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HEALTH SECURITY OF MIGRANT WORKERS IN TIRUPUR GARMENT INDUSTRY-AN ECONOMETRIC ANALYSIS

Article Particulars

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Abstract

Indian constitution provides basic freedom to move to any part of the country, right to reside and earn livelihood of their choice. Thus, migrants are not required to register either at place of origin or at the place of destination. A number of social, economic, cultural and political factors play an important role in the decision to move. The effects of these factors vary over time and place. Today, internal migrants in India have almost 400 million in the 2011 census, over half the global figure of 740 million and almost twice as many as China's estimated 221 million. These internal migrants, comprising a third of India's population, are estimated to account for remittances anywhere between `70,000 crore and `120,000 crore. Migration is the process of leaving one's home or usual place of residence to move to a new area or location in search of work, livelihood or a better quality of life, as a result of marriage, to escape persecution or because of displacement (UNESCO, 2015). Tirupur is heaven for migrants. While the presence of migrants and their contribution to the 'rise of this boom-town' has been acknowledged, the magnitude of this workforce, their place of origin, and their aspirations remain relatively unexplored. In this study, modest attempt to address these questions with the objective of analysing the social security needs of the unorganised sector workers, examining the risk management mechanisms that are most frequently used by these workers and assessing their willingness to participate in contributory social security schemes. Econometric modelings were used to identify the awareness of health insurance and to know willingness to pay for health insurance among the migrant workers of the Garment industry in Tirupur.

Keywords: *UNESCO, social security, econometric modelings, garment industry, migratory group, rapid urbanisation*

Introduction

Man has been known for his mobility even in the Palaeolithic age. Human history is full of the accounts of migration in search of places to settle. Migratory group of people have established new empires and have colonised many countries. Such international migrations have, however, declined in recent times. However in today's world, modern migration is generally the migration of labour in response to the economic changes. In developing countries of Asia, migration is the result of high fertility and lack of job opportunities. Rapid urbanisation and growing economic opportunities are some of its manifestation. The absurd

poverty in the rural areas and emergence of developing opportunities especially in un-organised sector leads to the larger mileage for internal migration in India.

Indian constitution provides basic freedom to move to any part of the country, right to reside and earn livelihood of their choice. Thus, migrants are not required to register either at place of origin or at the place of destination. A number of social, economic, cultural and political factors play an important role in the decision to move. The effects of these factors vary over time and place. Today, internal migrants in India have almost 400 million in the 2011 census, over half the global figure of 740 million and almost twice as many as China's estimated 221 million. These internal migrants, comprising a third of India's population, are estimated to account for remittances anywhere between `70,000 crore and `120,000 crore.

Definition of Migration

Migration is defined as a move from one migration defining area to another, usually crossing administrative boundaries made during a given migration interval and involving a change of residence. Internal migration involves a change of residence within national borders (UNESCO, 2012). Migration is the process of leaving one's home or usual place of residence to move to a new area or location in search of work, livelihood or a better quality of life, as a result of marriage, to escape persecution or because of displacement (UNESCO, 2015). The change in residence can take place either permanent or semi-permanent or temporary basis (Premi, 1990). Internal migration involves a change of residence within national borders (Dang, 2005). Analysis of migration pattern is important to understand the changes taking place in the people's movement within the country. It is the most volatile component of population growth and most sensitive to economic, political and cultural factors (Singh, 1998).

According to a UNESCO report entitled Social Inclusion of Internal Migrants in India (2013), three out of ten Indians are Internal Migrants. The population of internal migrants in India went up from 309 million in 2001 to 400 million in 2011. Utter Pradesh, Bihar, Rajasthan, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Jharkhand, Odisha, Uttarakhand and Tamil Nadu are identified as the lead source of internal migrants, whereas key destination areas are Delhi, Maharashtra, Gujarat, Haryana, Punjab, Karnataka and Kerala. The cities of Mumbai, Delhi and Kolkata are all among the world's top ten most populous urban ares, and India has 25 of the 100 fastest-growing cities worldwide. 2011 census data show that for the first time, India's urban population since the last census. 31 percent of India's population is now classified as urban, up from almost 28 percent in 2001. In 2007-08, the NSS Survey measured the migration rate (the proportion of migrants in the population) in urban areas at 35 percent.

Labour Migration in India

Migration from one area to another in search of improved livelihood is a key feature of human history. While some regions and sectors fall behind in their capacity to support populations, other move ahead and people migrate to access these emerging opportunities. Industrialisation widens the gap between rural and urban areas, including a shift of the workforce towards industrialising areas. There is extensive debate on the factors that causes populations to shift from those that emphasise individual rationality and household behaviour to those that cite the structural logic of capitalist development. Migration has become a universal phenomenon in modern times. Due to the expansion of transport and communication, it has become a part of worldwide process of urbanisation and industrialisation. In most countries, it has been observed that industrialisation and economic development has been accompanied by large-scale movements of people from villages to towns, from towns to other towns and from one country to another country. From the demographic point of view, migration is one of the three basic components of population growth of any area, the other being fertility and mortality. But whereas both fertility and mortality operate within the biological framework, migration does not.

