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Financial Constraints, Social Policy and Migration

Evidence from Indonesia

Edo Mahendra

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Abstract

This paper combines insights from the New Economics of Labour Migration and Sen's capability approach to analyse how financial constraints and social policy in the sending country influence migration decisions of households. It particularly looks into social protection (cash transfers) and quasi-public goods (health and education infrastructure) in Indonesia. The paper analyses the impact of the 2005 unconditional cash transfers scheme in Indonesia on households' migration decisions. It combines internal and international migration in an integrated empirical analysis. Household-level data from the Indonesian Family Life Survey and the district-level data of education and health infrastructure are used for the empirical analysis.

This paper finds that financial constraints and social policy significantly impact migration decisions. Their effects, however, vary according to the households' deprivation profiles and the types of migration. The impact of unconditional cash transfer schemes depends on its income and substitution effects. Using propensity score matching strategy, I find that unconditional cash transfers increase the incentives for households to engage in internal migration but have no significant impact on international migration. I also find that multidimensionally poor households who receive unconditional cash transfers are less likely to have an international migrant family member but are more likely to engage in internal migration. Households with lack access to finance have lower propensity to participate in international migration. Better access to education and health facilities is associated with less international migration.

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1 Introduction

Empirical research on social policy as a migration determinant has largely focused on how destination countries' welfare states shape migration flows from sending countries.¹ Since Borjas (1999) coined the term 'welfare magnet', there have been a substantial number of studies that look into the interplay between welfare states and immigration (Giulietti and Wahba, 2012). The majority of these studies have, however, placed more emphasis on the impact of immigration on the welfare state (Nannestad, 2007).

Meanwhile, sending countries' perspectives are generally overlooked. This negligence is even more apparent in the topic of sending countries' social policy and its impact on migration. Indeed, it is well known that governments of developing countries have limited resources to provide universal social policy such as health and education infrastructure. Hence, the often-absent welfare state system in developing countries is likely the cause of the dearth of literature in developing countries' social policy as a migration determinant to date. If the welfare state of receiving countries is an important variable that influences migration, then the welfare regime and social policy in developing countries, in theory, should be equally influential or at least play a substantial role as well.

The focus of this paper is how social policy and financial constraints affect migration decisions? To get a comprehensive answer, I break down this question into three sub-questions. First, how do different types of social policy affect migration? That is, I attempt to disentangle effects of social protection (direct social policy) and quasi-public goods provision (universal social policy) on different migration types: internal and international. The former is further explored by conducting a causal-impact identification exercise. Second, does a households' poverty profile influence the migration decision of social protection beneficiaries? More specifically, I assess whether multidimensionally deprived households who are beneficiaries of social protection have a different behaviour in migration decision compared to beneficiaries who are not multidimensionally deprived. Third, does the severity of a household's financial constraint affect internal and international migration differently?

In the last decade there has been a global trend in the implementation of direct social policy through social protection by the governments of developing countries (Hanlon et al., 2010; Ghosh, 2011). International development agencies have been actively promoting the use of social protection, especially cash transfers, as a critical development strategy to alleviate poverty (Hanlon et al., 2010; Garcia and Moore, 2012). This global trend has been enhanced by the constantly evolving methods in impact evaluation that are applied to evaluate policy intervention (Imbens and Wooldridge, 2009).

There have been quite a few empirical studies that assess the effect of social protection on migration (Hagen-Zanker and Himmelstine, 2013). Nevertheless, most of these studies do not address causality in their empirical analyses (Kabeer, 2012). Notable exceptions are Stecklov et al. (2005) and Angelucci (2004, 2014) who use Mexico's *Progresa* program data to analyse the impact of conditional cash transfers (CCT) on migration. The experimental nature of *Progresa* makes it easier to conduct an impact evaluation approach. Their findings, however, show conflicting results.

There are three research gaps related to the effect of social policy on migration this paper tries to address. First, there has been no systematic empirical study that investigates the impact of unconditional cash transfers (UCT) on migration, which in theory give households more freedom in deciding their allocation. In this paper, I employ an impact evaluation strategy on non-experimental

¹ In the welfare state and immigration literature, sending and receiving countries are defined as developing economies and advanced economies, respectively. Therefore, the migration flow analysis is typically defined as 'South-North' migration.

(observational) data where a causality claim can be inferred. Second, studies on the impact of social protection on migration have mostly focused on Latin American countries, especially Mexico. Indonesia has a strong internal migration culture and international migration has been a surging phenomenon.² The temporary UCT policy intervention in 2005 thus, makes Indonesia, as a large non-Latin American country, an excellent case to study. Third, this paper fills the literature gap on the role of social policy as contextual variable in sending countries on migration decisions. The multilevel structure of the empirical analysis in the second part of this paper allows us to examine how developing countries' universal social policy in education and health correlate with households' migration decisions.

This paper introduces a hybrid concept of financial constraint that incorporates two exogenous factors ie social policy and access to finance, and look at how it affects migration decision. To do so, I incorporate the financial constraint concept from the household finance literature which emphasises access to finance, and extend its framework to also incorporate social policy interventions. I also rely on the New Economic of Labour Migration (NELM) perspective and Amartya Sen's capability concept.³ Thus, this paper theoretically contributes to the migration literature by combining financial constraints, social policy, and access to finance in an integrated framework that affects migration.

This paper also contributes to bridging internal migration and international migration in an integrated analysis. King and Skeldon (2010) argue for the great potentials of integrating internal and international migration at both the theoretical and empirical studies. Many studies have focused in either internal migration or international migration. Although in general the determinants of these two migration types are similar, the magnitude and direction could be different. First, international migration often includes border control as intervening variable whereas international migration normally means free migration regime. Furthermore, financial constraints could be a more binding factor for international migration, which is often more costly, compared to internal migration.⁴ Hence, a simultaneous analysis of internal and international migration should give a more comprehensive picture of migration determinants

The paper is structured as the following: I start by discussing the concepts of financial constraints and social policy used in this paper and how they relate to migration. Then I provide a brief tour on Indonesia's migration profile as well as its state of social policy, with the emphasis on the UCT program as the policy intervention analysed in the empirical section. Finally I present the data and econometric models used in the empirical analysis, and discuss the results.

2 Theory

2.1 Financial Constraints and Migration

There have been some attempts to define financial constraints.⁵ One definition states that households or individuals face financial constraints when cash-on-hand is low and limited (Carroll, 2001).

² Farre and Fasani (2013) show that internal migration is an important and long-lasting phenomenon in Indonesia while Czaika and de Haas (2014) find that Indonesia is an important country of origin in absolute term.

³ One of the NELM concepts is related to the availability of the credit market for households i.e. access to finance, in which households' migration strategies are affected (Taylor, 1999) whereas the capability approach is more related to the capability of households to migrate (de Haas, 2010). I argue, which I further elaborate in the following section, that exogeneous positive financial shocks due to better access to finance or social transfers affect

⁴ International migration usually comes with higher costs, both monetary costs and non-monetary costs such as the psychological cost of rarely meeting family and relatives and home.

⁵ These definitions are based on the 'household finance' literature.

Alternatively, financial constraint is defined as the situation where individuals or households have their request for credit rejected by financial institutions (Jappelli, 1990). Given the interchangeability of credit and liquidity constraints, it is plausible to contend that individuals or households that are either short in cash (Carroll, 2001; La Cava and Simon, 2005) or unable to borrow from financial institutions (Jappelli, 1990; Duca and Rosenthal, 1993) are financially-constrained.

The role of financial constraints constitutes an often overlooked dimension in the analysis of migration determinants as well as in the development-migration debate. Traditional neoclassical theory of migration holds that people migrate when the benefits of migrating exceed the costs (Harris and Todaro, 1970). However, financial constraints could prevent someone from migrating even in the presence of positive net benefit from migration (Angelucci, 2012, 2014). Some exceptions are studies which view the interplay between financial constraints and migration from the perspective of income shocks (Bazzi, 2014; Angelucci, 2014). Financially constrained individuals and households often cannot migrate despite the presence of large wage gap. Migration as a risk-diversification strategy to insure against income shocks, one of NELM main arguments, puts financial constraints in an important position in migration research (Stark and Bloom, 1985; Taylor, 1999; de Haas, 2010).

There has also been a lack of specific attempts to combine financial constraints with exogenous policy interventions or contextual factors affecting migration. One exception is the recent attempt to integrate financial constraints in the analysis of how social protection affects migration decisions in Mexico (Angelucci, 2014). However, an integrated concept of financial constraints that takes into account other factors to influence migration decision, and is not merely viewed as an independent positive income shock, is still absent.

The observation by Hatton and Williamson (1998) of a non-linear, inverted-U curve relationship between emigration rates and national income using the historical data from Europe suggests the binding effect of financial constraints on migration. Typically the poorest members of the society can neither use their own savings to finance migration nor borrow funds from external sources because they lack the collateral to borrow against (Angelucci, 2012).

A more contemporary migration theory, the NELM, proposed by Stark and Bloom (1985) offers a different entry point, different unit of analyses, and a richer set of explanations for migration decisions. First, NELM acknowledges that migration decision making typically does not happen at an isolated individual level but involve larger units i.e. households (Stark and Levhari, 1982; Stark, 1984; Katz and Stark, 1986). Second, an important contribution of NELM is that it takes into account the role of financial constraints. Taylor (1999) summarises that under the NELM, the decision to migrate is part of family strategies:

1. to insure against income and production risks;
2. to obtain funds for investing in new activities; and
3. to raise income.

This implies that migration is a way-out if one cannot secure funds to invest in economic activities – a function that should normally be provided by financial institutions through credit disbursement. In addition, NELM argues that migration is a strategy to insure against economic shocks – a function that ideally should be provided by the well-working financial or public sector through welfare programmes. Therefore, NELM predicts that financial constraints have a positive effect on migration (Phan, 2012).

NELM provides a theoretical grounding in which migration may result as a strategy to overcome credit constraints due to imperfect or missing credit markets or lack of welfare state provision

from the government. The question is then how would better provision of credit markets and welfare programs affect migration? Would households still use migration as a strategy if such conditions occur?

The loosening of financial constraints does not necessarily mean people will migrate. If imperfections in credit markets are significantly reduced, people may decide not to migrate because they have larger probabilities of acquiring capital and diversifying risks at the origin. According to the NELM, migration incentives would be reduced if credit markets would function better and people could obtain credits more easily. Thus, under the NELM framework, a relaxation of financial constraint such as more accessible credit markets (Phan, 2012) or receiving transfers (Angelucci, 2012, 2014) would lead to less migration.

A more inclusive and well-functioning credit market is a signal for better economic opportunities and investment conditions at home. Hence, one may decide not to migrate, and opt for relishing the opportunity to reap benefits from the wider economic opportunity at home. Financial constraints, caused by lack of access to finance, are still a burgeoning problem in developing countries. World Bank estimates show that only one of two adults worldwide has an account at a formal financial institution and only nine percent have taken a loan from a financial institution (Demirguc-Kunt and Klapper, 2012).

