	78,674	8,911	19,168	8,561	95,637	17,988	18,652	20,038	1,059,632
2. Bodetabek	122,727	—	17,299	72,375	5,717	50,048	3,320	11,100	2,827	53,900	7,166	5,152	7,075	358,706
3. Bandung Raya	24,003	41,681	—	79,684	2,378	20,061	2,798	5,380	2,383	36,010	8,273	4,522	6,901	234,074
4. RoWJB	150,942	250,798	122,316	—	6,109	47,436	4,535	10,853	1,458	72,794	21,678	8,062	10,479	707,460
5. Kedungsepur	24,241	26,103	3,642	6,644	—	56,774	4,687	7,432	811	22,919	17,723	5,359	7,769	184,104
6. RoCJY	246,728	294,944	44,755	73,640	97,799	—	21,106	38,438	3,050	134,119	103,303	16,977	29,857	1,104,716
7. Gerbangkertosusila	19,364	21,973	4,523	6,431	4,206	15,553	—	89,440	1,077	14,766	29,398	11,318	25,649	243,698
8. RoEJ	38,901	51,110	8,460	12,812	7,633	44,751	214,860	—	1,124	64,144	106,847	18,838	94,035	663,515
9. Mebidangro	14,731	20,855	6,293	5,755	1,062	4,725	1,195	2,049	—	199,302	5,753	1,811	2,779	266,310
10. RoS	68,960	101,453	25,366	37,899	8,052	56,706	4,809	22,804	119,379	—	21,071	9,877	13,273	489,649
11. Kalimantan	12,773	12,017	4,094	4,808	3,949	23,446	5,742	22,009	907	14,550	—	31,127	9,345	144,767
12. Sulawesi	11,004	9,480	3,896	2,722	1,703	8,005	3,859	6,214	528	13,608	84,446	—	90,547	236,012
13. Rest of Indonesia	12,031	12,853	4,620	3,894	4,349	22,712	10,411	25,263	1,044	17,615	26,915	57,173	—	198,880
Total	746,405	1,534,650	267,351	373,332	154,822	428,891	286,233	260,150	143,149	739,364	450,561	188,868	317,747	5,891,523

Source: Authors' calculation using data from Population Census 2000.

APPENDIX 7
Percentages of Interregional Migrants by Area of Destination, Population Census 2000

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	67.92	2.41	7.24	1.51	8.09	0.72	0.99	0.87	5.98	1.57	1.08	1.60	100.00
2. Bodetabek	30.26	—	6.55	37.45	1.14	9.83	0.49	1.17	0.56	7.57	1.72	0.70	2.55	100.00
3. Bandung Raya	10.98	20.49	—	39.68	1.38	8.10	1.02	1.62	1.07	8.78	3.01	1.53	2.35	100.00
4. RoWJB	18.19	39.91	19.90	—	1.41	7.68	0.46	1.17	0.14	5.98	2.66	0.58	1.92	100.00
5. Kedungsepur	13.26	9.97	2.97	4.70	—	44.90	3.80	4.41	0.31	6.31	5.92	1.32	2.14	100.00
6. RoCJY	22.87	21.85	4.81	11.01	11.58	—	2.29	6.23	0.27	9.58	5.98	1.17	2.36	100.00
7. Gerbangkertosusila	10.83	8.25	2.07	3.62	3.41	7.98	—	34.05	0.47	4.44	12.51	4.15	8.22	100.00
8. RoEJ	7.52	7.90	1.87	3.67	1.49	8.09	35.53	—	0.15	7.96	13.74	2.36	9.73	100.00
9. Mebidangro	2.65	2.74	0.85	0.91	0.15	0.74	0.11	0.09	—	90.98	0.43	0.15	0.18	100.00
10. RoS	15.40	18.26	5.73	8.38	1.68	12.65	0.64	2.36	25.01	—	4.06	3.49	2.35	100.00
11. Kalimantan	12.57	8.53	3.48	5.42	3.49	21.21	5.14	7.94	1.05	8.44	—	12.13	10.59	100.00
12. Sulawesi	9.68	3.92	2.11	3.18	2.94	13.38	1.59	2.10	0.46	8.35	33.20	—	19.07	100.00
13. Rest of Indonesia	5.52	5.21	2.67	4.66	1.57	11.81	2.43	3.80	0.36	4.61	11.85	45.50	—	100.00
Total	12.09	23.56	5.20	7.97	3.21	7.83	4.78	3.25	2.33	17.66	5.59	3.19	3.33	100.00