It influences size, composition and distribution of population. More importantly, migration influences the social, political and economic life of the people. Indian constitution provides basic freedom to move to any part of the country, right to reside and earn livelihood of their choice. Thus, migrants are not required to register either at the place of origin or at the place of destination. A number of economic, social, cultural and political factors play an important role in the decision to move. The effects of these factors vary over time and place. Analysis of labour migration is important to understand the people's movement within the country as a response to changes in economic, political and cultural factors (Singh, 1998).

In India, permanent shifts of population and workforce co-exist with the circulatory movement of populations between lagging areas and developed regions and between rural and urban areas, mostly being absorbed in the unorganised sector of the economy. Internal migration is now recognised as an important factor in influencing social and economic development, especially in developing countries. Indian censuses record that in 2001, 309 million persons were migrants based on place of last residence, which constitute about 30 percent of the total population of the country. This is nearly double the number of internal migrants as recorded in the census of 1971 (159 million). This suggests that socio-economic changes in the last three decades have greatly affected the mobility of the population (Lusome, 2006).

Migrant Workers in Tirupur Garment Industry

According to the firm sources, Tirupur Garment Industry employs more than 3.5 lakhs of people which include both local as well as migrated labour force from the nearby

districts and states. The labour force available for the firms in and around Tirupur is of agricultural base and as such the level of skills have always been a problem for the manufacturers. But even in the absence of formal training in and within firms, the average time spent required for an agricultural labour to absorb in the production process is three weeks. There exists two system of payment in Tirupur and according to trade union representative, one-third of the workforce are under piece rate and rest work under shift basis. Most of the manufacturers work with contractor for their contract labour and almost two-fifths of the workforce is under contract basis. The average number of shifts across almost all units is one and half. Though Textile and clothing sector is considered as very labour intensive and of low skilled level but introduction of new technologies in different value chain activities like dyeing, processing, printing and the like, the skill requirement has increased. Looking at the change of labour intensity in Indian organized manufacturing, Das *et.al* (2009) identified 31 industries as the labour intensive industries from 1990-91 to 2003-04. Out of these 31 labour intensive industries, the manufacturing of knitted products (17304) ranked eighth in terms of labour intensity from1990-91 to 2003-04. This trend can be expected because, after 1997-98, India's exports of knitted apparel and clothing accessories to the world have experienced a jump, which had led to more absorption of labour into the industry.

Data Sources and Methodology

In the export garment value chain in India there are industrial clusters, which are linked to the global market. The pattern of labour absorption of Tirupur indicates that over the years, the proportion of migrant labourers not only from the southern districts of Tamil Nadu but also from the neighboring states like Kerala, Andhra Pradesh, Karnataka, Orissa, Jharkhand, Utter Pradesh and Nepal have increased. The burgeoning growth of migrant workers in urban informal sector of Tirupur is the main reason to select it as the area of the study. It is generally believed that an unorganised labour market is characterised by low wage, long hours of work, poor working conditions, lack of social security benefits, unequal pay and gender disparity. To examine this various statements migrant workers of Garment Industry, Tirupur have been chosen for study and data were collected from various sources.

A Secondary survey of literature of the garment industry was first undertaken in order to prepare a background note. The garment industry in Tirupur consists of six major sectors viz., Fabrication units, Dyeing and Bleaching units, Compacting and Calendaring units, Fabric Printing units, Embroidery units and Finishing units. Data available with District Industrial Center (DIC), Coimbatore, Tirupur Exporters Associations (TEA), Tirupur, South Indian Hosiery Manufactures Association (SIHMA), Tirupur National Institute of Fashion Technology(NIFT), Tirupur. Regarding the number of units revealed that there existed around 5050 units (excludes other ancillary 1000 units), at the time of survey (2015-16), with majority (2501) being finishing units. The remaining are units for

Fabrication (996), Dyeing and Bleaching units (498), Compacting and Calendaring (302), Fabric Printing units (496) and Embroidery (257).

At the Second stage, five percent of each processing units were selected, on a random basis, from the list of units. Thus, the sample units works out to 253, comprising Finishing (125), Fabrication (Knitting) (50), Dyeing and Bleaching (25), Fabric Printing (25), Compacting and Calendaring (15), Embroidery (13). In the next stage, total sample workers 1289 were identified from the total workers (15626). The present study excludes workers migrated from Coimbatore. From the total migrant workers (1289), unit wise the number of workers amount to: Fabrication: 82 workers; Dyeing units: 84 workers; Compacting units 89 workers; Finishing units: 876 workers; Fabric Printing units: 81 Workers; Embroidery units: 77 workers who were identified for our study. From each category, 15 percent of workers have been chosen randomly. Thus, the final sample migrant workers come to 1289 (825 males, 464 females).

An interview schedule was prepared for the purpose of data collection. It consisted of questions relating to personal and household characteristics, earnings, occupational mobility and social security. Next, a pilot study covering 79 workers was carried out to find out the suitability of the data collection instrument. Based on the difficulties faced and suggestions given by the workers, trade union leaders and subject experts, questions in the interview schedule were suitability modified. Data from the sample workers were collected using the modified interview schedule.