A contrasting perspective is offered by the capability approach. The theory of capability approach is initially proposed by Sen (1980) where he argues that ‘social arrangements should be evaluated according to the extent of freedom people have to promote or achieve objectives they value’ (Alkire, 2002). Robeyns (2005) defines the capability approach as ‘a broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about social change in society’. Under the capability approach, freedom is regarded as the most basic aspect of human life and that well-being is assessed ‘in terms of what they are able to be or do should they choose so’ (Deneulin, 2006). The broad nature of the capability approach framework results in the broad application of its concept. Its application ranges from its natural habitat of welfare economics and development economics to philosophy or social policy.

How to apply the capability approach to migration? De Haas (2010) presents the concepts of ‘aspiration to migrate’ and ‘capability to migrate’ drawing from Sen’s capability approach.⁶ He argues that the propensity of someone to migrate is the function of one’s aspirations and capabilities to migrate. These properties are determined by the local livelihood activities. The capability approach model of migration predicts that migration shall consistently increase so long as aspirations to migrate increase faster than opportunities at home ie local livelihood development.

I contend that the application of the capability approach in migration implies that people may have different functioning.⁷ Some people may value their current location more than others. As such, a relaxation of financial constraints, under the capability framework, does not necessarily lead to less migration as predicted by NELM. Instead, loosening financial constraints could lead to both directions.⁸

⁶ Carling (2002) introduces at first an ‘aspiration/ability’ model which is similar to the capability approach. However, his model does not refer to Amartya Sen’s work.

⁷ Functioning is a unique concept in the capability approach defined as ‘the various things a person may value doing or being’ (Sen, 1999). Examples of functioning are being healthy, being well-nourished, and being able to move freely/mobile (Sen, 1992; Kuklys, 2010).

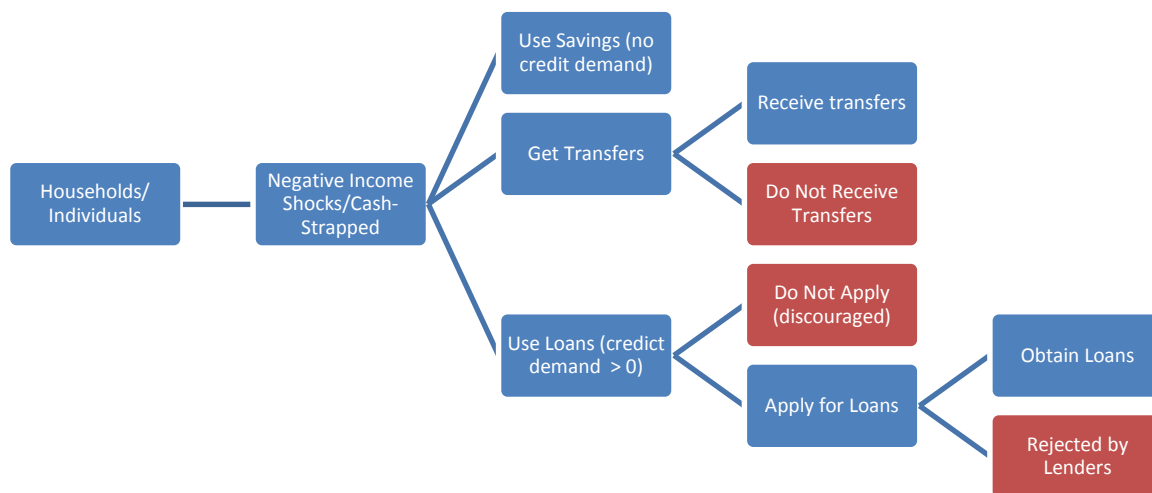
⁸ An alternative third explanation is that financial constraints relaxation increases the capability to migrate but can also simultaneously decrease migration incentives due to narrower opportunity gaps between home and other potential migration destinations. Therefore, the aggregate impact of financial constraints relaxation on migration decision depends on which effect is stronger and which factors increases or decreases faster under particular stages of development.

If staying home (at region of origin) is seen as part of functionings, then financial constraints relaxation would lead to less migration because one would use the extra capability to pursue other functionings that do not require her to migrate such as open new business, buy household utilities, or increase current consumption. This is in line with NELM prediction.

However, if mobility is regarded as part of functionings, then financial constraints relaxation would lead to more migration because one would use the additional capability (freedom) to finance migration.

Now I will integrate the NELM and capability approach to financial constraints and eventual migration decision. To get a clearer picture on the operationalisation of financial constraints in this paper, I use a multi-stage decision process framework (figure 1). The decision tree framework shows that when individuals or households face a cash-strapped condition, for example due to negative income shocks, they have three options to finance their economic activities. The first option is to use internal sources. That is to take out their savings. By utilising their savings, they avoid financial constraints. The second avenue is transfers. These can come from formal channels such as governments' cash transfers or from informal ones like family, neighbours, or friends (extended social network). If they receive such financial assistance, they are not financially constrained whereas failing to secure transfers means they face financial constraints. The third option is to secure a loan. Normally, these come from financial institutions.

Figure 1. Individual/Household Decision Process and Financial Constraints



Source: Author's own, elaborated from Chen and Chivakul (2008)

Cash-strapped individuals and households may, however, decide not to apply for loans. One of the reasons could be due to a lack of collateral to borrow against that discourages them to apply or due to fear for payment default. If they opt for applying for loans, there are two possible outcomes: obtain the loans successfully or get rejected by lenders. In the latter case, it means they face severe financial constraints. In summary, figure 1 provides a hybrid concept of financial constraints which integrate social policy and access to finance. Moreover, it allows us to construct a measure of households' access to finance which is used in the empirical analysis.

2.2 Social Policy and Migration: A Developing Country Perspective

Social policy has been defined as ‘the policies which governments use for welfare and social protection’ (Spicker, 2014). In this paper, I classify social policy into two big types: universal social policy (quasi-public goods) and direct social policy (social protection). Social policy in developing countries is unique if we try to fit it in context of advanced liberal democracies ie welfare state concept. The governments of developing countries often have to face inadequate financial capacities to run universal social policy like in advanced economies. Part of the reason is due to the much narrower tax-payers base available in developing countries – typically attributed to the high level of informal economic activities. Therefore, the welfare state typology of Esping-Andersen (1990) is not suitable for social policy analysis in developing countries.

Gough (2004) argues that ‘welfare regime’ is a more potent concept for social policy analysis of developing countries instead of ‘welfare state’. Livelihood (in)security is a focal term for welfare regimes analysis of developing countries –this is why targeted social policy programs (social protection) with the goal to increase human development level is critical in every social policy programs of developing countries.

Barrientos (2013) classifies social protection programs in developing countries into three categories:

1. Pure income transfers
2. Income transfers combined with asset accumulation
3. Integrated poverty reduction programmes

Pure income transfers are specifically targeted cash transfers for poor households. They can target all eligible households or categories of individuals such as elderly people, orphans, and people with disabilities. The second category, income transfers combined with asset accumulation, could be cash or in-kind transfers which also encourage and facilitate asset accumulation by the members of households. The ‘asset’ includes physical, financial, and human assets. The third category, integrated poverty reduction programmes, is the latest innovation of social policy programs which is eclectic in principle, combining various interventions to tackle social exclusion and focusing on the poorest.

The theory of social transfers has long virtue the superior efficiency of cash transfers over in-kind transfers (Currie and Gahvari, 2008). However, household-heads may not follow presupposed rational actions on how to spend the funds they receive. Instead of investing for the future by increasing their households expenditure for health, education, or nutrition, it is not uncommon to find heads of households spend the extra cash in-hand rather unwisely i.e. increase the consumption level of cigarettes or buy unnecessary tertiary goods. Hence, such ‘non-rational’ decisions taken by households are often considered as the root cause for the ineffectiveness of targeted social policy programs in the form of cash transfers.

Conditional cash transfers (CCT) has been initiated to address such criticism. The launch of Mexico’s *Progresa* in 1997 – since called *Oportunidades* – and on a smaller scale *Bolsa Escola* in Brazil’s Federal State, were landmarks in the new social protection global agenda. Policy makers have started to realise the potentials of targeted social programs to complement broad-based traditional social policy of quasi-public goods provision such as health and education infrastructure. CCT is a cash transfer program that adds the dimension of responsibility upon it. In other words, the cash transfers come with conditions. CCT programs soon have become a global trend, in which it allows countries to tailor their own programs with varying focus, depending on the needs of each country but at the same providing the likely higher degree of effectiveness. CCT programs are not specifically designed for

managing migration incentives. However, researchers can analyse the impact of such programs on migration and mobility (Sana and Massey, 2000; Angelucci, 2004; Stecklov et al., 2005).

The impact of cash transfers largely depends on how households analyse the income and substitution effect of these additional income. In order for cash transfers to have positive impact on migration, the income effect of cash transfer should be greater than its substitution effect. Conversely, if the substitution effect of cash transfer is greater than its income effect, cash transfer is more likely to post negative effect on migration. Since social protection such as cash transfers acts as extra income, it could increase the propensity for migration through the financial constraint relaxation channel (Angelucci, 2012, 2014; Phan, 2012). This is the case where income effect dominates. If households view cash transfers as reducing net benefit of migration, however, the effect is negative (Stecklov, 2005). This is the case where substitution effect dominates.

The type of social protection thus matters for migration decisions (Hagen-Zanker and Himmelstine, 2013). Unconditional cash transfer is likely to be viewed as exogenous extra income, which either could be used to finance migration for extra insurance (Angelucci, 2004, 2014) or is viewed as substitute for migration (Stecklov, 2005). In addition, the effect of social protection also depends on the types of migration. Internal migration, which is cheaper, is likely to be chosen if the magnitude of financial constraints relaxation from cash transfers is marginal (Stecklov, 2005; Angelucci, 2014).

CCT comes with conditions. Since these conditions are typically linked to health or educational dimensions such as immunisation and school attendance, the effect of CCT on migration can go both ways (Hagen-Zanker and Himmelstine, 2013): households may regard CCT as substitutes for migration or the condition to receiving CCT make households not able to send family members for migration. Hence in this case, CCT reduces migration propensity. On the other hand, extra income gained from CCT could also be viewed as a medium that relaxes financial constraints. Households could use the funds to finance migration. If that happens, CCT increases migration propensity.

Unconditional cash transfers (UCT) comes with no conditions attached to the fund. Therefore, it is more likely that households view this additional income as providing some relief from financial constraints. There are several options available for households in the allocation of these funds. First, they can save the money to smooth consumption in the event of income shocks. Alternatively, they can use it to finance productive activities or immediate consumption. In these cases, the effect of UCT on migration is likely to be zero. However, households can also decide to use the extra income from cash transfers to finance the migration of a family member, either by using the fund directly or by using the fund for consumption so that they can save the regular income (Angelucci, 2014). If this happens, households basically allocate the money to further raise their insurance against potential future income shocks by sending family members to migrate.

