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Article

Labour Migration towards Export Processing Zones: Exploring the Demographic Change in the Region

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Abstract

Export Processing Zones (EPZs) have brought about a new phenomenon with labour-oriented industrial activities in developing countries. These industrial clusters act as an enclave creating numerous changes in the economic and social environment of the particular region. Huge in-migration flow towards the first three EPZs in Katunayake, Biyagama and Koggala from all districts of the country fulfils the labour requirement of each EPZ. This huge flow of young male and female workers contribute to an imbalanced demographic pattern in the region, especially in the immediate neighbourhood of the EPZ. The present paper explores the population dynamics of three regions (Katana, Biyagama and Habaraduwa DSDs) and analyses the demographic characteristics of the EPZ workers living in the immediate neighbourhood. The GNDs were categorised into three levels according to the proximity to EPZ. Department of Census and Statistics, Sri Lanka provided necessary data (2001 and 2012). Primary data were gathered through a questionnaire survey directed to EPZ workers and informal interviews with native residents. Data analysis is based on SPSS (22), MS Excel and ArcGIS (10.1) using demographic measures and descriptive statistics. Findings reveal that there is a significant demographic imbalance and unusual demographic pattern in the immediate neighbourhood of each EPZ compared to the GNDs in the distance in terms of population distribution, population growth, age-sex distribution. A similar pattern could be identified among the EPZ workers to confirm the unusual pattern has been created by these workers. The significance of the unusual demographic pattern is lesser in Habaraduwa as the flow of in-migration is also lesser than in the other two regions. The flow of labour migration has brought positive impacts on the regional economy and adverse impacts on the socio-cultural environment of the region.

Keywords:
demographic characteristics, export processing zones, labour migration

Introduction

Export Processing Zone (EPZ) is defined by the World Bank (1992) as a fenced-in industrial estate specializing in manufacturing for exports that offer firms free trade conditions and a liberal regulatory environment. In the late 1970s, like many other developing countries, Sri Lanka entered the export-oriented industrial strategy by facilitating foreign direct investments in manufacturing industries located in EPZs. There were 293 foreign and local companies in 12 EPZs and Industrial Parks in Sri Lanka generating employment opportunities for over 126,366 workers under section 17, by the end of

2013 (Board of Investments of Sri Lanka (BOI), 2013). Seven of them are in the Western Province. As of March 2019, 14 EPZs and 1,700 companies were managed by the BOI[1] .

Employment creation is considered as one of the major goals and one of the most important contributions of any EPZ to the economy in a developing country. Since the labour force in the local region is insufficient to fulfil the labour demand of the EPZ, workers from different parts of the country migrate to these locations seeking employment opportunities. Accordingly, EPZs are seen as the main attraction for labour migration in Sri Lanka. Department of Census and Statistics (DCS) has identified the location of two EPZs in the Gampaha district as one of the causes for population increase in the district. As it has been mentioned, *"the worker in migration to the export processing zones in Katunayake and Biyagama located in the Gampaha district ..... could reasonably be attributed to the relative increase of population in the Gampaha district"* (p.37, DCS, 2012). Thus, the location of EPZ would probably influence the demography of a particular region. Also, DCS (2012) mentions that migration from other districts to the EPZs in Katunayake and Biyagama, the first and the second EPZs in Sri Lanka, has contributed to the comparatively high population growth visible in the Gampaha district (2.01% between 1981 and 2001; 1.67% between 1981 and 2012; 1.02% between 2001 and 2012). It has also resulted in the increase of population density in these regions. The huge volume of migrants contributes to the demographic, economic, social and cultural transformations in the destination. In contrast, such transformations would not be significant in the regions which attract a lesser volume of migrants as workers. Therefore, this study is based on three EPZs. Katunayake (KEPZ), Biyagama (BEPZ) and Koggala EPZ (KgEPZ), the third EPZ in Sri Lanka.