Discussions were held with workers, trade union leaders, supervisors, managers, employers to obtain information with respect to recruitment, wage systems and payment and overtime particulars. To ensure that workers could speak freely, they were interviewed in their households. Discussions were also held with women workers to identify their specific problems. The period of study is from September 2015 to December 2016. Data were processed by using simple statistical tools like mean and standard deviation for describing the sample. The Ordinary Least square method was fitted to analyse the determinants of earning function, Logistic regression model were used to identify occupational mobility and awareness of health insurance and to know willingness to pay for health insurance among the migrant workers of the Garment industry in Tirupur.

Reviews Related to Social Protection/ Securities of Migrant Workers

Rowena Jacobs and Maria Goddard (2000) studied "Social Health Insurance Systems in European Countries The Role of the Insurer in the Health Care System: A Comparative Study of Four European Countries" to examine the role of social health insurance in four European countries: Germany, Switzerland, France and the Netherlands. It attempts to elucidate the organisational structure, regulation and management of the social insurance schemes, as well as the relationships between the insurers, providers and consumers in the various countries with the aim of uncovering some of the inherent strengths, weaknesses and tradeoffs which exist within social insurance systems. Most

countries in this paper face a similar set of urgent problems. The growth in demand, due to the ageing population, improvements in medical technology and real income growth is outpacing the supply of health care. Health care systems have insufficient incentives for patients or providers to restrain excessive utilisation. There is a general discontent with current methods of financing and delivering health care and no quick fix solution to the challenges. It is argued by many, that a possible solution for excess demand and constraints on government financing, would be increased information and choice for patients while placing insurers and providers in competition to provide optimal levels of care at competitive prices. This would require putting insurance funds in social insurance based systems on an equal footing to allow them to assume a more commercial role.

Quandt (2002) made a study on "Mobility patterns of migrant farm workers in North Carolina: Implications for occupational health research and policy" using data from two longitudinal studies of farm worker health in North Carolina, with the following objectives 1) describe migration during one summer (amount, reasons, destinations); and 2) discuss the implications of these patterns for conducting different types of environmental and occupational health research. Approximately 30 percent of farm workers migrated over the course of the summer. Analysis of specific work sites revealed both in- and out-migration. Work availability and work-related illness were major causes of out-migration. These data suggested that failing to document reasons for migration may result in underestimation of the occupational illnesses and injuries under study. If research on migrant farm workers is to be used to establish worksite health and safety policies, traditional research designs and data analysis techniques must be adapted to the realities of worker migration.

Eric Hansen and Martin Donohoe (2003) explained "Health Issues of Migrant and Seasonal Farmworkers" and described the socio-economic conditions of migrant and seasonal farm workers in the United States to study occupational hazards and barriers to access health care services. The data were collected from migrant and seasonal farm workers (MSFWs) in the United States. Occupational hazards, poverty, substandard living conditions, migrancy, and language and cultural barriers contribute to MSFWs' health problems and constitute barriers to health care. Migrant workers face numerous barriers to medical care, including lack of transportation, insurance, and sick leave; the threat or fear of wage or job loss; language barriers between MSFWs and health care providers; and limited clinic hours. Illiteracy further limits verbal communication and the degree to which written information can be relied on to provide educational or preventive advice and information regarding how to get health care. By increasing awareness among health care professionals of the plight of migrant and seasonal farm workers, the authors hope to encourage development of a stronger public health infrastructure and to improve the health status of these individuals. The challenge to providers, policy makers, and socially conscious Americans is to create a stronger public health infrastructure; to collect more data on specific health conditions in MSFWs; to improve education among

MSFWs and health care providers; and to increase awareness of the plight of these men, women, and children.

Doris Geide-Stevenson and Ho (2004) explored "International labour migration and social security: Analysis of the transition path" dealing issues related with welfare effects of migration on the labour exporting and labour importing countries simultaneously, along with the temporal pattern of migration, based on the class of simple two-country, overlapping generations models with homogeneous agents during the transition period. The result of the study showed that for identical countries on different points on their transition paths, migration will only take place in the first period. In cases where there are fundamental differences between countries there are prolonged patterns of migration. The levels of migration are typically monotonically declining over time, with even small differences in utility resulting in relatively large initial levels of migration after the two economies are opened up. In all cases studied, utility levels in both countries fall below the steady-state utility level of the labour exporting, i.e., low-utility country. Thus, unrestricted migration will result in making everybody, other than the initial old generation in the high-utility country, worse off during a transition period. The most surprising result is that in all cases studied, unrestricted labour migration generates welfare losses to all young, domestic and foreign, during a sometimes substantial transition period. In the receiving country, the negative effect from a lower wage dominates the increase in the returns to capital, while in the sending country, the negative effect from a lower return to capital dominates the increase in the wage rate. Based on these results, a strong case for harmonising social security systems can be made when countries allow unrestricted migration. Alternatively, countries could restrict the number of people leaving the country, i.e., even the emigration country has an incentive to regulate migration even though labour is homogenous. This should be contrasted with other models where welfare losses for the emigration country are generated by a brain drain, i.e., the emigration of the skilled portion of the work force.

