Migrant Network in Urban Labour Market: Evidence from India

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ABSTRACT

Using a nationwide survey of migrants in India, we analyze how origin, size, efficiency and diversity characteristics of migrant network affect employment outcomes of migrants in urban labour market. We find that weighted migrant stock reflecting migration experience has an inverted-U relationship with the probability of finding a job. We show that efficiency effect through employed migrants and diversity effect through weak ties positively affects employment outcome. We also document that effect of migrant network varies with size of labour market i.e. in cities with million plus population or lower; type of migrants i.e. existing or new.

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1. INTRODUCTION

What mechanisms and channels are used by individuals in the job search process, have always remained pertinent questions, in the context of households in low income and developing countries. The concept of social interaction among individuals in the labour market, based on some common identity such as origin place, age group, language, ethnic and social background, religion etc., and its implication for socio-economic outcomes has been well documented in the literature (Zhou and Logan, 1989; Granovetter, 2005; Wahba and Zenou, 2005; Mitra, 2010; Zhang and Xie, 2013). Network formation among individuals is one important aspect of social interaction which affects the socio-economic outcomes of individuals through multiple channels (Yamauchi and Tanabe, 2008; Iversen et al., 2009; Bisin et al., 2011; Beaman, 2012; Zhang and Xie, 2013). Among the migrant workers such networks remain comparatively more active, on account of disadvantages faced by them due to, slow process of assimilation, lesser understanding of destination labour market as well as possible differences in language spoken, norms and traditions and most importantly social identity at the destination (Zhang and Xie, 2013).

Understanding the effect of migrant network on the economic outcomes of migrants at the destination has remained an important issue for multiple reasons. First, given the magnitude of migration (both internal and international) analyzing the performance of migrants has implications for both the local and origin region economy, and migrant networks provide a novel mechanism to understand this performance. Second, through migrant networks, we can get insights into the channels of job search process in a labour market. Last, but not the least,

network structure among the migrants is comparatively well defined based on identity differences (on account of origin, ethnicity, language and social groups etc.).

From the perspective of migrants, we can understand the role of network formation and various channels through which it affects the economic outcomes of individuals in the labour market. There is a rich literature identifying the various mechanisms through which migrant network affects migrant's outcomes. But, there are very few studies which have analyzed the relative performance of these mechanisms in different situations for migrant workers. This remains largely an open empirical question. An example for the same can be that for the new and old migrants, there are different characteristics of migrant network which will be active in the labour market. While for the new migrants who are looking for employment, the network provides information on new opening as well as acts as a signal for the quality of the worker, but for the existing migrant the importance of migrant network will be different. If the new migrant is from an origin place from where earlier migrant have performed well in the labour market, it will positively affects the odds of him/her getting employment. For the old migrants, an additional aspect of network will be the number of their social ties which can affect their upward mobility. Thus there are different characteristics of migrant network which become active or inactive based on the status of the migrant in network structure, type of destination, size of labour market and within migrant network heterogeneity in terms of origin, destination, performance of migrants etc.

In this paper, we analyze the effect of different characteristics of migrant network on the probability of getting employment for migrant in the urban labour market[1]. We use a nationwide survey on migration conducted by National Sample Survey Organization (NSSO) in 2007-08 for our analysis. This survey is quite unique in the sense that it provides us ample information to

construct various indicators to capture different characteristics of migrant network. These indicators include migrant stock, origin specific size effect, efficiency effect and diversity effect. We have borrowed these indicators from the existing literature on migrant network and their effect on social and economic outcomes.

The main contribution of this paper is as follows. First, we improvise and adapt new measures from other disciplines to capture some important yet ignored characteristic of migrant network i.e. experience of the migrant workers at the destination labour market and diversity in the identity of the migrants at the destination. A detailed description of these indicators has been provided later in the paper. Second, we compare the performance of these network indicators in varying scenarios. We first analyze the effect of different characteristics of migrant network on probability of finding a job by the migrants in urban areas. We then compare these outcomes local labour market of cities with million plus population and other urban settlements; and for new (those who have migrated in past one year preceding the survey) and existing migrants (living for more than one year and less than five years at the destination). Third, in the context of India, to the best of our knowledge, this is the very first study using the nationally representative data, to analyze the effect of migrant network in urban labour market. Lastly, in the context of developing countries, this study provides an important insight in the performance of informal channels of job search in urban labour market.