Source: Authors' calculation using data from Population Census 2000.

APPENDIX 8
Percentages of Interregional Migrants by Area of Destination, Intercensal Survey 2005

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	57.88	1.71	7.76	1.26	12.97	0.65	4.07	0.92	9.23	0.90	1.23	1.41	100.00
2. Bodetabek	30.72	—	6.07	20.56	1.24	20.66	2.10	3.90	0.37	10.55	1.23	0.80	1.78	100.00
3. Bandung Raya	8.10	14.81	—	41.49	2.04	11.51	1.81	2.66	0.38	8.52	2.84	3.47	2.37	100.00
4. RoWJB	29.95	30.77	18.80	—	0.54	6.46	0.99	1.18	0.08	8.12	1.31	0.94	0.86	100.00
5. Kedungsepur	14.41	11.58	1.56	3.02	—	42.05	2.78	3.81	—	10.69	5.51	2.32	2.27	100.00
6. RoCJY	31.60	20.65	3.58	5.33	9.16	—	3.00	3.98	0.71	12.92	4.54	1.71	2.83	100.00
7. Gerbangkertosusila	9.24	3.44	0.50	2.52	1.56	8.70	—	52.25	0.10	5.13	7.87	3.45	5.23	100.00
8. RoEJ	7.98	4.66	0.57	2.70	0.74	7.93	41.51	—	0.17	10.05	11.33	2.20	10.16	100.00
9. Mebidangro	5.40	4.26	2.02	1.14	—	3.43	0.09	0.43	—	79.21	1.89	0.79	1.35	100.00
10. RoS	14.02	17.95	2.77	5.90	2.23	13.85	0.96	6.50	30.55	—	2.04	1.26	1.97	100.00
11. Kalimantan	6.61	5.19	0.77	8.51	1.52	26.30	5.48	15.82	—	8.77	—	14.41	6.63	100.00
12. Sulawesi	6.79	3.38	0.46	0.87	0.67	5.94	1.28	4.14	1.51	7.55	40.17	—	27.23	100.00
13. Rest of Indonesia	2.63	4.86	0.03	1.70	0.78	11.99	11.19	18.03	0.28	8.69	8.94	30.87	—	100.00
Total	14.64	21.77	3.83	6.87	2.48	10.44	6.49	6.33	3.53	11.48	5.20	2.97	3.97	100.00

Source: Authors' calculation using data from Intercensal Survey 2005.

APPENDIX 9
Percentages of Interregional Migrants by Area of Destination, Population Census 2010