Robert Holzmann *et al.* (2005) analysed "Portability Regimes of Pension and Health Care Benefits for International Migrants: An Analysis of Issues and Good Practices" provides a first investigation into the portability of pension and health care benefits for international migrants. It is based on available literature and newly minted data, but more importantly on selective case studies from main migrant-sending and receiving countries. For this study, four migrant-sending countries have been chosen for case studies: Mexico, Morocco, the Philippines, and Turkey. In terms of migrant-receiving countries, the focus would be on Austria, France, Germany, and the United States. While exploratory, the study achieves a better understanding of the realities on the ground and is able to distill key issues as well as identify good and best practices. The main conclusions include the following: First, only around 20 percent of migrants worldwide work in host countries where full portability of pension benefits, but not necessarily of health care benefits, to their home

countries is ensured. Second, bilateral agreements are seemingly the current best practice to ensure portability for pension and health care benefits, although for the latter this is not always the case. Third, more actuarial-type structures should help to enhance portability. This is, in principle, straightforward for pensions and a defined contribution-type design. It is much more complicated for health care benefits. Last but not least, for improved benefit design and implementation, the information base needs to be broadened, including through more country case studies and tracer studies of migrants.

Nielsen *et al.* (2005) examined "'Which Rural Migrants Receive Social Insurance in Chinese Cities? Evidence from Jiangsu Survey Data". The author used survey data from Jiangsu province to examine which rural-urban migrants received social insurance in Chinese cities, the factors that determined the willingness of migrants to participate in social insurance and the reasons that migrants were not willing to participate. The study discovered that migrants from Jiangsu province were more likely to participate in social insurance relative to migrants from outside the province. People working in the state sector were more likely to participate in industrial injury and maternity insurance. Male migrants were more likely to participate in social insurance than females. The length of time in city and past personal income were also predictors of whether a migrant participated in social insurance. The authors identified three factors that affected the willingness of rural-urban migrants to participate in urban social insurance. The first factor was the location of residential registration, i.e. whether the person was registered inside or outside Jiangsu province. They found that migrants from Jiangsu province were more willing to participate than migrants from outside Jiangsu province. The second factor was the length of time a respondent had lived in the city. The research suggested that the longer a person lived in the city, the greater their willingness to participate.

The third factor was the respondent's age. The survey results showed that younger respondents were more willing to participate. The authors also highlighted that the effect size of younger respondents' participation was small.

Robert Asomadu-Kyereme (2006) analysed "Extending Pro-Poor Social Security In Ghana –The Role of Mutual Insurance Organisations (MIOs)" with the main objective of the study is to research into the role played by MIOs (The mutual insurance organizations) in extending social security to poor communities and low-income groups in Ghana. The study would seek to understand what works well with MIOs; why things work, for whom they work, and in what circumstances or contexts do they work. Mutual Insurance Organisations are semi-formal insurance structure, they are non-state, non-market, non-family based private actors. They use dynamic and innovative approaches under both the formal and the informal systems. This study is mainly an extended case study research. As it advances from desk survey, data gathering to data analysis, the study applied a combination of methods, protocols and strategies to uncover realities involved in using MIOs as an instrument for social security extension. Field studies will be structured to target and study two main

groups of actors that emerge in the study at different depths. These are the primary actors and the secondary actors. The primary actors are the MIOs as institutions comprising leaders and members (end-users) of the MIOs. The secondary actors are the formal social security policy holding institutions such as the parastatal Social Security and National Insurance Trust (SNNIT) and the labour union. There are 110 MIOs scattered across Ghana. At the analysis stage, Multinomial or nested multinomial models used for data analysis. Contingent valuation or compensating variation method also used as a means of assessing market value for non-market utility derived from mutual health insurance schemes. This will be useful for doing cost-benefit analysis of the impacts of the MIOs in extending one form of social security or another. This will ensure that the project findings are used for effective advocacy and social dialogue in Ghana.

Adrien Dumoulin-Smith (2008) explored "Social Health Insurance in China: An Example of Nascent Social Security in China" analysed the issues related implementing health insurance Schemes in China and further. Despite some legislation on medical insurance reform in China, major challenges remain in developing a successful social health insurance system. Attention to health insurance issues in China was aroused by a WHO report in 2000 that ranked China's health system at 144th among 191 WHO member states. The bad score was primarily due to the system's lack of equality and lack of government funding. The inequality in the system is largely attributable to a larger proportion of healthcare costs falling on individuals due both to increasing costs of healthcare and degradation of former government run healthcare systems since market oriented reforms have been introduced into health services.

A second issue contributing to health care inequality in China is the split between the rural and urban systems. While reforms have been helping to cover more and more people in all areas of China, rural areas maintain higher proportions of uncovered people than urban areas. Another major issue challenging China's progress in creating a successful health insurance system is lack of supervision over the health care sector. Therefore, the new system does not solve the financial troubles of its participants, and yet opens them up to the corrupt activities. However, it is uplifting to see that the government does not consider its work on health insurance reform complete, as illustrated through the 2007 developments in the State Council and in the National People's Congress. This gives hope that development of one universal social health insurance scheme which can help all citizens afford decent healthcare can emerge in the foreseeable future. However, the progress on health care can be seen as an extension of the Deng Xiaoping concept of Gradualist change, which indicates that the development of social insurance will be too slow to help many who are now being squeezed into poverty by out of control healthcare costs and ineffective cooperative hospitals. Even more disheartening is the continued lack of national health insurance for migrant workers, although there is hope that lessons from Shenzhen will encourage legislators to fight for such coverage. In the end, much must to be done, but this

decade's attention to social health insurance has given hope to China's otherwise decimated social health insurance system.