The rest of the paper is organized as follows. Section 2 provides the conceptual framework for the analysis. Section 3 describes the data and provides some descriptive statistics. Section 4 provides a detail of the different aspects of migrant network and their measurement. Section 5 comprises of empirical findings. Section 6 concludes.

2. CONCEPTUAL FRAMEWORK

Networks in term of social interaction are present in every sphere of life from micro to macro level: society to regions to the national and international level. The social network and ties are an integral part of the human society for centuries formed by individuals and accessed by them through their interpersonal and social skills, which are cost efficient and more effective than formal search mechanisms.

Granovetter (2005) observes that there are three channels through which networks and social ties can affect the economic outcomes of individuals. First, social network and ties, affect both the flow and quality of information. Given that most of the information is informal and difficult to verify, the structure and agents of social network play an important role in providing credibility to it. In other words, it is not the information itself coming through unknown sources, but the persons channelizing the information who are trusted more. Thus social ties act as signal for authenticity and quality of information. Second, such networks and agents act as a screening mechanism in different scenarios. If a person is hired through peers or referral network, on one hand, the probability of better outcomes increases due to reduction in adverse selection, but in case of poor performance, the penalty is also magnified in terms of repercussions for the peers or referring person and personal loss from the penalty. Thus social networks can increase economic efficiency through peer pressure. Third, the built-in trust mechanism in social networks, which works through reciprocating actions and incentives, ensures that all the agents in the network help each other in finding job and providing private information, which is not accessible through formal sources. These actions are based on the expectations of agents who might be in job search process in the coming future.

To establish one of these channels, Calvo-Armengol and Zenou (2005) theoretically show that, when individuals use personal contacts and social ties in the job search process, large network size initially increase the job information flow for job seekers, but above a critical size, the positive effect of job information flows is negated by the congestion effect due to a large number of individuals getting similar information and applying for same jobs. Therefore, in a large network, the flow of job information from informal channels becomes inefficient due to negative search and network externalities. This brings us to an important limitation of social networks. They are not always beneficial for the individuals. Wahba and Zenou (2005), Yamauchi and Tanabe (2008), in the context of Egyptian and Bangkok labour market, show that network size measured using stock of migrants may not always have positive effect on the probability of finding a job.

In our paper, we use stock of migrants as an indicator of migrant network. Further, one important feature that is ignored while analyzing the role of migrant network on labour market outcomes, is the experience of migrant workers at the destination labour market. Beaman (2012), in the context of refugee settlers in USA, show that existence of experienced refugees at the destination leads to improvement in labour market outcomes of new refugees. Drawing insights from this study, we propose a modified indicator of migrant network capturing the effect of migrant experience at the destination. The detailed explanation has been given in the relevant section.

The second channel of information flow via migrant network relates to the identity of the migrants. This identity can be based on the origin region, language, age cohorts and similar occupation. Burns et al. (2010), in the context of South Africa, using age group and language specific network, show a positive effect on the probability of employment for workers. Yamauchi and Tanabe (2008) use origin specific share of migrants at the destination as network

variables to characterize the size of origin specific migrant network. They find positive effect of network size on employment status of migrants. In the case of India, Banerjee (1983), based on a primary survey in New Delhi, show that migrant network and social connections act as a catalyst for chain migration to the national capital region. Iversen et al. (2009), the context of seven urban agglomerations in India, use the pair of employed individuals from the same origin place, working in the same city and employed in the same industry to capture the imitation behaviour of migrants. They find that regional and occupational identities play an important role in the job search process.

In this paper, we use share of migrants from specific origin i.e. state of residence as an indicator of the identity effect of the migrant network in the destination labour market. The reason for using the state as the regional identity of the migrants is as follows. In the context of India, states were created on the linguistic basis, and in most of these states different languages are spoken, which create a unique regional identity of the natives of these states. This identity also differentiates them as migrants in the destination labour market.

The third channel relates to the existence of employed workers in the migrant network. Yamauchi and Tanabe (2008), Simon and Warner (1992) and Montgomery (1991) are a few studies that have highlighted the importance of workers with job in a social network through the process of job referral, imitation behaviour and signaling to the prospective employer. Based on the insights from this, we use share of employed migrants at the destination as an efficiency effect indicator of migrant network in our study.