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	65.25	2.08	6.29	1.12	7.42	0.84	1.81	0.81	9.03	1.70	1.76	1.89	100.00
2. Bodetabek	34.21	—	4.82	20.18	1.59	13.95	0.93	3.09	0.79	15.03	2.00	1.44	1.97	100.00
3. Bandung Raya	10.25	17.81	—	34.04	1.02	8.57	1.20	2.30	1.02	15.38	3.53	1.93	2.95	100.00
4. RoWJB	21.34	35.45	17.29	—	0.86	6.71	0.64	1.53	0.21	10.29	3.06	1.14	1.48	100.00
5. Kedungsepur	13.17	14.18	1.98	3.61	—	30.84	2.55	4.04	0.44	12.45	9.63	2.91	4.22	100.00
6. RoCJY	22.33	26.70	4.05	6.67	8.85	—	1.91	3.48	0.28	12.14	9.35	1.54	2.70	100.00
7. Gerbangkertosusila	7.95	9.02	1.86	2.64	1.73	6.38	—	36.70	0.44	6.06	12.06	4.64	10.52	100.00
8. RoEJ	5.86	7.70	1.28	1.93	1.15	6.74	32.38	—	0.17	9.67	16.10	2.84	14.17	100.00
9. Mebidangro	5.53	7.83	2.36	2.16	0.40	1.77	0.45	0.77	—	74.84	2.16	0.68	1.04	100.00
10. RoS	14.08	20.72	5.18	7.74	1.64	11.58	0.98	4.66	24.38	—	4.30	2.02	2.71	100.00
11. Kalimantan	8.82	8.30	2.83	3.32	2.73	16.20	3.97	15.20	0.63	10.05	—	21.50	6.46	100.00
12. Sulawesi	4.66	4.02	1.65	1.15	0.72	3.39	1.64	2.63	0.22	5.77	35.78	—	38.37	100.00
13. Rest of Indonesia	6.05	6.46	2.32	1.96	2.19	11.42	5.23	12.70	0.52	8.86	13.53	28.75	—	100.00
Total	12.67	26.05	4.54	6.34	2.63	7.28	4.86	4.42	2.43	12.55	7.65	3.21	5.39	100.00

Source: Authors' calculation using data from Population Census 2010.

APPENDIX 10
Percentages of Interregional Migrants by Area of Origin, Population Census 2000

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	43.51	7.00	13.71	7.10	15.60	2.29	4.61	5.60	5.11	4.25	5.13	7.28	15.09
2. Bodetabek	12.26	—	6.16	23.01	1.73	6.15	0.50	1.77	1.18	2.10	1.51	1.07	3.76	4.90
3. Bandung Raya	2.86	2.73	—	15.66	1.35	3.25	0.67	1.56	1.44	1.56	1.69	1.51	2.23	3.15
4. RoWJB	18.91	21.29	48.09	—	5.51	12.32	1.21	4.50	0.74	4.26	5.99	2.29	7.27	12.57
5. Kedungsepur	3.89	1.50	2.02	2.09	—	20.32	2.82	4.80	0.48	1.27	3.75	1.46	2.28	3.54
6. RoCJY	34.40	16.86	16.80	25.12	65.52	—	8.70	34.79	2.13	9.86	19.48	6.67	12.91	18.18
7. Gerbangkertosusila	2.75	1.07	1.22	1.39	3.25	3.12	—	32.05	0.61	0.77	6.86	3.99	7.57	3.06
8. RoEJ	6.53	3.52	3.77	4.83	4.88	10.85	78.07	—	0.68	4.73	25.82	7.76	30.71	10.50
9. Mebidangro	2.87	1.52	2.14	1.50	0.62	1.24	0.29	0.38	—	67.40	1.02	0.62	0.72	13.08
10. RoS	10.15	6.18	8.77	8.38	4.16	12.88	1.06	5.78	85.38	—	5.80	8.74	5.62	7.97
11. Kalimantan	1.51	0.52	0.97	0.99	1.58	3.93	1.56	3.54	0.65	0.69	—	5.52	4.62	1.45
12. Sulawesi	2.10	0.44	1.07	1.05	2.40	4.49	0.88	1.70	0.51	1.24	15.61	—	15.05	2.63
13. Rest of Indonesia	1.77	0.86	1.99	2.26	1.89	5.84	1.97	4.52	0.60	1.01	8.21	55.25	—	3.87
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Authors' calculation using data from Population Census 2000.