Binggin Li (2008) study on "Why do migrant workers not participate in urban social security schemes? The case of the construction and service sectors in Tianjinhas" and examines the role of migrant workers' participation in social insurance schemes used in-depth interview data collected from Tianjin at the end of 2006 to examine migrant participation in social insurance. The workers were from the construction and service sectors. The research is largely exploratory. It is designed to inform future research. He used a combined qualitative and quantitative approach. The purpose is to gain subjective responses from rural to urban migrants. The interviews included questions regarding basic social demographic information, status of participation in social insurance schemes and, for those who did not participate, how they coped without social insurance. The research findings suggest that poor awareness and understanding of social insurance schemes has been a major barrier to migrants being able to properly decide whether to participate. This research shows that in the existing system, lack of awareness and understanding has been particularly problematic in enabling informed decisions. As shown in the research findings, the media has played the most important role in spreading basic concepts regarding social insurance. The most effective influence comes from employers and the local authorities. Of course, this is only the case when employers and the local authorities are willing to make an effort and adopt a more personalised approach. The research also suggests that migrant workers actually welcome some people to take a guiding role in providing them with the necessary information so that they can decide whether to participate. The study of information in facilitating awareness and understanding can be useful for shaping future research and facilitating policy changes.

Samrit Srithamrongsawat *et al.* (2009) focused on "Financing Healthcare for Migrants: A case study from Thailand" investigated the existing healthcare financing options(Compulsory Migrant Health care Insurance) for stateless /displaced persons and registered or unregistered migrant workers. The overall objective of this assessment is to provide recommendations to The Ministry of Public Health (MOPH) and the National Health Security Office in relation to future healthcare financing for these population groups. Both quantitative and qualitative approaches were employed to inform the study. The study focused on three main population groups from Myanmar, Lao PDR, and Cambodia; all of whom were categorised as either registered migrant workers, unregistered migrant workers or stateless / displaced persons. The study began in January 2008 and was completed in August 2008. Health care financing refers to the means in which health care is funded. The process includes three basic functions: 1) revenue collection, 2) risk pooling, and 3) purchasing health services and payment methods. The study evaluates this three process method and derived conclusions. In summary, equity and efficiency are two major concerns in relation to financing health

care. Equitable access to health care should be fostered by focusing on responding to health needs rather than the client's ability to pay. In order to achieve equity and efficiency, health assessments should be made according to one's ability to pay. The wealthy should pay more than the poor, and collected revenues should be pooled in order to distribute health financing risks. This will allow revenue collected from the wealthy to be cross subsidized to the poor. The above information demonstrates that out-of-pocket payments are the most inequitable method of financing health because they are directly related to health service utilisation, rather than an ability to pay. In light of this, any prepayment method - either taxes, insurance or security - is considered a more beneficial and preferable means for financing health care.

Inclusive of Healthcare for all Migrant Workers

Healthcare of migrants has suffered due to the presence of divergent models of how and when nations are responsible for the health and safety of individuals. This problem becomes pronounced in case of migrants linking two nations that endorse divergent models and irregular migrants who get trapped as they are not eligible to receive health service from either nations or finally falling prey to individuals exploiting this policy differences for their own benefit. There are three different legislative responsibility models currently in use to determine a country's healthcare obligations towards international migrants. The *Host Nation model* bases territorial responsibility of the state towards all individuals, legal or irregular within their national boundaries. The *Source Nation model* differs from the former in the sense that it is based on contractual obligation, where citizenship is the exclusive determinant for healthcare responsibility. In the third model, the migrant benefits when there is a relationship between the sending country and the host country. Historically, the needs of the host countries/areas and the receiving countries/areas have been pitted against each other.

Health policies have focused selectively on protecting receiving nations form disease importation and costly post migration utilisation of health care resources through the use of quarantine and regulatory exclusion. This approach at times had led to discriminatory, inadequate and ineffective migration health programmes. Despite these attempts receiving countries/areas remained at the risk of disease importation. For migrant populations, these policies led to restricted movement, poorer health status, lack of access to necessary healthcare, ethical or confidentiality problems, and stigma and alienation in host and resettlement communities. Health policies have through decades followed an exclusionary paradigm towards migrants. Focusing primarily on regulatory exclusion is harmful to both migrants and receiving countries/areas. Exclusionary statues may inadvertently encourage migrants to conceal or temporarily treat their disease, resulting in increased migrant mortality. Concentration on exclusion raises ethical or discriminatory issues and result in migrant stigma or alienation. Inclusive policies and statues can promote better health

among migrants. Any inclusive policy addressing the healthcare of migrants has to understand the dynamic relationship and interdependence that exists between migration and health, and between the needs of the numerous populations involved in the migration process.