The last, and somewhat ignored channel, especially in the context of migrant network, relates to the diversity of the migrants based on the origin place in the destination labour market. The

importance of diversity in the labour market is highlighted by Granovetter (2005) through the mechanism of weak social ties in a network. Suedekum et al. (2014), in the context of German labour market, show that with the increased diversity in the labour market, there is increase in the wages and productivity of the natives as well as for the migrant workers. In this paper, we use Shannon index to capture the diversity of the migrants at the destination. The detailed discussion on this channel is provided in the relevant section.

Drawing insights from these channels of information flow in the migrant network, we analyze the effect of network indicators on the urban labour market outcomes in the context of India.

3. DATA AND DESCRIPTIVE STATISTICS

We use data from the nationally representative survey conducted by NSSO on Employment, Unemployment and Migration in 2007-08. The survey has information on 125,578 households (79,091 in rural areas and 46,487 in urban areas) comprising of 572,254 individuals (374,294 in rural areas and 197,960 in urban areas). It provides information on individual and household level characteristics of all sampled households. This survey also collects information on whether an individual is a migrant or not, along with data about migrant households, their employment specific information, duration of stay and place of migration. The sampling framework used in this survey is based on the presence of the migrant in the household with specific characteristics. The detailed sampling frame is discussed in the survey report (Government of India, 2010). Given that the sampling of the survey is based on the migration criteria, this makes the dataset more relevant for analysis of labour market outcomes of migrants.

Our analysis is restricted to individuals who are characterized as migrants, as per the criteria used by the survey, i.e. whether the current usual place of residence is different from last usual place of residence. For the migrant individuals, we have information on their destination district and state along with whether it is a rural or urban area. The survey also gives information about the origin location of the migrant i.e. urban or rural part of a state. For our analysis, we focus on state to district migration flow, which can be identified from the survey data. The NSSO survey provides list of multiple reasons for migration. In our study, we intend to focus on migration due to employment specific reasons, given the focus on labour market outcomes.

(a) Descriptive statistics

In 2007-08, the total stock of migrants was 194 million in rural areas and 94 million in urban areas in India[2]. Of these, there were 28.4 million (91 percent male and only 9 percent female) individuals who migrated for work related reasons. Among these 28.4 million migrants, 91 percent were in the age group 15-59 years and 37 percent in the age group 15-32 years[3]. Further, three-fourth of 28.4 million migrants has urban areas as their destination.

In the urban areas, the destination of migrants can be further divided into large cities (with population being one million or more), and other urban settlements (having population below one million). Of the 21.3 million migrants moving to urban areas for work, 42 percent had large cities as their destination whereas 58 percent migrated to other urban locations. In India, there were 27 cities with population of one million or above in 2007-08, as per NSSO survey.

Another important aspect which affects the strength of migrant network in the urban labour market is the duration of stay since migrated. We observe that twelve percent of urban migrants have migrated in the past one year, while forty percent have migrated in the past five years (Figure 1). Further, sixty percent have migrated in the past ten years. An individual who is part of the labour market for a longer period is likely to have more contacts and social ties than new migrants.

[Insert Figure 1 Here]

Next, we discuss, how different aspects of migrant network are captured using various indicators constructed from NSSO survey data.

4. MIGRANT NETWORK INDICATORS: DEFINITION AND MEASUREMENT

Using the insights from the literature on network formation among migrants, we identify different measures, which can be constructed from NSSO survey data. They reflect various characteristics of migrant network highlighting the channels through which migrant network affects labour market outcomes of migrants. First, we provide the definition of indicators followed by the measurement using the dataset for analysis. The list of the migrant network indicators is as follows: migrant stock, migrant stock weighted by duration of stay at the destination, size effect, efficiency effect and diversity effect.

(a) Definitions

The most common indicator used to capture network effect is the stock of migrants at the destination, irrespective of their origin [4] location. It can be defined as: $MigStock_d = \sum_{s=1}^{N} \sum_{i=1}^{J} Migrant_{isd}$, where i denotes individual migrant, s stands for the source location and d represents the destination location where migrant stock is calculated. This measure is expected to have an inverse-U relationship with employment probability of migrant. It remains positive initially, but after an optimal size of migrant stock, its effect becomes negative due to excess labour supply and also network congestion (Calvo-Armengol and Zenou, 2005).