In theory, UCT should provide larger incentives to be used for migration financing because households do not have to face any conditions attached to the funds. Also, it is likely that UCT has a larger financial constraints relaxation effect for beneficiaries who are not at the bottom of the income distribution and that it could increase international migration. In the same vein, for the most-poor beneficiaries, UCT may not be sufficient to finance international migration because the financial constraints relaxation effect is not large enough (Angelucci, 2012). Meanwhile for internal migration - given its less costly nature- if the income effect of UCT dominates, then it is plausible to predict that UCT leads to more internal migration.

Many empirical studies have focused on evaluating the impact of CCT on migration (Hagen-Zanker and Himmelstine, 2013). In contrast, empirical studies on the effect of UCT are nearly absent and existing studies find mixed results. Deshingkar et al. (2013) find no significant impact of UCT scheme

in Kenya, Tanzania, and Malawi while non-contributory pension in South Africa (age-targeted UCT) is associated with increased migration (Posel et al., 2006).

The problem with existing impact analyses of directed social policy on migration is the lack of counterfactuals. Rare exceptions are Angelucci (2004, 2014) and Stecklov et.al. (2005), who investigate the effect of CCT on Mexico-US migration using impact evaluation approach. Interestingly, they find conflicting results although they use the same policy intervention (Progres program). Angelucci (2004), conducting the analysis at individual level, finds that CCT increases international migration (Mexico-US) migration. CCT is also found to have a greater influence in poorer households, who are more likely to face more binding constraints, in increasing migration incentives through the relaxation of financial constraints (Angelucci, 2014). In contrast, Stecklov et al. (2005), using household level data, find that CCT reduce Mexico-US migration. They argue that since cash transfers provide extra income for households, the net benefit of migration declines and thus reduces the propensity to migrate internationally.

3 Migration and Social Policy in Indonesia

3.1 Migration in Indonesia

Indonesian workers migrate internationally mainly for economic reasons. Working as labour migrants abroad means the chance to quadruple individual income (table 1). Households who want to maximise income may consider that sending family members abroad as migrant workers could be an optimal strategy. Such incentive might be even greater given the relatively weak national currency which translates to higher remittances received at home. Therefore, sending family members abroad as labour migrants could result in potentially much higher income for households as well as risk diversification.

Interestingly, despite this high pull factor for Indonesians to migrate abroad, the Indonesian migration history has been more about internal migration. The Government of Indonesia has been actively promoting internal migration through a programme called Transmigrasi since the 1950s with the objective to reduce the population density of Java (the most densely populated island) to outer islands (Hardjono, 1988; Farre and Fasani, 2013). As the Indonesian economy developed during the New Order era (1966–1998) and that the new democratic era has begun post-1998, international migration became more prevalent. However, the path dependence of the Transmigrasi programme still lingers as the bulk of Indonesian migration is still internal (Ducanes and Abella, 2009).

Table 1. Indonesian Migrant Workers Abroad: Estimated Wage and Fees

Type of Income/Spending	Amount (in US\$)
Estimated wage in Indonesia for informal worker	600/year
Estimated wage abroad for similar job	1300-5400/year
Recruitment fees	800-1400

Source: Bank Indonesia, 2008

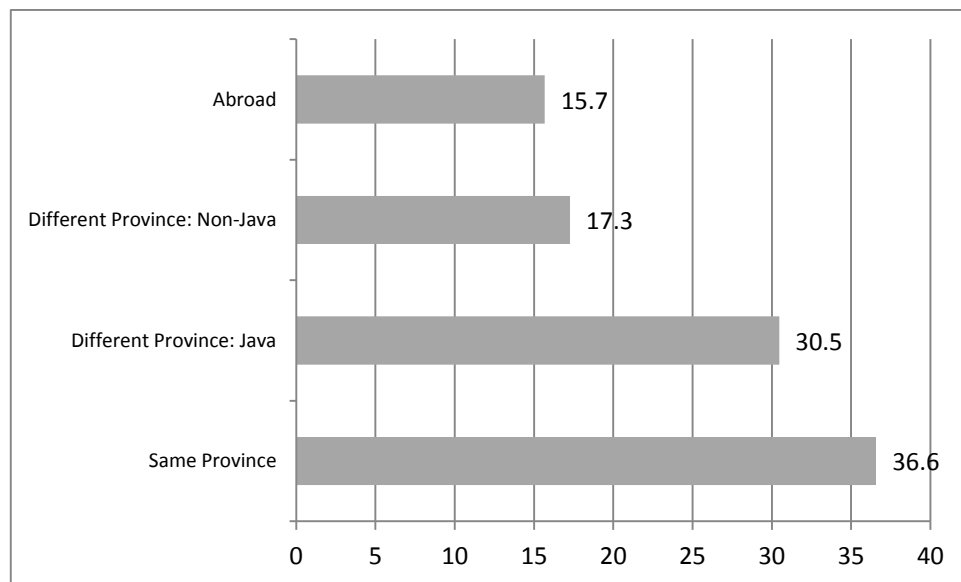
Figure 2 displays the distribution of migration destinations of this paper’s sample data for 2007–2008. Only 15.7 percent of labour migration in our sample is international. Financial constraints might provide an explanation for this pattern. Short-distance migration that takes place within a province dominates (36.6 percent). As our empirical exercise later shows, these are mostly related to rural-to-

urban migration where people migrate to larger cities to work. When they move out of their provinces, Java as the most developed region is still the main destination (30.5% percent).⁹

Zelinsky (1971) presents a theoretical framework of ‘migration transition’ model that can be used to identify the temporal dimension of Indonesian migration pattern. Zelinsky’s migration transition model classifies five different temporal stages (de Haas, 2010b).¹⁰ Under this framework, Indonesian migration is more representative of an ‘early transitional society’ stage. At this stage, there is an increase of all forms of mobility e.g. internal and international migration. This stage applies to the urbanising and developing countries which are in the process of becoming more industrialised.

The spatial dimension of Indonesian migration can be explained using the ‘development tiers’ model proposed by Skeldon (1997). This migration model is based on world systems theory of migration developed by Wallerstein (1974) and is used to analyse the spatial dimension of global migration (de Haas, 2010b).¹¹ Under this model, Indonesia is hence classified as a ‘labour frontier’ country in which the migration pattern is characterised by internal centralisation in the form of rural-to-urban migration and emigration to ‘core countries’ (developed economies).

Figure 2. Migration Destination from Sample Data: 2007–2008 (in percent)



Source: Own calculation based on IFLS 4 data. Migration is defined as individuals of nuclear-family.

Many low-skilled Indonesian migrants are employed as maids or construction workers in Malaysia, Singapore, and the Middle East. These migrants are likely to come from the lower-end of the income distribution. Nonetheless, low-skilled migration is still highly costly for typical poor Indonesian households. For instance, a recent report indicated that the total costs of applying for a job as a housemaid in Singapore could reach more than 13 million rupiah.¹² This equates to approximately \$1350 in 2012.

⁹ Indonesian Family Life Survey (IFLS), although representative of 80 percent of Indonesian population, lack coverage of districts and provinces in the eastern part of Indonesia. This further corroborates the plausibility of short-distance internal migration of rural-to-urban migration pattern.

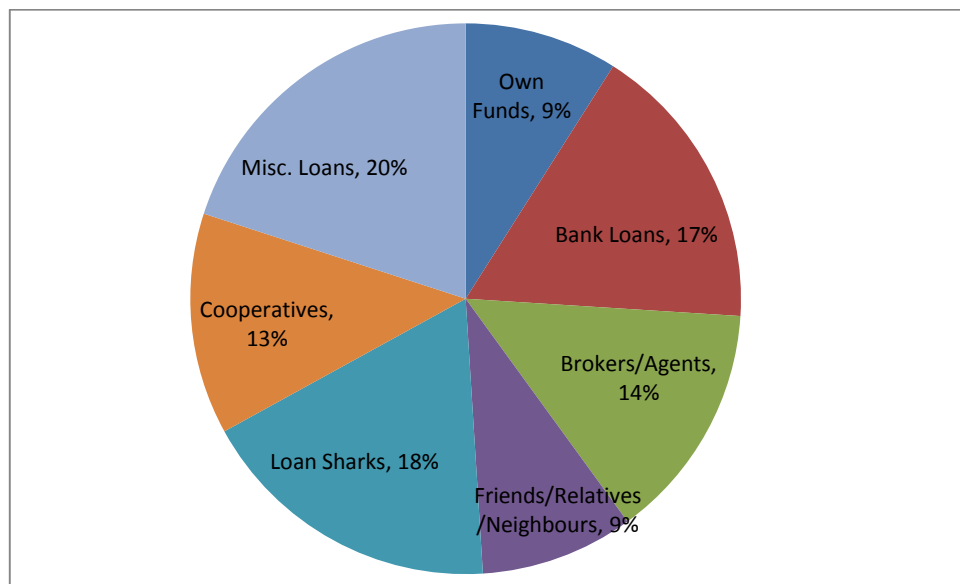
¹⁰ These stages are (i) pre-industrial traditional society, (ii) early transitional society, (iii) late transitional society, (iv) advanced society, and (v) super-advanced society (de Haas, 2010b).

¹¹ The spatial regionalisation of this model is classified as the following: (i) resource niches, (ii) labour frontier, (iii) expanding core, (iv) old and new core, and (v) declining core (de Haas, 2010b).

¹² <http://finance.detik.com/read/2012/07/29/135526/1977637/4/biaya-calon-tki-yang-ingin-kerja-ke-singapura-rp-13-juta>

Some of the migrant agencies pass over the cost to the employers but some others charge the costs to the migrants through wage deductions.¹³ Many Indonesian migrants have to provide up-front payment to finance their migration, and according to Bank Indonesia (2010) around 58 percent of Indonesian migrants use their own source of funding to finance migration and of this own-finance migrants, no more than one out of five migrants receive bank loans (figure 3).¹⁴ Given that these typical migrants are low-skilled and have low education level, it is likely that most of them come from the poorer section of the population. Reportedly, around 40 percent of the Indonesian population is classified as poor or near-poor.¹⁵ Thus, it might be the case that even if many of these individuals aspire to migrate, they may not be able to do so since they are credit-strapped and lack financial resources necessary to migrate.

Figure 3. Composition of Own-Financing Migration



Source: Bank Indonesia, 2008

3.2 Social Policy in Indonesia: The Rise of Social Protection Programs

Indonesia is actually a late-comer to social protection schemes as poverty alleviation strategy. In the New Order Regime (1966–1998), the economic development strategy of the administration focused on achieving high economic growth rates complemented with infrastructure development and explicit general price subsidies. Targeted social policy was close to absent, and public health and public education spending were more focused on building up infrastructure instead of targeting the ‘people’ with the goal of human development. Even so, the infrastructure of education and health facilities are geographically unbalanced. Rural areas have worse state of educational and health facilities. If welfare magnet applies, it is thus likely that people from less developed areas with lacking public infrastructure migrate to more developed areas (cities) which offer better provision of education and health facilities.