APPENDIX 11
Percentages of Interregional Migrants by Area of Origin, Intercensal Survey 2005

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	49.54	8.29	21.04	9.48	23.13	1.88	11.99	4.87	14.98	3.21	7.72	6.63	18.63
2. Bodetabek	11.79	—	8.89	16.82	2.82	11.11	1.82	3.46	0.60	5.16	1.33	1.51	2.52	5.62
3. Bandung Raya	2.49	3.06	—	27.15	3.70	4.95	1.25	1.89	0.49	3.34	2.45	5.25	2.69	4.49
4. RoWJB	22.08	15.26	52.94	—	2.37	6.67	1.65	2.01	0.26	7.63	2.72	3.42	2.34	10.79
5. Kedungsepur	3.30	1.78	1.36	1.47	—	13.48	1.43	2.02	—	3.12	3.55	2.62	1.91	3.35
6. RoCJY	36.36	15.98	15.73	13.07	62.28	—	7.79	10.58	3.38	18.95	14.69	9.70	12.00	16.84
7. Gerbangkertosusila	2.88	0.72	0.60	1.68	2.88	3.81	—	37.72	0.13	2.04	6.92	5.30	6.02	4.57
8. RoEJ	6.26	2.46	1.71	4.51	3.45	8.71	73.39	—	0.54	10.06	25.02	8.51	29.36	11.48
9. Mebidangro	1.47	0.78	2.09	0.66	—	1.30	0.06	0.27	—	27.42	1.44	1.05	1.35	3.97
10. RoS	9.74	8.38	7.34	8.73	9.15	13.48	1.51	10.44	87.88	—	3.98	4.31	5.05	10.16
11. Kalimantan	1.29	0.68	0.57	3.54	1.75	7.19	2.41	7.14	—	2.18	—	13.85	4.76	2.85
12. Sulawesi	1.72	0.57	0.45	0.47	1.00	2.10	0.73	2.42	1.58	2.43	28.60	—	25.37	3.70
13. Rest of Indonesia	0.64	0.79	0.03	0.88	1.12	4.06	6.09	10.07	0.28	2.68	6.08	36.75	—	3.54
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Authors' calculation using data from Intercensal Survey 2005.

APPENDIX 12
Percentages of Interregional Migrants by Area of Origin, Population Census 2010

Origin	*Destination*													*Total*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
1. Jakarta	—	45.05	8.26	17.86	7.66	18.34	3.11	7.37	5.98	12.94	3.99	9.88	6.31	17.99
2. Bodetabek	16.44	—	6.47	19.39	3.69	11.67	1.16	4.27	1.97	7.29	1.59	2.73	2.23	6.09
3. Bandung Raya	3.22	2.72	—	21.34	1.54	4.68	0.98	2.07	1.66	4.87	1.84	2.39	2.17	3.97
4. RoWJB	20.22	16.34	45.75	—	3.95	11.06	1.58	4.17	1.02	9.85	4.81	4.27	3.30	12.01
5. Kedungsepur	3.25	1.70	1.36	1.78	—	13.24	1.64	2.86	0.57	3.10	3.93	2.84	2.45	3.12
6. RoCJY	33.06	19.22	16.74	19.73	63.17	—	7.37	14.78	2.13	18.14	22.93	8.99	9.40	18.75
7. Gerbangkertosusila	2.59	1.43	1.69	1.72	2.72	3.63	—	34.38	0.75	2.00	6.52	5.99	8.07	4.14
8. RoEJ	5.21	3.33	3.16	3.43	4.93	10.43	75.06	—	0.79	8.68	23.71	9.97	29.59	11.26
9. Mebidangro	1.97	1.36	2.35	1.54	0.69	1.10	0.42	0.79	—	26.96	1.28	0.96	0.87	4.52
10. RoS	9.24	6.61	9.49	10.15	5.20	13.22	1.68	8.77	83.39	—	4.68	5.23	4.18	8.31
11. Kalimantan	1.71	0.78	1.53	1.29	2.55	5.47	2.01	8.46	0.63	1.97	—	16.48	2.94	2.46
12. Sulawesi	1.47	0.62	1.46	0.73	1.10	1.87	1.35	2.39	0.37	1.84	18.74	—	28.50	4.01
13. Rest of Indonesia	1.61	0.84	1.73	1.04	2.81	5.30	3.64	9.71	0.73	2.38	5.97	30.27	—	3.38
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Authors' calculation using data from Population Census 2010.