Since, the migrant stock at the destination does not take into consideration the experience of past migrants, we construct an improved measure by weighting the migrant stock by duration of stay at the current destination. The formula for this indicator can be written as: $MigStockExp_d = \sum_{s=1}^{N} \sum_{i=1}^{J} Year_i . Migrant_{isd}$, where $Year$ is the duration of stay at the destination.

Both these indicators ignore the source identity of the migrants which is a very important aspect of migrant network. This source identity can act as a signal for the employers and can also reflect the importance of destination by observing the size of source specific migrant stock at the destination. We call this as size effect, calculated as the share of migrants from a specific origin in total stock of migrants at the destination: $SizeEffect_{sd} = \frac{\sum_{i=1}^{J} Migrant_{isd}}{\sum_{s=1}^{N} \sum_{i=1}^{J} Migrant_{isd}}$. This indicator varies by the source-destination pairs. In the formula, the numerator denotes the size migrant stock from source location, s at the destination, d; whereas the denominator denotes the total stock of migrants at the destination d. This measure takes into account the role of origin specific effect of the migrant network. This measure provides disaggregated effect of locational network externality.

Another important aspect of the migrant network is its efficiency in providing job information as well as job referral for unemployed migrants. This feature acts as a barometer for the quality of migrant network. We call it efficiency effect. To capture this aspect, we calculate the share of employed migrants in migrant stock from a specific origin place at the destination: $EfficiencyEffect_d = \frac{\sum_{i=1}^{J} Employment\ Status\ of\ Migrant_{id}}{\sum_{i=1}^{J} Migrant_{id}}$. In the formula, numerator is the total number of employed migrants (if employed then the value is one, otherwise zero) at the destination location, d. The denominator is the total stock of migrants at destination, d. This measure is based on the premise that employed migrants are more capable of providing job information through referral or news of internal job vacancies at the workplace (Yamauchi and Tanabe, 2008). Further, they have less incentive to hide job information from unemployed migrants as they are already employed. Thus, they are more likely to strengthen migrant network in job information dissemination.

We also include a new measure adapted from the ecology literature to understand the role of origin specific diversity and variation in social ties among migrants. We call this indicator diversity measure. We use Shannon index[5] to capture this aspect of migrant network. The formula is: $Diversity\ Effect_d = - \sum_{s=1}^{N}(SizeEffect_{sd}) \ln(SizeEffect_{sd})$. This measure extracts origin specific diversity in the flow of job information within migrant network. For example, if the migrant stock comprises of migrants from same origin place, their weak ties[6] as well as job information availability through informal channels becomes very restrictive and sometimes overlapping. The reason is that most of the migrants from same origin place have similar job skills, sector of work and social ties (Iversen et al., 2009). This also creates a crowd out and congestion effect beyond a critical point, which creates a negative network effect on economic outcomes for the migrants. If the migrants are from different origins this increases

weak ties of the migrants. These weak ties not only provide new job related information from different clusters of migrants in a network, but also reduce the congestion effect. It can be argued that diversity effect can have a non-linear relationship with the probability of employment in the labour market for migrants. The explanation is as follows. If the diversity of migrants by origin is very high at a destination location then the bargaining power as well as social connections of those migrants will be comparatively very less and will have a negative effect or no effect on the probability of employment for a new migrant or any existing migrant searching for work. Conversely, if diversity is very low i.e. migrants from a specific origin are concentrated at the destination location then it will have a positive effect.

(b) Migrant Network Measurement

At the time of this survey i.e. in 2007-08, there were 576 districts, and 35 states and union territories in India. In our survey, unit of origin location is the state. There are 36 possible origin locations i.e. 35 states and one outside of India. Due to very few observations, we ignore migrants from abroad. As some of the states have very small number of migrants, we group six north eastern states having similar characteristics and also the six union territories. This leaves us with 25 origin locations. For the destination of migrants, we know their district of current usual place of residence. Thus, we are able to track migration flows from 25 states to 576 districts.