The 1998 Asian Crisis was a blessing in disguise for the initiation of social protection schemes in Indonesia. It established the foundation for a targeted social policy. Moreover, the change from autocracy to democracy following the political reform in 1998 has instantly increased openness in

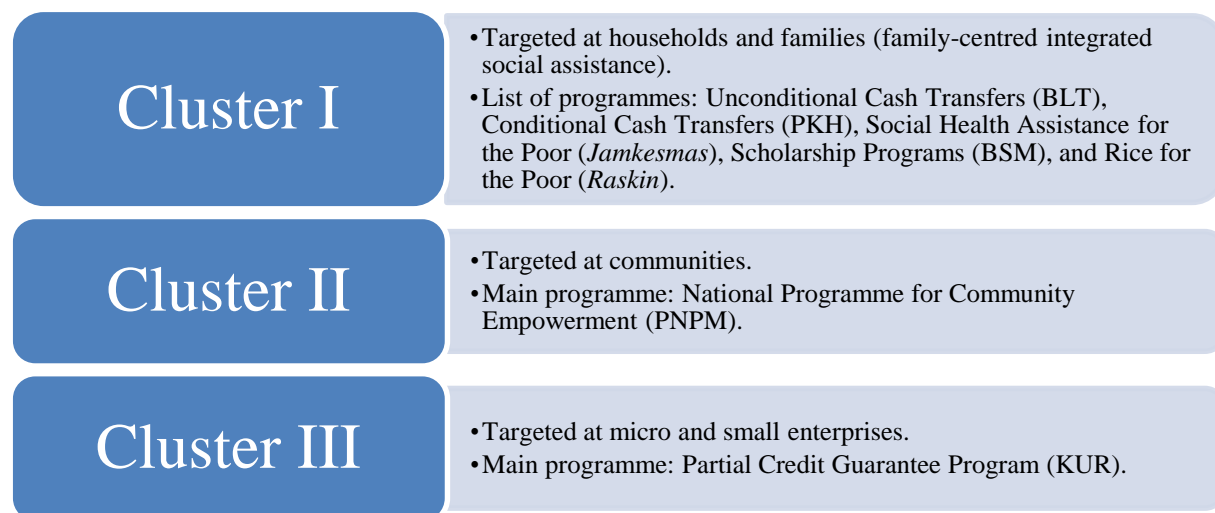
¹³ <http://www.thejakartaglobe.com/news/singapore-agents-paying-extra-for-indonesian-maids/551659>

¹⁴ If migrants are unable to secure own-financing either through savings or borrowings, they can borrow from the Indonesian Migrant Workers Private Placement Company (PPTKIS).

¹⁵ <http://www.economist.com/blogs/banyan/2011/08/indonesias-poverty-line>

public discussion, including the elevated status of poverty as an issue not only discussed in academic sphere but also at the public (Widianto, 2013). These events had paved the way for targeted social policy programs in Indonesia in the following years.

Figure 4: Indonesia: Taxonomy of Social Protection Programs



Source: Widianto, 2013

As shown in figure 4, the Indonesian government classifies social protection program into three clusters (Widianto, 2013). Most programs have generally received favourable political and public support with the exception of Bantuan Langsung Tunai (BLT), the unconditional cash transfers programme. The programme has triggered controversy since its inception because the opposition parties accused that it was conducted only to win back the support of the public following the social unrest after the fuel subsidy revocation. Moreover, the chaotic distribution of the BLT has been subject of harsh critics. On the other hand, The Rice for the Poor (*Raskin*) – in-kind transfers – and Scholarship Program (BSM) have been the most popular in public and politics (Widianto, 2013).¹⁶

It was in 2005 that the stage of policymaking in poverty alleviation in Indonesia changed. As international oil prices rocketed sky high in the mid-2000s and the fact that Indonesia was a net oil importer, the government had to double its domestic oil subsidy.¹⁷ Mounting fuel subsidies created uncertainty on the future of government budget sustainability. Moreover, studies have shown that fuel subsidies at large in Indonesia are mistargeted. The bulk of the subsidies (90 percent) are enjoyed mostly by the non-poor (Agustina et al., 2008). Consequently, the Government of Indonesia decided to revoke substantial amount of fuel subsidies.

Although the move was successful in bringing the fuel subsidy down by 41 percent to Rp68.3 trillion (real term) in 2006, the nation had to swallow a bitter pill of rapid surge in inflation due to fuel prices going up by 33 percent and 50 percent for gasoline and kerosene, respectively (Agustina et al., 2008; World Bank, 2012). As such, the secondary effect of general surge in prices of goods and services followed. Consequently, the Government of Indonesia enacted the first unconditional cash transfers (UCT) programme to compensate the poor for the rise in fuel prices.¹⁸

¹⁶ World Bank (2012) presents comprehensive evaluation on the BLT program.

¹⁷ Subsidies for domestic oil usage have been one of the central policy of ‘generic price subsidies’ development strategy inherited from the New Order Regime.

¹⁸ 2005 UCT (*Bantuan Langsung Tunai*) was the first cash transfers scheme enacted by the Indonesian government. However, in-kind transfer was introduced earlier following the 1998 crisis. The program is called Rice for the Poor (*Raskin*). In contrast

In fact, the Indonesian government stated four reasons in the decision to gradually replace fuel subsidies with targeted social protection (Widiyanto, 2013). First is the presence of dynamic poverty which means that many people are moving in- and out- of poverty. Social protection schemes will help to shield these vulnerable people. Second is to use social protection scheme as a compensation for perverse economic adjustments due to policy shocks such as fuel subsidies revocation. Third is to use social protection scheme as protection for the poor against future economic shocks. Fourth reason is to have social protection scheme as a strategy to support better access to education, health, and jobs. The UCT is thus motivated especially by the first three motivations.

This paper focuses on the unconditional cash transfers called *Bantuan Langsung Tunai* (BLT). The objective of this UCT is simply to ‘supplement consumption for poor households facing unprecedented price increases’ (World Bank, 2012). The program was designed to be one year-long starting in October 2005 (Agustina et al., 2008). There were 19.1 million beneficiaries (Widiyanto, 2013). The nominal amount of the UCT was approximately 15 percent of the 2005 expenditure poverty line (World Bank, 2012). Table 2 displays the program’s main features.

Table 2. *Bantuan Langsung Tunai* (Unconditional Cash Transfer): Main Features

Official Name	Bantuan Langsung Tunai (BLT)
Program Type	Unconditional Cash Transfer (UCT), Temporary
Program Financing & Start/Usage Year	Tax-Financed, 2005-2006 & 2008-2009
Official Number of Beneficiaries (2005-2006)	19.1 Million Households
Official Value of Benefit (2005-2006)	Rp 100,000/month for 12 months (approx. \$120/year)
Total Expenditure (2009 constant)	Rp 33,789 billion (approx. \$3.38 billion)
Percent of Poor Household Covered (2005-2006)	50%

Source: World Bank, 2012; Widiyanto, 2013

4 Data and Method

I use the Indonesian Family Life Survey (IFLS) data for the empirical analysis. IFLS is a longitudinal survey initiated by RAND Corporation that covers general households, individuals as well as community level questionnaires. IFLS started in 1993/1994. The second wave (IFLS 2) was conducted in 1997 with IFLS 2+ following the Asian Financial Crisis in 1998. In 2000, the third wave (IFLS 3) was fielded and the most recent wave (IFLS 4) was conducted in 2007/2008. IFLS covers 13 Indonesian provinces, thus it represents approximately 83 percent of the Indonesian total population. Although IFLS is not designed as migration survey, it is possible to derive migration indicators based on the set of questions asked in IFLS.¹⁹

Many micro-level empirical studies focus on individual decisions to migrate. In this paper, I focus instead on household level analysis. There are two reasons that motivate this decision. First, household-level analysis is more in-line with the NELM argument in which migration decision is more

with BLT which is designed as temporary intervention, *Raskin* has then been a permanent policy intervention since inception (World Bank, 2012).

¹⁹ In this paper, I use the household module to identify whether a household has a migrant family member. I only regard nuclear-family migration. This is more appropriate in the context of households’ migration strategy formulation. For instance, it is less likely for in-laws or cousins to be sent out of the households as part of the household’s migration strategy because they have their own family whose preferences may not be the same with the interviewed household.

of a household decision.²⁰ Second, the use of household level data as unit of analysis means that I follow the empirical strategy of Stecklov et al. (2005) – hence, the results of the UCT effect on migration in this paper is quite comparable to Stecklov et al. (2005) who investigate the impact of CCT on migration decisions.

The fact that the UCT intervention happened in 2005-2006 makes IFLS 4, which was conducted between 2007 and 2008, an ideal wave to be utilised for the empirical analysis. The second UCT scheme, which was also related to a fuel price hike, started in the mid-2008. Meanwhile, the final interview round for IFLS 4 finished in April 2008. Thus, we can evaluate the effect of the 2005 UCT policy intervention on the migration decisions of households in 2007 and 2008 without worrying about the overlap with the second UCT program.

My dependent variable is binary and identifies whether a household has family member who is a migrant. I further differentiate between internal and international migration. Thus, technically I have two dependent variables. There are two important features of the dependent variables. First, I focus only on the nuclear family (father, mother, and children). More distant family members such as in-laws or siblings of parents (uncles and aunts) are excluded from the analysis. The reason behind this decision is that nuclear family members are more relevant under the assumption of ‘migration as part of household strategy’ that we base this paper on. Second, to correct for migration history and network, the sample is restricted only to households that have no migration history before 2005. Basically, I drop households who have family members that had migrated prior to 2005. Thus, all households in my sample have the same characteristic of having no migrant as family member before 2005. This leaves us with the total observation of 6282 households in the sample.

There are three main household-level explanatory variables. First is a measure of access to finance. I apply the decision tree mechanism depicted in figure 1 to construct an ordinal index of access to finance. The main emphasis of the index is the inability of households to secure external financing from financial institutions. If households do not apply for loans, it means they do not face financial constraints, and I code it as ‘0’. If households apply for loans and are successful in their applications, it means they have access to finance which relaxes their financial constraints, and I code it as ‘1’. Finally, if households apply for loans and get rejected, it means that they lack access to finance and may result in severe financial constraints, and I code it as ‘2’. The drawback of this approach is that it is not possible to identify discouraged households. In other words, it is possible that a household actually faces a financial constraint and needs external financing; however this household does not even file a loan application. It is likely to be caused by the lack of collateral, the lack of access to financial institutions, financial illiteracy, or other factors. This variable is introduced to test the impact of access to finance, or lack thereof, on migration.

The second main explanatory variable is a binary variable that codes whether households received UCT in 2005-2006. IFLS 4 actually also have records on households who receive CCT scheme such as Program Keluarga Harapan. However, the incidence of households receiving the CCT that also have migrant nuclear family member is too small.²¹ This variable and its derivation will be used to assess the impact of unconditional cash transfers on migration.

The third main explanatory variable is a measure of social policy at the district-level. By combining household and district data, I am able to introduce structural (contextual) determinants for

²⁰ Certainly, it is still possible to test NELM hypotheses using individual level analysis by incorporating household-level factors as level-two variables. Multilevel analysis is then used to correct the standard errors. However, this approach is not as direct a test for NELM as the household-level analysis.