Determinants of Willingness to Join for Health Insurance – Logit Model

In the course of analyzing the factors determining to pay for health insurance of migrant workers in Tirupur Garment Industry, it has to be understood whether the workers have willing to pay for health insurance or not. Accordingly migrant workers have been categorised into two, as those who had willing to pay for health insurance who did not. Those who willing to pay for health insurance take up value 1 and those who have not willing to pay health insurance are assigned value '0'. That is

W=1

If W*<Z and

W=0 otherwise

The dependent variable, whether the worker has willing to pay for health insurance 'y', takes on values of one and zero. A simple linear regressions of y on x is not appropriate, among other things, the implied model of the conditional mean places inappropriate restrictions on the residuals of the model. Furthermore, the fitted value of y from a simple linear regression is not restricted to lie between zero and one. Instead, a specification that is designed to handle the specific requirements of binary dependent variables is adopted. The following functional form is commonly used, known as "Logit"

$\ln [p/(1-p)] = a + \beta X + e$

where, p is the probability that event y occurs , p (y=1)

p/(1-p) is the "odds ratio"

ln[p/(1-p)] is the log odds ratio, or "logit"

The categorical dependent y reflects an underlying qualitative variable and uses the binomial distribution. So one can adopt a logit model for this situation. The logistic distribution constrains the estimated probabilities to lie between 0 and 1.

The estimated probability is:

$p = 1/[1 + \exp(-a-\beta X)]$

If you let $a+\beta X = 0$, then p=0.50

as $a+\beta X$ gets really big, p approaches 1

as $a+\beta X$ gets really small, p approaches 0.

Determinants of Willingness to Pay for Health Insurance

The estimated equation is given below

$$ln\ [m/(1-m)] = a + + \beta_1 INCOM + \beta_2 AGE + \beta_3 AGESQ + \beta_4 GEN + \beta_5 EDUI + \beta_6 EDUA + \beta_7 TECH + \beta_8 RURAL + \beta_9 RELI + \beta_{10} BC + \beta_{11} MBC + \beta_{12} SCST + \beta_{13} MRSTS + \beta_{14} FAEDU + \beta_{15} FOCC + \beta_{16} MOEDU + \beta_{17} MTU + \beta_{18} LAPL + \beta_{19} NAJ + \beta_{20} SMAU + \beta_{21} M/LU + \beta_{22} HELPR + \mu$$

Determinants of Willingness to Pay for Health Insurance – All Workers

The estimates of willingness to pay for health insurance of the industrial workers in Tirupur, as per the logit estimates for willingness to pay for health insurance for all workers are presented in Table 6.19.

Table 1 The Logit Estimate for Willingness to Join Health Insurance by All Migrant Workers of Garment Industry in Tirupur

	B	Std. Error	Wald	Sig.	Exp(B)
Dependent Variable: Willingness to pay for Health Insurance					
Human Capital Variable					
Constant					
Age in Years	-.014	.151	2.064	.010**	.986
Age Square	.007	.002	10.212	.001***	1.007
Income	.576	.000	.312	.000***	1.000
Gender-Male=1,else 0	-.886	.181	23.974	.000***	.412
Education Illiterate=0,else 0	-.603	.650	.860	.354	.547
Education Primary=1, else 0	-.047	.604	.006	.939	.955
Education Secondary=1, else 0	.078	.611	.016	.899	1.081
Education Higher Secondary=1, else 0	-.120	.677	.031	.860	.887
Education Diploma and Degree Education =1, else 0	1.501	.855	3.078	.079*	4.486
Workers Background Variable					
Region Rural=1,else 0	.335	.241	1.940	.000***	1.398
Religion Hindu=1,else 0	.520	.337	2.384	.123	1.681
Religion Christian=1, else 0	1.123	.479	5.488	.019**	3.074
Forward Caste=1,else 0	.064	.540	.014	.905	1.066
Backward Caste=1,else 0	1.391	.221	39.574	.000***	4.019
Most Backward Caste=1, else 0	.588	.234	6.299	.012**	1.801
Marital Status-Married=1,else 0	.175	.203	.739	.390	1.191
Fathers Education-Illiterate=1, else 0	-.251	.188	1.782	.182	.778
Father's Occupation-Textile=1, else 0	.093	.202	.211	.646	1.097
Mother's Education-Illiterate=1, else 0	-.146	.173	.707	.401	.864
Trade Union Membership-Member=1,else 0	.515	.382	1.817	.178	1.674
Industry, Job Specific Variable					
Labour Law-Labour applied=1, else 0	.145	.166	.766	.381	1.157
Nature Job-Casual=1, else 0	.004	.240	.000	.003***	1.004
Type of Industry-Small=1, else 0	1.924	.648	8.811	.303	6.849
Type of Industry-Medium/ Large =1, else 0	.623	.168	13.813	.000***	1.865