Migrant stock is calculated as the total stock of migrant population at the destination, in our case district of current residence location. We normalize the migrant stock size by the mean value of the migrant stock across districts, which reduces the magnitude of migrant stock but not the

relative size across destinations. A square of migrant stock term is also calculated to capture the non-linear effect of migrant stock as suggested by Calvo-Armengol and Zenou (2005). On similar lines, *migrant stock reflecting experience of migrants at destination* is also calculated. In this measure, instead of giving uniform weight to every migrant, relative weights are given based on their duration of stay as migrants at the destination. We normalize this measure by the mean value across districts.

The *size effect* measure of migrant network is constructed as origin specific migrant stock divided by overall migrant stock at the destination. The *efficiency effect* measure is calculated as employed migrant stock divided by total migrant stock at the destination i.e. district. The *diversity effect* measure is calculated using the Shannon index. First, we calculate the share of origin specific migrants stock in total migrant stock at the destination, which is the same as Size Effect. Second, origin specific size effect is weighed by the natural logarithm of itself and then aggregated at the district level. The range of this indicator goes from zero to ln (number of origin locations). The minimum value of zero is observed when migrants are from only one origin location and maximum value of ln(n) relates to, when migrants are equally in share from different origin locations.

In the next section, we discuss the estimation strategy for the probability of a migrant being employed in the labour market at destination.

5. ESTIMATION STRATEGY AND RESULTS

(a) Estimation Strategy

To analyze the effect of migrant network on employment status of migrants in urban labour market, we estimate a probit model. The outcome variable for the probit estimation is the probability of employment of a migrant (1, if employed and 0, if unemployed).

$$E_{ihsd} = \beta X_{ih} + \theta N_{sd} + \delta S_s + \epsilon_i \qquad (1)$$

Here E_{ihsd} denotes the employment status of the migrant i from household h and source location s, in the labour market at destination location d.

X_{ih} denotes the individual and household characteristics. As explanatory variables, we include the household characteristics: household type (self-employed, regular wage/salary earning, casual labour, others), social group (Scheduled Tribe, Scheduled Caste, Other Backward Class and Others), religion (Hindu, Muslim, Christian, Others), and composition of household members in terms of their age groups (kids below six years, children in age group 6-14 years, employable adults in age group 15-59 years, elderly adults above 59 years). The individual characteristics that we include are the following: gender (male, female), age, education (uneducated, below primary, primary, middle, secondary, higher secondary / diploma, graduate and above), and marital status (unmarried, married, others: widowed, separated and deserted). The summary statistics for all the variables used in the estimation are listed in Table 1.

[Insert Table 1 Here]

S_s denotes the source location specific characteristics (to control for unemployment rate, rainfall and regional effects) respectively. N_{sd} denotes different measures of migrant network effect discussed in the previous section. Even though all the migrant network indicators are calculated at the destination, some of the network variables are also dependent on the origin location.

(b) Estimation results

Our estimation results can be divided into three parts based on the underlying sample used. First, we look at the overall picture of urban labour market for migrant workers. Second, we divide our sample into migrants in cities with million plus population and in rest of the urban settlements. Lastly, we estimate the model for new migrants i.e. those who have migrated in past one year preceding the survey as compared to existing migrants with their duration of stay being more than one year but less than five years.

First, we discuss the findings for the sample of all migrants in the urban labour market. In Table 2, we run six separate models with different specification of the estimating equation inputting various network indicators one at a time and then all of them together, along with other standard explanatory variables as described in the earlier section.

We find that migrant stock is insignificant. Though the signs of this indicator are similar to the theoretical predictions by Calvo-Armengol and Zenou (2005) and empirical findings of Wahba and Zenou (2005) in Egypt, they do not affect the outcome variable (Table 2, A). On the other hand, weighted migrant stock is significant and positively affects the odds of finding employment; and the squared term is negative indicating a crowding out and congestion effect due to increased competition for the available jobs whose information is transmitted through migrant network (Table 2, B). Moreover, it suggests that weighted migrant stock is an improved indicator of the network effect than migrant stock.

Next, we document that efficiency indicator positively affects the probability of employment of migrants, but the negative squared term indicates that if the number of employed migrants is very

high, there is market saturation in the labour market in terms of new jobs availability (Table 2, C). This means that job information flow reduces and finding a job becomes difficult for the unemployed migrant. These results corroborate with Yamauchi and Tanabe (2008).