²¹ Only 0.21 percent of our sample received CCT and have sent nuclear family member to migrate in 2007-2008.

the empirical analysis. I use school per km² and clinics per km² as proxies for the provision of quasi-public goods (public education and public health). This proxy is more relevant than per capita measures because less developed parts of Indonesia typically have larger area and are less densely populated.²² Thus, using ‘per area’ measure also signals the ease of access to these facilities.²³ These variables are incorporated to assess the correlation between contextual social policy variables (universal social policy) and migration.

One central variable for the empirical analyses of this paper is the implementation of Amartya Sen’s capability approach in the identification of poor households. Traditionally, poor households are identified using an income-based approach. Although IFLS surveys have questions on households’ income, it may not fully capture the extent of households’ deprivation levels. To bypass this difficulty, I employ Alkire-Foster dual cut-off approach to identify poor households (2011). Basically, the dual cut-off approach is counting the dimensions of poverty profile for each household in two steps. The first cut-off is to determine households that are poor for each dimension. The second cut-off establishes the threshold for households to be considered as poor. This dual cut-off automatically incorporates the multidimensional aspects of deprivation in poverty identification.²⁴ As such, I construct a multidimensional poverty index for each household. If a household is deprived in more than one-third of the dimensions of the poverty index, I identify it as a multidimensional poor household, and code it as ‘1’. Table 3 presents the list of dimensions I use to construct the multidimensional poverty index in this paper.

I employ the standard three dimensions of human development to construct the multidimensional poverty index for each household: education, health, and living standard. For education and health, I use the literacy and nutrition indicators, akin to the practice in the computation of human development index. I focus on the adult indicators (>15+ years of age) for education and health dimensions because it gives more relevance to this paper’s focus on labour migration. For the living standard dimension, I shy away from income-centric approach. Instead, I use five different indicators that are critical aspects in quality of life: housing, electricity, drinking water, sanitation, and cooking. These indicators are also regularly used in the calculation of multidimensional poverty index.

Table 3. Construction of Multidimensional Poverty Index

Dimension	Weight	Indicator	Weight
Education	1/3	Literacy: At least one adult member (15+) can’t read and/or write	1/3
Health	1/3	Nutrition: At least one adult (15+) Body Mass Index (BMI) <18.5	1/3
Living Standard	1/3	Housing: At least 2 indicators are yes -> (i) House floor is from bamboo or dirt, (ii) House wall is from bamboo/woven/mat, (iii) House roof is palm leaves/grass/foilage/bamboo	1/15
		Electricity: No access to electricity	1/15
		Drinking Water: No access to safe drinking water or access >30 minutes’ walk (>2.5km)	1/15
		Sanitation: Do not use own/shared toilet	1/15
		Cooking: Use firewood or charcoal	1/15

²² Therefore, using per capita measures of health and education facilities result in larger values for rural areas because they have much less population. Indeed, most urban areas are in Java which has less space compared to most large non-Java islands. Hence, using per capita measures is actually counterintuitive.

²³ I do not use government spending on education and health as proxy for universal social policy since the allocation of this sectoral budget may mostly go to the regular spending e.g. salaries to staff at ministries of health and education which may not deliver the goods and services directly to the community. Moreover, nominal government spending may not reflect the actual provision of goods and services due to corruption.

²⁴ Traditional poverty counting measure is usually unidimensional e.g. the income-based approach. Other approaches are union approach and intersection approach. The former identifies a household as poor if it falls below cutoff point in a single dimension, resulting in the exaggeration in poverty headcounts. Conversely, the later requires a household to be deprived in all dimensions to be considered as poor, leading to the understatement of poverty headcounts.

For the first empirical analysis, this paper investigates the impact of the UCT policy intervention in 2005 on households' migration decisions in 2007 and 2008. The gold standard for policy impact evaluation and to establish causal validity is randomised evaluation. However, in the presence of non-experimental data such as IFLS, the appropriate approach is to mimic randomisation. In this paper, I employ a propensity score matching (PSM) strategy. I construct a statistical comparison group that is based on a model of the probability of participating in the treatment using observed characteristics. Then, I match the participants of treatment (UCT beneficiaries), on the basis of this propensity score, to the non-participants (UCT non-beneficiaries). PSM allows the use of single difference to estimate the average treatment effect of the policy intervention, defined as the mean difference in outcomes across the two groups. We are particularly interested in the average treatment effect of the treated (ATT). That is, the effect of policy intervention on those who are the actual beneficiaries of the program. The cross-section estimator of PSM is specified as follows:

$$ATT_{PSM} = E_{P(X)|T=1}(E[Y^T|T = 1, P(X)] - E[Y^C|T = 0, P(X)])$$

where ATT_{PSM} is the average treatment effect of the treated (policy intervention impact), Y^T is the outcome for participants and Y^C is the outcome for matched non-participants. To ensure the validity of PSM estimates, two conditions must be met. First, the assumption of conditional independence (unconfoundedness) must hold. This means that unobserved factors do not affect participation. Ergo, the uptake of the program should be based entirely on observed characteristics. Second, the assumption of overlap condition (common support) must hold. Basically, this condition stipulates that treatment observations have close comparison to the observations in the propensity score distribution.

To satisfy the first assumption, this paper benefits from the panel information structure of the IFLS. Recall that the multidimensional poverty index comprises seven indicators (table 3). Since the targeting of the 2005 UCT is based on the poverty profile of households (income-based), the indicators used in the construction of our multidimensional poverty index could be argued as strongly correlated with income poverty. In other words, it is highly likely that in reality the multidimensionally deprived households are also categorized as income poor. Therefore, it is appropriate to use the poverty profile of households to construct the propensity scores.²⁵ To further ensure that the conditional independence assumption is satisfied, I use the multidimensional poverty index indicators from IFLS 3 which was conducted in 2000.²⁶ Therefore, it is impossible for the UCT in 2005 to influence its conditional variables which were in 2000.²⁷ As for the overlap condition assumption, we look into this in the post-estimation.

The second empirical model is basically a cross-section analysis of the probability of a household to have a family member who is a migrant. I estimate a binary probit model of the IFLS 4 data at the household level. Now, I incorporate the multidimensional poverty dummy directly in the model. The regression specification is the following:

²⁵ Rao and Ibanez (2005) use poverty scores to match treatment and non-treatment households in the study of the impact of Jamaica Social Investment Fund.

²⁶ Hence, the multidimensional poverty indicators from IFLS 3 serve as our 'baseline' to construct the propensity score of receiving UCT in 2005 for each household.

²⁷ Certainly, between 2000 and 2005, there might be unobserved factors which took place, that might influence the propensity of households to be part of treatment (UCT 2005). However, given that IFLS 3 is the closest round to IFLS 4 (there was no IFLS 3+), and the fact that I use the standard indicators used in poverty identification to construct the propensity score, it is very likely that the conditional independence assumption holds.

$$MIG_i = \beta + \beta_0 UCT_i + \beta_1 POOR_MPI_i + \beta_2 UCT_i * POOR_MPI_i + \beta_3 FIN_ACC_i + \beta_4 EDU_DIST_j + \beta_5 HEALTH_DIST_j + \beta_n X_i + \varepsilon_{ij}$$

where MIG_i is the household migration decision both for internal and international. UCT_i is equal to 1 if the household received UCT in 2005-2006, $POOR_MPI_i$ is equal to 1 if the household is identified as multidimensionally deprived, FIN_ACC_i is the access to finance index. Higher-level social policy variables are represented by EDU_DIST_j and $HEALTH_DIST_j$ for access to education and health facilities, respectively.²⁸ X_i is a set of control variables at the household levels: household asset, household head's gender, household head's sex, household head's education, and location of households (urban vs rural; Java vs Non-Java). Since this second exercise includes multilevel variables, the standard errors for all regressions are corrected for clustering at the district level.

5 Results

5.1 Propensity Score Matching: Impact of UCT

This section is dedicated to investigate the causal impact of the 2005 UCT on households' migration decisions. I employ three different matching methods: 1-to-1 matching, kernel matching, and radius matching. The use of the three different matching methods serve as a robustness check as each method has its own strength and weakness that results in the trade-off between bias and efficiency (Caliendo and Kopeinig, 2005). The nearest-neighbour one-to-one matching reduces bias but results in larger variance. On the other hand, the other two matching methods increase efficiency but at the expense of larger bias. Because of the contrasting trade-off of these matching methods, I report the results of the three matching approaches.²⁹

Table 4 provides the results of the PSM exercise. To reduce the occurrence of bad matches, I put a threshold for the caliper.³⁰ In the matching process, I have to drop 'housing' variable because its inclusion results in bad matches and lower common support. Our sample has 1557 households who are the beneficiaries of UCT in 2005 (treated observations). As such, our data have large treated observations relative to the total sample.

As we can see from table 4, the effect of UCT is positive on migration decisions. However, it is only significant for internal migration. It is estimated that the average treatment effect on the treated (ATT) ranges between 2.1 and 2.6 percent for internal migration. Thus, I find that households who received the UCT in 2005/2006 have a 2.1–2.6 percent higher probability to send a nuclear-family member for migration in 2007/2008. On the other hand, I find no evidence of a significant impact of the UCT on international migration. In fact, the estimated insignificant effect is also small (0.3–0.6 percent). The results are robust to different matching methods.

²⁸ In practice, the inclusion of these two variables in the regressions are done separately. The pairwise correlation coefficient between these two variables is 0.89, signalling a high degree of multicollinearity.

²⁹ I do not conduct the nearest-neighbour matching with multiple neighbours because our treated sample size is pretty large relative to the untreated observations. In such condition, this method along with local linear matching often results in bad matches (Caliendo and Kopeinig, 2005).

³⁰ Caliper is the 'maximum permitted difference between matched subjects', and it is argued that tighter caliper leads to greatly reduced bias (Lunt, 2014).