APPENDIX 13
In- and Out-migration Flows: Gini Index Values for 1995–2000, 2000–2005 and 2005–2010, Interregional Migration in Indonesia

Origin	*1995–2000*		*2000–2005*		*2005–2010*	
	In-migration	*Out-migration*	*In-migration*	*Out-migration*	*In-migration*	*Out-migration*
1. Jakarta	0.5303	0.6572	0.5868	0.6254	0.5518	0.6389
2. Bodetabek	0.6712	0.7314	0.6863	0.6606	0.6635	0.6608
3. Bandung Raya	0.6266	0.6030	0.6954	0.5693	0.6078	0.5623
4. RoWJB	0.5380	0.6523	0.5571	0.6501	0.5251	0.6266
5. Kedungsepur	0.6805	0.5634	0.6922	0.5785	0.6571	0.4870
6. RoCJY	0.3757	0.4647	0.3810	0.5145	0.3470	0.5012
7. Gerbangkertosusila	0.7955	0.4619	0.7585	0.6134	0.7551	0.4956
8. RoEJ	0.5832	0.4969	0.5264	0.5632	0.4839	0.5278
9. Mebidangro	0.8301	0.8726	0.8674	0.8019	0.8181	0.7758
10. RoS	0.7260	0.4805	0.4751	0.5292	0.4624	0.4739
11. Kalimantan	0.4685	0.3343	0.5232	0.4518	0.4802	0.4063
12. Sulawesi	0.6255	0.5427	0.4909	0.6368	0.4584	0.6586
13. Rest of Indonesia	0.4540	0.5611	0.5113	0.5397	0.5317	0.4542

Source: Authors' calculation.

APPENDIX 14
***Z*-score Values of In- and Out-migration Flows for 1995–2000, 2000–2005 and 2005–2010, Interregional Migration in Indonesia**

Origin	*Out-migration*			*In-migration*			*Inward/Outward Redistributor*		
	2000	*2005*	*2010*	*2000*	*2005*	*2010*	*2000*	*2005*	*2010*
1. Jakarta	0.6795	0.3805	0.8176	–0.6252	–0.0758	–0.1065	I	I	I
2. Bodetabek	1.2644	0.8209	1.0418	0.5072	0.7210	0.8133	I	I	I
3. Bandung Raya	0.2528	–0.3211	0.0320	0.1489	0.7944	0.3547	I	O	O
4. RoWJB	0.6412	0.6897	0.6908	–0.5632	–0.3138	–0.3269	I	I	I
5. Kedungsepur	–0.0593	–0.2059	–0.7389	0.5815	0.7686	0.7605	O	O	O
6. RoCJY	–0.8370	–1.0060	–0.5941	–1.8666	–1.7244	–1.7941	I	I	I
7. Gerbangkertosusila	–0.8588	0.2303	–0.6515	1.5050	1.2995	1.5682	O	O	O
8. RoEJ	–0.5828	–0.3966	–0.3213	–0.1999	–0.5603	–0.6665	O	I	I
9. Mebidangro	2.3762	2.5888	2.2199	1.7833	2.1719	2.0867	I	I	I
10. RoS	–0.7126	–0.8222	–0.8733	0.9473	–0.9705	–0.8436	O	I	O
11. Kalimantan	–1.8638	–1.7908	–1.5666	–1.1210	–0.5857	–0.6968	O	O	O
12. Sulawesi	–0.2223	0.5239	1.0195	0.1400	–0.8443	–0.8765	O	I	I
13. Rest of Indonesia	–0.0776	–0.6916	–1.0758	–1.2375	–0.6806	–0.2723	I	O	O

Remarks
I: Inward redistributor
O: Outward redistributor
Source: Authors' calculation.