[Insert Table 2 Here]

Next, we find that size effect variable is negative and insignificant, which is in contrast to Yamauchi and Tanabe (2008) (Table 2, D). One possible reason for insignificant effect can be the use of origin specific dummies in the estimated equation.

The diversity effect of migrant network is positive and significant but the squared term is insignificant (Table 2, E). A plausible explanation for this result lies in the fact that higher diversity of migrants at the destination labour market leads to more diverse network structure, which can possibly enhance the information flow of new jobs as compared to migrants from same source location. A diverse network assures lower competition due to diverse skill sets and job opportunities for migrants in the labour market.

In the last model, we include all the indicators of migrant network (Table 2, F). We find an unexpected negative and significant sign on the migrant stock variable, while the squared term is positive. This implies that migrant network does not help in finding employment and on the contrary decrease the probability of finding job for migrants, while the sign of squared term suggests that this negative effect wears off as the migrant network size increases. The effect of weighted migrant stock variable is insignificant in the model. We observe that the sign and

significance of efficiency effect and its squared term remains unchanged. This means that the findings in relation to the effect of quality of migrant network, represented by efficiency measure remain robust. The sign of diversity effect measure also remains unaltered but the first term has become insignificant.

We also introduce an interaction term of migrant stock and efficiency effect variable, to check the implications of large network size along with increased quality in terms of higher share of employed migrants, which we observe in case of large million plus cities (Figure 2). We find that, if both the size of migrant stock and share of employed migrants increase, probability of employment among migrants increases. This result is consistent with Yamauchi and Tanabe (2008), and can also be compared with the employment related outcomes in the million plus cities in the next subsection.

[Insert Figure 2 Here]

(i) Migrant network effect: cities with million plus population vs. other urban settlements

To compare the effect of migrant network in large cities and other urban areas, we divide the sample into cities with million plus population and other urban settlements. The main findings from estimated model are reported in Table 3, where model A shows results for cities with million plus population and model B for all other urban settlements. Instead of using two indicators of migrant network size together, we use the weighted migrant stock in this case.

[Insert Table 3 Here]

We find that weighted migrant stock negatively affects the probability of employment for migrants in both types of urban areas, but the significance of squared term in large cities displays that this negative effect is more pronounced in case of labour market in million plus population cities. We cannot provide any possible explanation for this result.

Next, we document that efficiency effect is positive and more visible in case of large cities than other urban settlements. Further, the negative squared term of efficiency effect is significant in the case of large cities but not in other urban areas, indicating that labour markets in big cities are more competitive and are more likely to be saturated. The size effect is non-existent in million plus cities but has a negative effect in other urban settlements. A possible explanation can be that large cities are more cosmopolitan than small towns, and therefore regional identity does not play a significant role.

We find that diversity effect is insignificant but has an inverted-U relationship, suggesting that variety of migrants act as an incentive for all migrants to find jobs and also augments the migrant network connections. The diversity effect is insignificant for other urban settlements.

Lastly, the interaction term of efficiency effect and migrant stock is positive and significant for the large cities. This suggests that if large share of a migrant stock is employed it positively affects the probability of finding employment for migrants in large cities. The quality of migrant stock becomes more important as the size of migrant network increases, in providing job information for the unemployed migrants and to reduce the congestion and crowd out effect.

(ii) Migrant network effect: new migrants vs. existing migrants

In this subsection, we estimate separate models for new and existing migrants. In our sample, we consider a migrant as new if his/her duration of stay at the destination is less than one year, the existing migrant has duration of stay at the destination of at least one year but less than five years. The importance of this analysis is to shed light on the role of migrant network for new migrants as compared to existing migrants. If the migrant network effect is positive and stronger for the new migrants this will induce higher migration to urban areas, on the other hand if the migrant network effect is non-existent or negative then it will adversely affect the movement of individuals to urban areas. The results of the models are reported in Table 4.

[Insert Table 4 Here]

We note that weighted migrant stock has negative effect on the probability of employment for both new and old migrants, but for the new migrants the coefficient is larger indicating that competition effect is more pronounced for new migrants. Next, efficiency effect is non-existent in case of new migrants with an insignificant coefficient, while it is positive and significant for existing migrants. This suggests that it is the existing migrants who are able to utilize the job information disseminated by employed migrants through informal networks, which does not seem to help new migrants, because of their limited social ties within the network. The size effect negatively affects the probability of employment for new migrants, while it is insignificant for the old migrants.