Table 4. Average Treatment Effects on the Treated of UCT for Different Migration Types

Migration Type	Internal Migration Coefficient	International Migration Coefficient
Matching Method:		
1-to-1 Matching (Caliper: 0.01)	0.021*** (0.01)	0.003 (0.01)
Kernel Matching	0.026*** (0.01)	0.006 (0.00)
Radius Matching (Caliper: 0.01)	0.026*** (0.01)	0.005 (0.00)
Treated	1557	
N	6282	

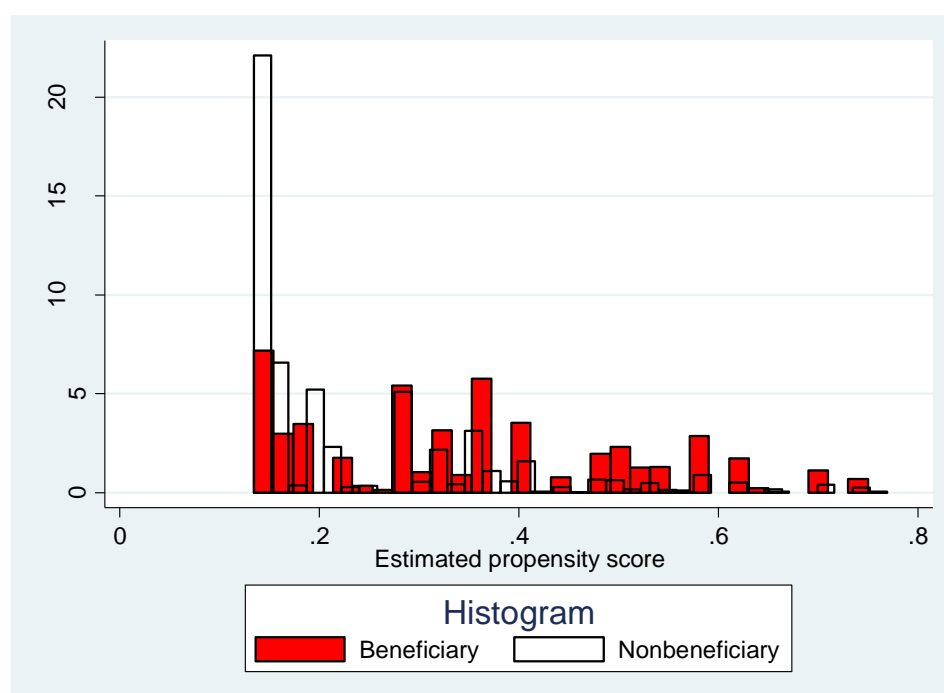
These results are the opposite of Stecklov et.al. (2005). They find that CCT reduces households' propensity in sending family members for international migration by 0.2 percent while no significant impact is found on internal migration. At first, this might sound surprising. However, recall that Stecklov et.al. (2005) analyse CCT while this paper looks into UCT. As we have discussed, in theory conditionalities matter. Our results are more in-line with Angelucci (2004) who finds that households who receive an above average amount of CCT have around 0.4 percent larger propensity to migrate.

Angelucci (2004) demonstrates that once the negative effect of the conditionalities is isolated, the unconditional effect of cash transfers result in a higher migration propensity. Our results could be interpreted in such a way that UCT is more effective in providing financial constraint relaxation for internal migration. One plausible explanation is the nature of the costs of different migration types. Internal migration, for Indonesians, is in general viewed not as costly as international migration –both monetary and nonmonetary costs. The limited magnitude of financial relaxation from UCT is sufficient for internal migration but not for international migration.

Our results also confirm Angelucci (2014) who argues that cash transfers are viewed as positive income shocks that increase migration incentives. Furthermore, this also means that households integrate the effect of UCT into their migration decisions. NELM predicts that if households perceive UCT as additional insurance against shocks, this will reduce migration incentives. At a glance, our results seem to contradict NELM although actually it complements it. If we include the capability approach on board, then households in principle still act as predicted by NELM: if households find their financial constraints relaxed, they re-invest their positive income shock for future income stream through remittances from migrant family member (internal migration increased) but if the transfers do not affect financial constraints, households do not send family members for migration (international migration unaffected).

To test the common support assumption, first I look into the distribution of the propensity scores of our treated and untreated observations (figure 5). A simple inspection of the graph depicts that the matched samples overlap. This indicates that we have a good common support.

Figure 5. Common Support/Overlapping: Treatment and Control



Second, I perform equality tests on unmatched and matched samples. The idea is that post-matching, the treated observations and their matches are not different. Table 5 shows that our PSM have quite excellent matches. In the unmatched sample, we see systematic differences between treated and control observations. However, after the matching procedure, the two groups are no longer statistically different. Moreover, the three matching methods are successful in maintaining the overall mean bias under 5 percent.

Table 5. Pre- and Post-Matching: Common Support Assumption Check

Variable	Unmatched	Mean		% Bias	t-test	
	Matched	Treated	Control		t	p> t
<i>electricity</i>	U	0.175	0.066	33.8	13.14	0.000
	M	0.158	0.162	-1.2	-0.29	0.769
<i>water</i>	U	0.212	0.162	12.9	4.61	0.000
	M	0.191	0.208	-4.5	-1.21	0.226
<i>sanitation</i>	U	0.525	0.261	56.2	20.26	0.000
	M	0.511	0.498	2.6	0.68	0.496
<i>cooking</i>	U	0.527	0.323	42.1	14.93	0.000
	M	0.521	0.522	-0.1	-0.04	0.971
<i>literacy</i>	U	0.321	0.119	50.4	19.28	0.000
	M	0.281	0.289	-2.1	-0.52	0.606
<i>nutrition</i>	U	0.205	0.160	11.8	4.21	0.000
	M	0.208	0.197	2.8	0.76	0.449

The results in this table are based on a one-to-one nearest neighbour matching procedure without replacement method.

5.2 Regression Results

In this section I analyse how UCT affects households' migration decisions with different poverty profiles. In addition, I also incorporate contextual variables ie education and health facilities in the regressions. Before discussing the regressions' results, I look into the distribution of UCT beneficiaries based on their multidimensional poverty index (MPI). As shown in figure 6, we can see that non-MPI poor households are those who in general do not receive UCT. However, 13.51 percent of the sample is actually non-MPI poor households who receive UCT. This group is even larger than MPI-poor households who receive UCT (12.93 percent). There are also a considerable number of MPI-poor households who do not receive UCT (15.55 percent). This distributional pattern is not surprising since UCT in 2005 had issues with targeting (World Bank 2012; Sumarto et al., 2008). It also makes the analysis in this section by dividing the households into these four categories through interaction term more relevant.

Figure 6. MPI-Poor Households and UCT (percent of total observations)

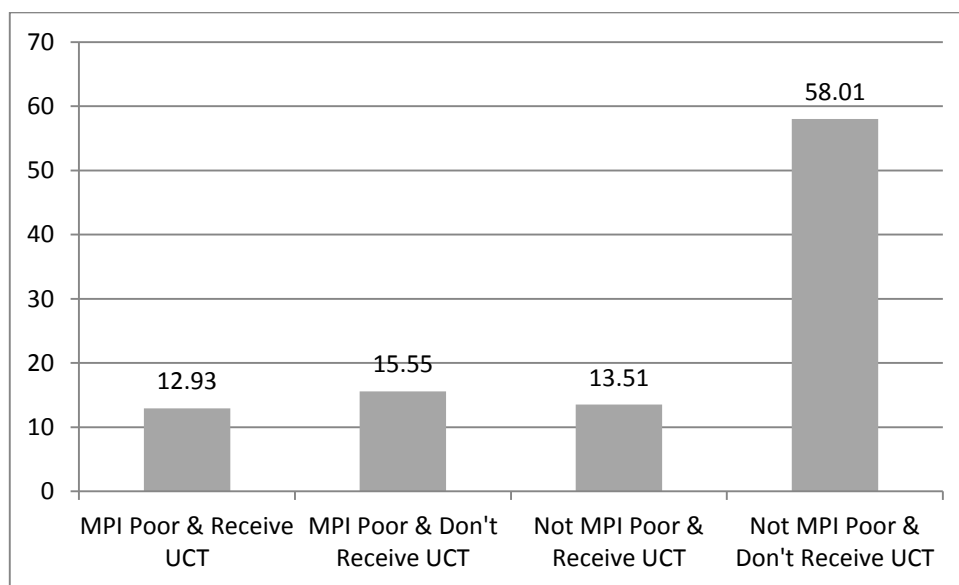


Table 6 and 7 report the baseline regressions results. Our baseline regressions use the UCT variable where households receiving UCT are coded as 1, and 0 if otherwise. Table 6 reports the baseline regression with the educational facilities variable whereas the baseline regression with health facilities variable is reported in table 7. Our main variable of interest is the interaction between the UCT binary variable and the MPI-poor households' status. The coefficient of this interaction term measures the impact of UCT for MPI-poor households. For all regressions I present the marginal effects next to the coefficients to ease interpretation. I find that MPI-poor households who receive UCT have 1.6–1.7 percent higher propensity to send family members for internal migration. However, they are less likely to have a family member who is an international migrants (-1.0 percent lower propensity for international migration).

A plausible explanation for the greater migration-inducing effect of UCT on the poor is consistent with our PSM estimation's finding. That is, the financial constraints relief provided by UCT is only sufficient to finance internal migration. Poor households who receive UCT view internal migration as a feasible further risk-diversification strategy. Excluding the interaction effect from the internal migration regression results in a significant effect of the UCT variable. This means that the positive effect of UCT on internal migration's propensity is driven by the MPI-poor households who are the beneficiaries of UCT.

Table 6. Determinants of Migration: Base Analysis I

Dependent Variable:	(1)		(2)	
	b/se	dY/dX	b/se	dY/dX
	0=No Migrant, 1=Internal Migrant		0=No Migrant, 1=International	
Household Level Variables:				
Received UCT	0.152 (0.10)	0.012 (0.01)	0.314*** (0.11)	0.009*** (0.00)
MPI Poor Household	-0.078 (0.09)	-0.006 (0.01)	0.187 (0.11)	0.006 (0.00)
Received UCT * MPI Poor Household	0.217* (0.13)	0.016* (0.01)	-0.345** (0.17)	-0.010** (0.01)
Access to Finance Index	0.035 (0.08)	0.003 (0.01)	-0.265* (0.16)	-0.008* (0.00)
Rural Household	0.212** (0.08)	0.016*** (0.01)	-0.132 (0.12)	-0.004 (0.00)
Household Located in Java	0.065 (0.09)	0.005 (0.01)	0.100 (0.15)	0.003 (0.00)
Household Asset	0.063*** (0.02)	0.005*** (0.00)	0.061** (0.03)	0.002** (0.00)
Sex of Household Head (HH)	-0.247*** (0.07)	-0.019*** (0.01)	0.017 (0.12)	0.000 (0.00)
Age of Household Head (HH)	0.004** (0.00)	0.000** (0.00)	-0.000 (0.00)	-0.000 (0.00)
HH Education is Primary School or Lower	0.173** (0.09)	0.013** (0.01)	0.453*** (0.14)	0.013*** (0.00)
District Level Variables:				
Education Facilities Per KM2	-0.042*** (0.01)	-0.003*** (0.00)	-0.066** (0.03)	-0.002** (0.00)
Constant	-3.082*** (0.32)		-3.467*** (0.51)	
Observations	6241		6241	
Districts	226		226	
Pseudo R2	0.05		0.06	
Log Likelihood	-1015.60		-471.19	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district.