***P<0.01; **P<.05; *P<.10

Chi- Square 172.184 df 26 -2Log likelihood 1101.608

Cox & Snell R^2 0.125 Nagelkerke R^2 0.199

Impact of Human Capital Variables

It should note β coefficients can be positive or negative. A positive coefficient indicates that an increase in the corresponding variable is associated with a greater likelihood of site presence probability of participate in the proposed health insurance scheme. Conversely, a negative coefficient indicates that a decrease in corresponding variable associated with greater likelihood of site presence. According to the logit

estimate, the variable income has positive influence on the workers' willingness to participate in health insurance scheme. It implies that if there is good income, the people are interested to join in health insurance but persons with less income are not willing to participate in health insurance. Capacity to pay is undoubtedly a major consideration in the decision to insure or not to insure. Age has a negative association with willingness and shows significant result at five percent level. The younger age groups had more willing to take up the insurance policy than old age (Nielson et al. (2005) had found similar result that the variable age has negative association with willingness). The variable age square has positive sign and influenced significantly at one percent level. Female workers have more willingness to join health insurance scheme. The variable education has not shown any influences on willingness among the migrant workers. This result reveals that even the educated workers themselves have not had the awareness about the available health insurance policies and schemes issued by the Government based companies and private players.

Impact of Worker's Background Variables

Among the workers' background variable, the region (rural) is positive and significant at one percent level, which reflects that rural migrant people are more willing to participate health insurance than urban migrant workers. The variable Backward caste has positive and significant at one percent level whereas most backward caste has shown positive and significant at five percent level on willingness to join in the health insurance. Other communities does not have shown any particular impact on willingness. The variables like marital status, father's education and occupation, mother's education does not have any significant influence on willingness. Membership in trade union is not influenced by willingness to insure among the migrant workers.

Impact of Industry, Job Specific Variables

The industry specific characteristics also had influence on workers' probability for selection of job. Labour law has not shown any impact on willingness to insure which shows that even if the government provides social security measures, some organisations are not ready to provide all welfare measures to workers. While considering the casual type workers, the variable had high positive influence and significant at one percent level on willingness to join for health insurance. The size of enterprises (number of workers) have positive impact on willingness to insure and significant at one percent level. In large scale operations, already they have provided some benefits, but small enterprises' workers are less educated, not aware of health insurance plans and frequent job mobility due to all these reasons make them do not participate in health insurance programs. Government can create awareness about the health insurance policies among the migrant workers

and introduce new health insurance schemes with less premium to make them participate in all these health insurance programs.

Determinants of Willingness to Pay for Health Insurance – All Workers, Finishing and Other Units, Male and Female Migrant Workers

The estimates of the determinants of willingness to pay for health insurance of all workers, finishing and other units, male and female migrant workers of garment industry in Tirupur is given in Table 6.20.

Determinants of Willingness to Pay for Health Insurance – Finishing and Other Units, Male and Female Migrant Workers

	All Workers		Finishing		Other Units		Male		Female	
	Coe-eff	Sig.	Coe-eff	Sig.	Coe-eff	Sig	Coe-eff	Sig.	Coe-eff	Sig.
Dependent Variable: Willingness to Pay for Health Insurance										
Human Capital Variable										
Income	.576 (.000)	.000***	.319 (.000)	.000***	.000 (.000)	.127	.506 (.000)	.000***	.000 (.000)	.512
Age in Years	-.014 (.010)	.012**	-.030 (.014)	.025**	.035 (.018)	.053**	-.005 (.011)	.645	-.011 (.029)	.709
Age Square	.007 (.002)	.001***	.005 (.003)	.107	.009 (.005)	.053**	.011 (.003)	.000***	-.007 (.007)	.308
Gender-Male=1,else 0	-.886 (.181)	.000***	-.531 (.228)	.020**	-.897 (.451)	.047	-	-	-	-
Education Illiterate=0,else 0	-.603 (.650)	.354	-.663 (1.242)	.593	.188 (.886)	.832	-.426 (.810)	.599	-3.428 (1.910)	.073*
Education Primary=1, else 0	-.047 (.604)	.939	-.063 (1.217)	.959	.019 (.790)	.981	.235 (.734)	.748	-2.249 (1.899)	.236
Education Secondary=1, else 0	.078 (.611)	.899	.018 (1.219)	.988	.136 (.805)	.866	.360 (.746)	.630	-2.174 (1.877)	.247
Education Higher Secondary=1, else 0	-.120 (.677)	.860	-.560 (1.269)	.659	.392 (.924)	.671	-.377 (.820)	.646	1.468 (2.160)	.497
Education Diploma and Degree Education =1, else 0	1.501 (.855)	.079*	.637 (1.408)	.651	3.335 (1.351)	.014**	.30294 (1.271)	.017**	.123 (2.012)	.951