The diversity effect is positive and has an inverted-U relationship with probability of employment for new migrants, but is insignificant for existing migrants. This indicates that heterogeneity in the flow of job information positively affects the probability of employment for new migrants. This finding reaffirms the fact that weak social ties are more important in finding employment than friends and family members (Granovetter, 2005). The squared term of diversity effect is negative, which means that with an increase in the numbers of weak ties, there is congestion and inefficiency in the network that makes signaling and flow of information less reliable and reduces the probability of finding a job for new migrants.

Lastly, the interaction term of migrant stock and efficiency effect has significant and positive sign for new migrants but is insignificant for existing migrants. This means that if the size of migrant network is very large along with higher share of employed migrants, it positively affects the probability of new migrant to get a job.

The other relevant findings are as follows. The migrant women are less likely to get employment than their male counterparts in urban labour market. The aged migrants are more likely to get employment at the destination labour market, as compared to younger ones migrants. The age squared term is negative, which means that beyond a critical age level, probability of employment decreases for migrants. We find that married migrants are less likely to get employed as compared to unmarried migrants. We also observe that there is no effect of religious identity on employment outcome (except in case of Christians who are more likely to get jobs in urban labour market)[7].

6. CONCLUSION

This paper contributes to the growing literature on the role of network effect in urban labour market performance in developing countries. We show that different aspects of migrant network reflecting origin, size, efficiency and diversity affect the labour market outcomes of migrants through different channels.

This study highlights some important characteristics of migrant network in the context of urban labour markets. First, we show that different indicators of migrant network show the varying aspects of social ties and its effect on economic outcomes. The size effect can act as a signal to the incoming migrants to select a destination location. If the size of origin based migrant network is large at a destination, this acts as a signal for prospective migrants, and also for employers in selecting incoming migrants for vacant jobs. Second, we show that destination location choice affects the labour market outcomes of migrants through migrant network in different ways. Some features i.e. network size and efficiency effect of the migrant network become more important in the labour markets of large cities, while others indicators i.e. size and diversity effect act as a catalyst for migrants in finding job in other urban settlements. Third, we highlight that the effect of migrant network varies for new and existing migrants. Some characteristics of migrant network influence the economic outcomes of new migrants such as size effect as a signal, diversity effect indicating the level of weak ties; whereas the share of employed migrants in migrant network positively affects employment status of existing migrants.

These findings advocate that the informal channels of job information flow in urban labour markets play a very important role in finding employment for new as well as unemployed

migrants. These channels become more visible in the large size and well-connected labour markets, whereas remain relatively ineffective in small and dispersed labour markets.

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NOTES

[1] The rationale for using urban labour market data is manifold. First, the flow of migrants for employment related reasons has destination in urban areas in the context of India. Of the 28.4 million workers migrating for work, 75 percent migrated to urban areas, whereas 25 percent had rural areas as their destination in search of work. This suggests that in India, migration for work is mainly to the urban areas. Therefore, it makes sense to focus on urban labour market. Second, urban labour markets are more structured and well defined than their rural counterparts, so that the network formation can be observed in the labour market.

[2] In both rural and urban areas, women dominate in the migration, because marriage being the single largest reason for migration among women. In rural areas, 90 percent of female migration is on account of marriage whereas in in urban areas, this number is 59 percent. These numbers do not show the true picture of migration in search of work.

[3] As per UN Habitat's State of the Urban Youth in India Report 2012, individuals in the age-group 15-32 years are considered as youth (HABITAT, 2013).

[4] The word Source and Origin are used interchangeably in the paper.

[5] See Patil and Taillie (1982) for a detailed discussion on Shannon Index and its properties.

[6] Weak ties are the indirect contacts of an individual. More novel information flows to individuals through weak than through strong ties. Because our close friends tend to move in the same circles that we do, the information they receive overlaps considerably with what we already know. Acquaintances, by contrast, know people that we do not and, thus, receive more novel information (Granovetter, 2005).

[7] We have not presented the results for all the control variables as that is not the core focus of the paper. These results are available on request.