Table 7. Determinants of Migration: Base Analysis II

Dependent Variable:	(3)		(4)	
	b/se	dY/dX	b/se	dY/dX
	0=No Migrant, 1=Internal Migrant		0=No Migrant, 1=International	
Household Level Variables:				
Received UCT	0.156 (0.10)	0.012 (0.01)	0.313*** (0.11)	0.010*** (0.00)
MPI Poor Household	-0.065 (0.09)	-0.005 (0.01)	0.191* (0.11)	0.006* (0.00)
Received UCT * MPI Poor Household	0.214 (0.13)	0.017* (0.01)	-0.342** (0.17)	-0.010** (0.01)
Access to Finance Index	0.036 (0.08)	0.003 (0.01)	-0.259* (0.15)	-0.008* (0.00)
Rural Household	0.275*** (0.08)	0.021*** (0.01)	-0.116 (0.11)	-0.004 (0.00)
Household Located in Java	0.033	0.003	0.093	0.003

Dependent Variable:	(3)		(4)	
	b/se	dY/dX	b/se	dY/dX
	0=No Migrant, 1=Internal Migrant		0=No Migrant, 1=International	
	(0.09)	(0.01)	(0.15)	(0.00)
Household Asset	0.063***	0.005***	0.062**	0.002**
	(0.02)	(0.00)	(0.03)	(0.00)
Sex of Household Head (HH)	-0.239***	-0.018***	0.020	0.001
	(0.07)	(0.01)	(0.12)	(0.00)
Age of Household Head (HH)	0.004**	0.000**	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)
HH Education is Primary School or Lower	0.183**	0.014**	0.452***	0.014***
	(0.09)	(0.01)	(0.14)	(0.00)
District Level Variables:				
Health Facilities Per KM2	-0.049	-0.004	-0.450*	-0.014*
	(0.14)	(0.01)	(0.24)	(0.01)
Constant	-3.170***		-3.500***	
	(0.31)		(0.50)	
Observations	6241	6241	6241	6241
Districts	226		226	
Pseudo R2	0.04		0.06	
Log Likelihood	-1018.75		-472.37	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district.

Meanwhile, UCT increases the incentive for international migration only for the non-deprived households as evidenced by 0.9–1.0 percent increase of international migration propensity (average effect). Plausibly, households in this group restructure their risk-diversification strategy akin to the poor households who receive UCT that results in the higher propensity of internal migration. However, for the MPI-poor households, the UCT effect is negative. It lowers the propensity for international migration by one percent. Thus, for poor households, UCT is more seen as some extra insurance without inter-temporal dimension. The nominal amount of UCT is not sufficient to finance international migration nor can it be used as collateral for securing loans.

The contrasting results of UCT effect on internal and international migration can be explained by analysing the income vs substitution effects. In Tables 6 and 7, in the case of internal migration, the income effect of UCT for poor households is superior to the substitution effect. Receiving UCT relaxes the financial constraints of households for internal migration. A greater income effect results in greater capability for poor households. If such households aspire to migrate, then it may likely to happen. Thus, in this case the income effect dominates the substitution effect of UCT.

Conversely, in Tables 6 and 7, in the case of international migration, the substitution effect of UCT for poor households dominates the income effect. In other words, poor households who receive UCT view this extra income as substitute for international migration. The motivation behind this could be that poor households consider the nominal amount of UCT they receive is not sufficient to compensate the monetary and non-monetary costs of international migration. The plausibility of this explanation is enhanced by the marginal effect of MPI-Poor households (+0.6 percent). This means that even though poor households are in general more likely to send family members abroad as migrant workers, but if they receive UCT, it reduces their willingness to migrate abroad. Simply put, in the case of international migration, the substitution effect dominates the income effect of UCT. If we relate our baseline results to the PSM results, it is easy to infer the cause for the insignificant impact of UCT on international migration in the PSM estimation. As we can see in Tables 6 and 7, the average effect of

UCT and the specific effect of UCT for MPI-poor households cancel out each other for international migration. Meanwhile, the effect of UCT on internal migration is positive albeit understated.

Another interesting finding is the effect of access to finance. Tables 6 and 7 show that the lack of access to finance variable only affects international migration. I find that households who face problems in securing external financing have 0.8 percent lower propensity to send family members abroad as migrant workers. This finding corroborates the descriptive evidence on the source of financing provided in figure 3 in which less than one-fifth of migrants who use own-financing secured their loans from banks. Indeed, around 48 percent of migrant workers are unable to pay with their own income and have to borrow from the recruitment agencies. This means a significant number of aspiring international migrants are likely to face lack of access to finance, and hence are less likely to migrate internationally. However, lack of access to finance is not found to affect internal migration. The migration costs argument is appropriate to explain this finding. It is unlikely for households with lack of access to finance to be unable to send family members for internal migration because the monetary and non-monetary costs of internal migration are much lower.

I also find that rural households are more likely to have family members who are internal migrants. The marginal effect of rural households variable is +1.6 percent. Interestingly, rural households' status does not make a difference for international migration. Moreover, the Java dummy variable is not significant for all regressions. These findings have three messages that correspond to the Zelinsky's model of migration transition as well as Skeldon's development tier model, which confirm our descriptive discussion that Indonesia is indeed categorised as an 'early transitional society' (Zelinsky, 1971) or as a 'labour frontier' (Skeldon, 1997). First, international migration comes from both rural and urban households. Second, rural-to-urban migration dominates internal migration pattern. Third, all forms of mobility occur and are not restricted in any specific region (ie Java versus Non-Java).

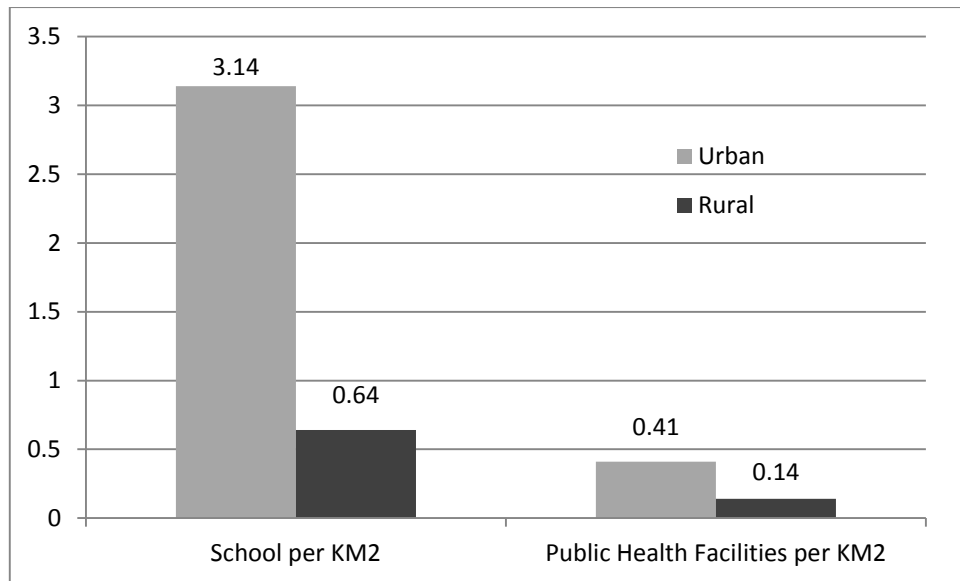
Our baseline regressions also show that contextual variables are correlated with migration. In contrast with the UCT effect, the effect of universal social policy i.e. education and health facilities is consistent across different baseline regressions. Table 6 shows that better access to education facilities is associated with lower propensity to migrate by around 0.2–0.3 percent. Meanwhile, Table 7 displays that better access to health facilities is negatively correlated to migration propensity. Two patterns emerge from our findings on these contextual variables. First, the negative impact of universal social policy is larger for internal migration compared to international migration. Second, the negative impact of universal social policy is smaller for health facilities as opposed to education facilities.

The negative effect of education and health facilities on migration propensity could be explained using the welfare magnet concept. In principle, I argue that the welfare magnet that attracts potential migrants to move to new destinations also applies at the home regions (reverse welfare magnet). Therefore, better welfare provision at home should reduce the aspiration of people to migrate, holding other things constant.

Regarding the larger effect of education facilities on migration, I offer three explanations. First explanation is related to the opportunity costs of sending family members for migration in the presence of schools and other education facilities. If a school is present and accessible, households may decide to forego additional current income from sending their children for work, and instead choose to send their children to schools with the expectation of larger future income. The same effect is unlikely to apply for health facilities. Second explanation is related to the demand for the local quasi-public goods. Using three Indonesian provinces in an experimental setting, Olken (2010) finds that through direct voting, people tend to view public education as the more important local public goods than public health. Hence, the provision of education facilities is likely to post greater effect than health facilities

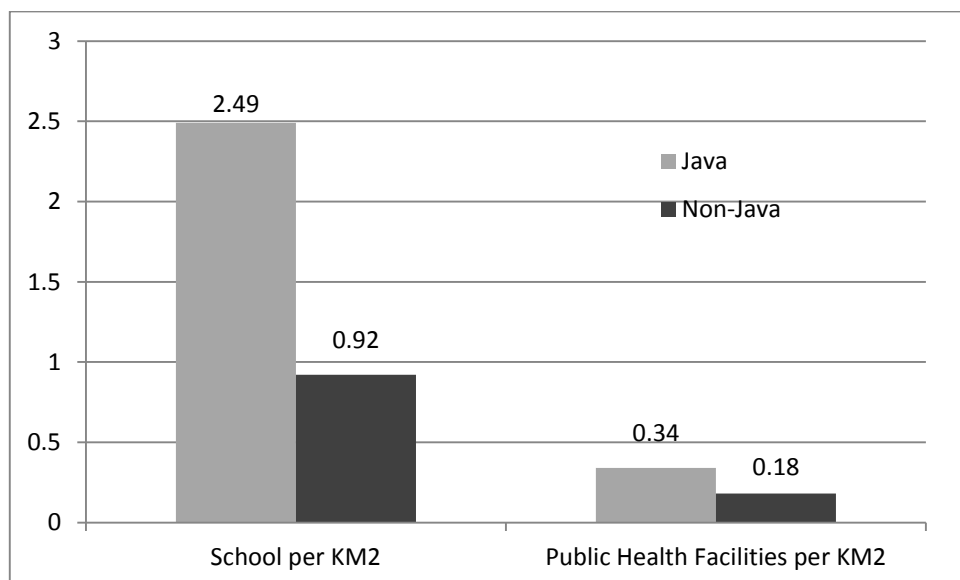
because people value them more. Third explanation is that education and health facilities mirror the development levels of the regions. As we can see in Figures 7 and 8, urban districts have significantly better access to education and health facilities. Accordingly, the districts located in Java -which in general is more developed- also have easier access to education and health facilities. The districts lacking access to the quasi-public goods are also more likely to be economically more backward. This lack of local development is likely to contribute to the increasing aspiration to migrate. In fact, according to the capability approach of migration, if local development is lagging behind migration aspiration, it results in more migration (de Haas, 2010).

Figure 7. School and Public Health Facilities Density: Urban vs Rural, 2005



Source: Own calculation based on World Bank database.

Figure 8. School and Public Health Density: Java vs Non-Java, 2005



Source: Own calculation based on World Bank database.

Finally, some household-level control variables also deliver interesting results. First, the logarithm of household asset variable is found to have a positive and significant impact on migration propensity. This indicates the importance of capability in migration decision. Households who have

more assets are more likely to be more capable to send family members for migration if they aspire to. Unsurprisingly, the marginal effect of household asset is larger for internal migration (+0.5 percent) than international migration (+0.2 percent). This corresponds to the less costly nature of internal migration as well as the path dependence of internal migration (transmigrasi) culture in Indonesia. Second, households with low-educated heads have higher migration propensity. Basically, households with low-educated heads are more likely to be in the lower income distribution. Consequently, these households may choose to send family members to migrate as part of the strategies to maximise their income. This corresponds to the NELM theory. It also means that it is very likely that the majority of migration type in our sample is low-skilled migration.