	All Workers		Finishing		Other Units		Male		Female	
	Coe-eff	Sig.	Coe-eff	Sig.	Coe-eff	Sig	Coe-eff	Sig.	Coe-eff	Sig.
Workers Background Variable										
Region Rural=1, else 0	.335 (.241)	.000***	.131 (.308)	.671	1.580 (.582)	.007***	.480 (.304)	.115	-.466 (.699)	.504
Religion Hindu=1,else 0	.520 (.337)	.123	1.332 (.455)	.113	-.788 (.574)	.169	-1.418 (.532)	.208	6.032 (1.142)	.164
Religion Christian=1, else 0	1.123 (.479)	.019**	2.643 (.760)	.101	-.486 (838)	.562	-1.657 (.671)	.014	-	-
Forward Caste=1,else 0	.064 (.540)	.905	-.627 (.643)	.329	1.161 (1.276)	.363	.750 (.794)	.345	-1.661 (1.145)	.147
Backward Caste=1,else 0	1.391 (.221)	.000***	1.153 (.314)	.809	1.936 (.413)	.000***	1.495 (.265)	.000***	.827 (.582)	.155
Most Backward Caste=1, else 0	.588 (.234)	.012**	.194 (.318)	.373	1.454 (.459)	.002***	.112 (.284)	.693	1.680 (.732)	.022**
Marital Status-Married=1,else 0	.175 (.203)	.390	.475 (.290)	.101	-.877 (.435)	.044**	-.083 (.250)	.740	.641 (.573)	.263
Fathers Education-Illiterate=1, else 0	-.251 (.188)	.182	-.283 (.263)	.281	-.441 (.339)	.193	-.133 (.229)	.561	.4561 (.524)	.389

Father's Occupation-Textile=1, else 0	.093 (.202)	.646	-.170 (.264)	.519	.895 (382)	.019**	.872 (.262)	.001***	-.728 (.438)	.097*
Mother's Education-Illiterate=1, else 0	-.146 (.173)	.401	-.077 (.245)	.752	-.084 (.314)	.788	-.033 (.218)	.879	-.450 (.419)	.282
Trade Union Membership-Member=1,else 0	.515 (.382)	.178	.052 (.425)	.903	1.245 (1.123)	.268	.347 (.400)	.386	-	-
Industry, Job Specific Variables										
Labour Law-Labour applied=1, else 0	.145 (.166)	.381	-.495 (.225)	.028**	-1.403 (337)	.000***	.407 (.210)	.053*	.736 (.464)	.113
Nature Job-Casual=1, else 0	.004 (.240)	.003***	.192 (.311)	.538	-.033 (.439)	.940	.190 (.280)	.496	-2.458 (1.127)	.029**
Health Problems	.132 (.165)	.426	.179 (.229)	.435	.330 (307)	.284	.084 (.207)	.686	.329 (.458)	.472
Type of Industry-Small=1, else 0	1.924 (.648)	.303	-	-	1.914 (.885)	.030**	1.134 (.701)	.105	1.270 (.407)	.102
Type of Industry-Medium/ Large =1, else 0	.623 (.168)	.000***	.119 (.244)	.625	1.160 (303)	.000***	.690 (.214)	.001***	-.860 (.319)	.007***
Constant	.029 (.845)	.972	.951 (1.446)	2.588	-3.817 (1.454)	.009***	-.066 (1.096)	.652	-.038 (2.316)	.987
Chi-square	172.184		95.115		129.923		163.622		126.684	
df	26		26		2617			25	24	
-2 Log likelihood	1101.608		633.572		373.1		738.684		219.047	
Cox &Snell R^2	0.125		0.103		0.270		0.180		.239	
Nagelkerke R^2	0.199		0.182		0.383		0.271		0.455	

***P<0.01; **P<.05; *P<.10

Impact of Human Capital Variable

In the human capital variables, income is a major consideration in the decision to insure or not to insure. Therefore, a positive coefficient is expected between income and willingness to pay for health insurance. The estimated coefficient income has positive sign and significant at one percent level in finishing units and male workers category. This result indicates that the male workers from finishing units are very much interested to join in health insurance scheme at higher income level (This result was supported by Qing Wang (2017) had found that income has positive relationship with willingness to pay for health insurance). Among the finishing unit workers, age has a negative influence on willingness to pay for health insurance and positive influence for other units. This indicates that when age increases willingness to pay for health insurance decreases. The variable age square is positive on willingness and significant at one percent in the other units and male workers category. This result shows that more experienced migrant male workers from other units are interested to pay for health insurance than female workers. The variable gender has negative relationship with willingness of workers from finishing units, and significant at ten percent level. Educated male workers from other units are interested in insurance schemes than illiterate workers.

Impact of Workers' Background Variables

The coefficient of rural workers has positive sign and significance at one percent level in other units, which indicates that rural migrant workers from other units have more willingness to join in health insurance plans. The variable religion does not have

any impact on willingness. Male workers from backward caste and Female workers from most backward caste working in other units have shown their willingness to pay for health insurance schemes. The married workers from other units have been negatively influencing and significant at five percent level. The variable father's education has not shown any influence on willingness. Among the other units category, male workers' parents' occupation is positive and significant at one percent level whereas in female workers' father's occupation is negatively significant at ten percent level. Trade union membership and mother's education have no influence on willingness to pay for health insurance.

Impact of Industry-Job Specific Variable

The variable labour law has negative influence on workers from finishing units at five percent level of significance and significant at one percent level in other units. The same variable has shown positive and significant at ten percent level in male category. Casual workers from female, have shown their unwillingness regarding participation in insurance plan. The variable health problem does not have any influence on willingness to take up health insurance programmes. The migrant workers from medium/large scale units have expressed their willingness to join in health insurance scheme than small scale industries.

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