In Tables 8 and 9, I change the UCT variable. Instead of a binary variable whether a household receives UCT, I now introduce the logarithm of UCT. This change of variable serves two functions. First, it allows us to analyse the magnitude of UCT impact. Households who receive UCT could still be heterogeneous in terms of the nominal amount they receive. Some households may receive the cash more often, thus larger nominal amount, than others which may yield different impact on migration decision.

Table 8. Determinants of Migration: Using Log of UCT Received I

Dependent Variable:	(5)		(6)	
	b/se	dY/dX	b/se	dY/dX
	0=No Migrant, 1=Internal Migrant		0=No Migrant, 1=International	
Household Level Variables:				
Log of Nominal UCT Received	0.010 (0.01)	0.001 (0.00)	0.023*** (0.01)	0.001*** (0.00)
MPI Poor Household	-0.077 (0.09)	-0.006 (0.01)	0.187 (0.11)	0.006 (0.00)
Log UCT * MPI Poor Household	0.016* (0.01)	0.001* (0.00)	-0.025** (0.01)	-0.001** (0.00)
Access to Finance Index	0.034 (0.08)	0.003 (0.01)	-0.265* (0.16)	-0.008* (0.00)
Rural Household	0.212** (0.08)	0.016*** (0.01)	-0.132 (0.12)	-0.004 (0.00)
Household Located in Java	0.066 (0.09)	0.005 (0.01)	0.101 (0.15)	0.003 (0.00)
Household Asset	0.063*** (0.02)	0.005*** (0.00)	0.061** (0.03)	0.002** (0.00)
Sex of Household Head (HH)	-0.248*** (0.07)	-0.019*** (0.01)	0.017 (0.12)	0.001 (0.00)
Age of Household Head (HH)	0.004** (0.00)	0.000** (0.00)	-0.000 (0.00)	-0.000 (0.00)
HH Education is Primary School or Lower	0.174** (0.09)	0.013** (0.01)	0.454*** (0.14)	0.013*** (0.00)
District Level Variables:				
Education Facilities Per KM2	-0.042*** (0.01)	-0.003*** (0.00)	-0.067** (0.03)	-0.002** (0.00)
Constant	-3.072*** (0.32)		-3.464*** (0.51)	
Observations	6241		6241	
Districts	226		226	
Pseudo R2	0.05		0.06	
Log Likelihood	-1015.97		-471.25	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district

Table 9. Determinants of Migration: Using Log of UCT Received II

Dependent Variable:	(7)		(8)	
	b/se	dY/dX	b/se	dY/dX
	0=No Migrant, 1=Internal Migrant		0=No Migrant, 1=International	
Household Level Variables:				
Log of Nominal UCT Received	0.011 (0.01)	0.001 (0.00)	0.023*** (0.01)	0.001*** (0.00)
MPI Poor Household	-0.064 (0.09)	-0.005 (0.01)	0.191* (0.11)	0.006* (0.00)
Log UCT * MPI Poor Household	0.016 (0.01)	0.001* (0.00)	-0.025** (0.01)	-0.001** (0.00)
Access to Finance Index	0.036 (0.08)	0.003 (0.01)	-0.260* (0.15)	-0.008* (0.00)
Rural Household	0.275*** (0.08)	0.021*** (0.01)	-0.117 (0.11)	-0.004 (0.00)
Household Located in Java	0.033 (0.09)	0.003 (0.01)	0.094 (0.15)	0.003 (0.00)
Household Asset	0.063*** (0.02)	0.005*** (0.00)	0.062** (0.03)	0.002** (0.00)
Sex of Household Head (HH)	-0.240*** (0.07)	-0.019*** (0.01)	0.020 (0.12)	0.001 (0.00)
Age of Household Head (HH)	0.004** (0.00)	0.000** (0.00)	0.000 (0.00)	0.000 (0.00)
HH Education is Primary School or Lower	0.184** (0.09)	0.014** (0.01)	0.453*** (0.14)	0.014*** (0.00)
District Level Variables:				
Health Facilities Per KM2	-0.050 (0.14)	-0.004 (0.01)	-0.451* (0.24)	-0.014* (0.01)
Constant	-3.160*** (0.31)		-3.497*** (0.50)	
Observations	6241	6241	6241	6241
Districts	226		226	
Pseudo R2	0.04		0.06	
Log Likelihood	-1019.13		-472.44	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district.

Second, it serves as a robustness check to see whether our results hold by changing the definition. In general, our results show no qualitative difference to the baseline regressions' results. However, for the internal migration results, the marginal impact of the logarithm of UCT (+0.1 percent) is lower than the binary UCT (1.6–1.7 percent). This means that the nominal value of UCT matters. Households who receive significantly larger amount of UCT have greater propensity to migrate internally. In order for a household to have a marginal impact of the logarithm of UCT at the similar value of the binary UCT, it needs approximately 16–17 percent increase of the nominal amount.

One critique that can be directed to this paper's empirical analysis is the assumption that the decision between migrating internally or internationally is conducted independently, which is an implication of the binary probit model. In reality, households simultaneously decide on two decisions: (i) to send a family member for migration or stay at home; and (ii) if they decide to send members for migration, the next decision is whether to send this family member for internal migration or international migration. To incorporate this more realistic assumption, I re-estimate all regressions in Tables 6–9 now using bivariate probit. As we can see in table 10 and 11, our results are robust to this change in assumption.

Table 10. Determinants of Migration: Bivariate Probit Estimates I

Dependent Variable:	(9)		(10)	
	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International
Household Level Variables:				
Received UCT	0.155 (0.10)	0.316*** (0.11)	0.159 (0.10)	0.314*** (0.11)
MPI Poor Household	-0.078 (0.09)	0.187 (0.11)	-0.064 (0.09)	0.192* (0.11)
Received UCT * MPI Poor Household	0.216* (0.13)	-0.345** (0.17)	0.213 (0.13)	-0.342** (0.17)
Financial Constraint Index	0.033 (0.08)	-0.266* (0.16)	0.034 (0.08)	-0.261* (0.15)
Rural Household	0.212** (0.08)	-0.135 (0.12)	0.275*** (0.08)	-0.119 (0.12)
Household Located in Java	0.064 (0.09)	0.099 (0.15)	0.032 (0.09)	0.092 (0.15)
Household Asset	0.064*** (0.02)	0.061** (0.03)	0.065*** (0.02)	0.063** (0.03)
Sex of Household Head (HH)	-0.247*** (0.07)	0.027 (0.12)	-0.239*** (0.07)	0.030 (0.12)
Age of Household Head (HH)	0.004** (0.00)	-0.000 (0.00)	0.004** (0.00)	-0.000 (0.00)
HH Education is Primary School or Lower	0.174** (0.09)	0.456*** (0.14)	0.183** (0.09)	0.455*** (0.14)
District Level Variables:				
Education Facilities Per KM2	-0.042*** (0.01)	-0.067** (0.03)		
Health Facilities Per KM2			-0.050 (0.14)	-0.448* (0.24)
Constant	-3.099*** (0.32)	-3.473*** (0.51)	-3.186*** (0.31)	-3.504*** (0.50)
Observations	6241		6241	
Districts	226		226	
Log Likelihood	-1481.49		-1485.97	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district.

Table 11. Determinants of Migration: Bivariate Probit Estimates II

Dependent Variable:	(11)		(12)	
	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International
Household Level Variables:				
Log of Nominal UCT Received	0.011 (0.01)	0.023*** (0.01)	0.011 (0.01)	0.023*** (0.01)
MPI Poor Household	-0.077 (0.09)	0.187 (0.11)	-0.063 (0.09)	0.191* (0.11)
Log UCT * MPI Poor Household	0.016* (0.01)	-0.025** (0.01)	0.016 (0.01)	-0.025** (0.01)
Access to Finance Index	0.032	-0.267* (0.14)	0.034	-0.261* (0.14)

Dependent Variable:	(11)		(12)	
	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International	b/se 0=No Migrant, 1=Internal Migrant	b/se 0=No Migrant, 1=International
Rural Household	(0.08) 0.213**	(0.16) -0.135	(0.08) 0.275***	(0.16) -0.119
Household Located in Java	(0.08) 0.064	(0.12) 0.100	(0.09) 0.032	(0.12) 0.093
Household Asset	(0.09) 0.064***	(0.15) 0.061**	(0.09) 0.064***	(0.15) 0.062**
Sex of Household Head (HH)	(0.02) -0.248***	(0.03) 0.027	(0.02) -0.240***	(0.03) 0.030
Age of Household Head (HH)	(0.07) 0.004**	(0.12) -0.000	(0.07) 0.004**	(0.12) -0.000
HH Education is Primary School or Lower	(0.00) 0.175**	(0.00) 0.457***	(0.00) 0.184**	(0.00) 0.455***
	(0.09) 0.175**	(0.14) 0.457***	(0.09) 0.184**	(0.14) 0.455***
District Level Variables:				
Education Facilities Per KM2	-0.042*** (0.01)	-0.067** (0.03)		
Health Facilities Per KM2			-0.051 (0.14)	-0.449* (0.24)
Constant	-3.089*** (0.32)	-3.469*** (0.51)	-3.176*** (0.32)	-3.500*** (0.51)
Observations	6241		6241	
Districts	226		226	
Log Likelihood	-1481.94		-1486.43	

* p<0.10, ** p<0.05, *** p<0.01; Standard errors are clustered at district.

6 Conclusions

This paper contributes significantly both theoretically and empirically. The following are some notable contributions of this paper. I propose a hybrid concept of financial constraints that incorporates social policy and access to finance, and present how they affect migration decision using the framework of the new economics of labour migration and Sen's capability approach. I also show that it is possible to combine internal and international migration in an integrated empirical analysis of migration determinants.

The paper shows that the effect of unconditional cash transfers (UCT) on migration decision depends on the income effect and substitution effect triggered. If income effect dominates, UCT is likely to result in increasing migration propensity. On the other hand, if the substitution effect dominates, households may view UCTs as substitutes for migration. These effects are also dependent on the types of migration. The income effect is likely to be greater for less costly migration, for instance internal migration while substitution effect is likely to be greater for international migration in which the UCT is often not sufficient to finance migration abroad.

This paper finds that the poverty profile of households matter. Multidimensionally deprived households are more likely to view UCT as substitutes for international migration. Meanwhile, the non-poor households are more likely to use the additional income to finance international migration. On the other hand, multidimensionally deprived households view UCT as positive income shocks for internal

migration. I also find that lack of access to finance reduces the propensity for international migration; however access to finance does not matter for internal migration. Also, better provision of quasi-public goods at the local level is found to be associated with less migration. In addition to mirror the level of development, it also indicates the presence of reverse welfare magnet.

To conclude, this paper contributes not only empirically to the literature but also theoretically. I take the challenge in integrating internal and international migration in a unified empirical analysis. Moreover, I also incorporate contextual variables in multilevel empirical setting. Finally, I establish the causality argument for unconditional cash transfers' impact on migration decision using counterfactuals. The effect of social policy on migration is not straightforward and it largely depends on the financial constraints of households.

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