Katunayake is a populated suburban area in Gampaha District, Western Province, Sri Lanka. It belongs to Katana Divisional Secretariat Division (DSD) and Katunayake-Seeduwa Urban Council. KEPZ is the first EPZ established in Sri Lanka under the Greater Colombo Economic Commission (GCEC) in 1978 on 525 acres of land adjacent to Colombo International Airport and served by 39,525 employees of 89 companies. BEPZ is the second EPZ in Sri Lanka under GCEC in 1985. It is 24 kilometres away from Colombo and belongs to Biyagama DSD, Gampaha district, Western Province, Sri Lanka. The BEPZ comprises two individual blocks as Block A (371 acres) and Block B (79 acres) and 21,904 workers of 63 companies. With the new policy package announced in 1990, GCEC was restructured as BOI and empowered to establish EPZs in all parts of the country. Thus, KgEPZ was set up in Koggala, Habaraduwa DSD in Galle, Southern Province in Sri Lanka in 1991. It is 132 kilometres away from Colombo and 16 kilometres away from Galle, the main city of the province. The total area belonging to KgEPZ is 227 acres and there were 12,443 workers in 37 companies. While KEPZ has attracted the highest number of employees, the selected three EPZs account for 58.4% of the total EPZ employment. There is a difference in the male and female share in the three EPZs. The female employees are dominating in KEPZ (59.7%) and KgEPZ (73.0%), but male dominance is relatively significant in BEPZ with 56.5% male employees. The female proportion for the total EPZ workforce in Sri Lanka was 59.6%. Apparel companies dominate EPZ productions in Sri Lanka, especially in KEPZ (48.8%) and KgEPZ (65.4%). Other manufacturing industries are dominating in BEPZ (50.8%) and are increasingly important in KEPZ (45.2%) as well.

The male and female share of the EPZ employees and the sectoral composition of EPZ companies have formed the demographic structure of the migrated workers. It is important to explore how the flow of EPZ workers towards the particular regions has reshaped the demography in the regions,

[1]https://investsrilanka.com/wp-content/uploads/2021/09/2019.pdf

from where they have come, and what are the salient characteristics of the migrated workers. Mainly the researchers have paid attention to study social and health issues of the EPZ workers (mainly female workers) selecting KEPZ as a case study. Therefore, it is important to study the demographic characteristics and changes of the population determined by the workers' migration selecting three destinations with different migration patterns.

The objectives of this paper are to identify the population dynamics of Katana (KEPZ), Biyagama (BEPZ) and Habaraduwa (KgEPZ) DSDs and to analyse the demographic characteristics of migrated EPZ workers in three areas. This demographic change and its impact was analysed at the Grama Niladhari Division (GND) level emphasising the significance in the immediate neighbourhood (first tier) of the selected EPZs.

Literature review

The impact of EPZs is a core theme in empirical studies. According to the enclave model introduced by Warr (1989), the domestic economy only provides employees to EPZs while the provision of other components such as raw materials and capital goods remain uncertain. The economic impact of EPZs on the local and national economy and social impact of the EPZs are discussed by several scholars (Abeywardena et al., 1994; Amirahmadi and Wu, 1995; Kusago and Tzannatos, 1998; Madani, 1999; Jayanthakumaran, 2003; Hancock et al., 2004; Aggarwal, 2007). However, researchers have paid little attention to the aspect of the demographic impact of EPZs. Ranathunga (2011) has analysed rural to urban labour migration in Sri Lanka and sees the EPZs as the main attraction for temporary labour migration. At the beginning of KEPZ and BEPZ, all the workers were recruited from the surrounding area disregarding the age limit. Subsequently, the workers throughout the country were invited to accomplish the labour requirement generating large migratory flows into regions where EPZs are located. It has been revealed that 75 % of the workers are migrants who come from various districts (Dickmen, 1994). It is also noteworthy that these migrants sometimes permanently reside in the area by getting married to a native spouse or getting well settled with any other economic activity (Perera, 2004; 2019).

A similar situation in demographic changes is evident in some other countries. For instance, Guangdong province has reported the highest (27%) net inter-provincial migration in China during 2000-2005. While 22 National Development Zones (including EPZs) are in Guangdong province, it accounts for 37% (equals to 7,120,600) of total Foreign Funded Enterprises (FFEs) employment in China (Fu and Gao, 2007). Population composition, especially age composition and sex composition show a significantly different pattern compared to the national pattern due to the huge volume of the migration of young female workers.

Women have become the unintended beneficiaries of the formation of EPZs in developing countries since many might not have sought formal employment in the absence of EPZs. The existing literature suggests that women's share in total employment in EPZs is substantially higher than the share in the economy as well as the manufacturing sector outside the EPZs in developing countries. For example, women constitute 70 % of the workforce in Bangladesh's Chittagong EPZ, a much higher ratio than the national average (Madani, 1999). The share of women in EPZs in Sri Lanka accounted for 84.8% in 1992 where the women's share in all sectors in the economy remained at 46.4% by that time (Kusago and Tzannatos, 1998). However, it is noteworthy that the share of female workers in Sri Lankan EPZs is gradually decreasing (78% females by 2005 (ILO, 2007) and 59.6% females by 2012 (BOI, 2013).

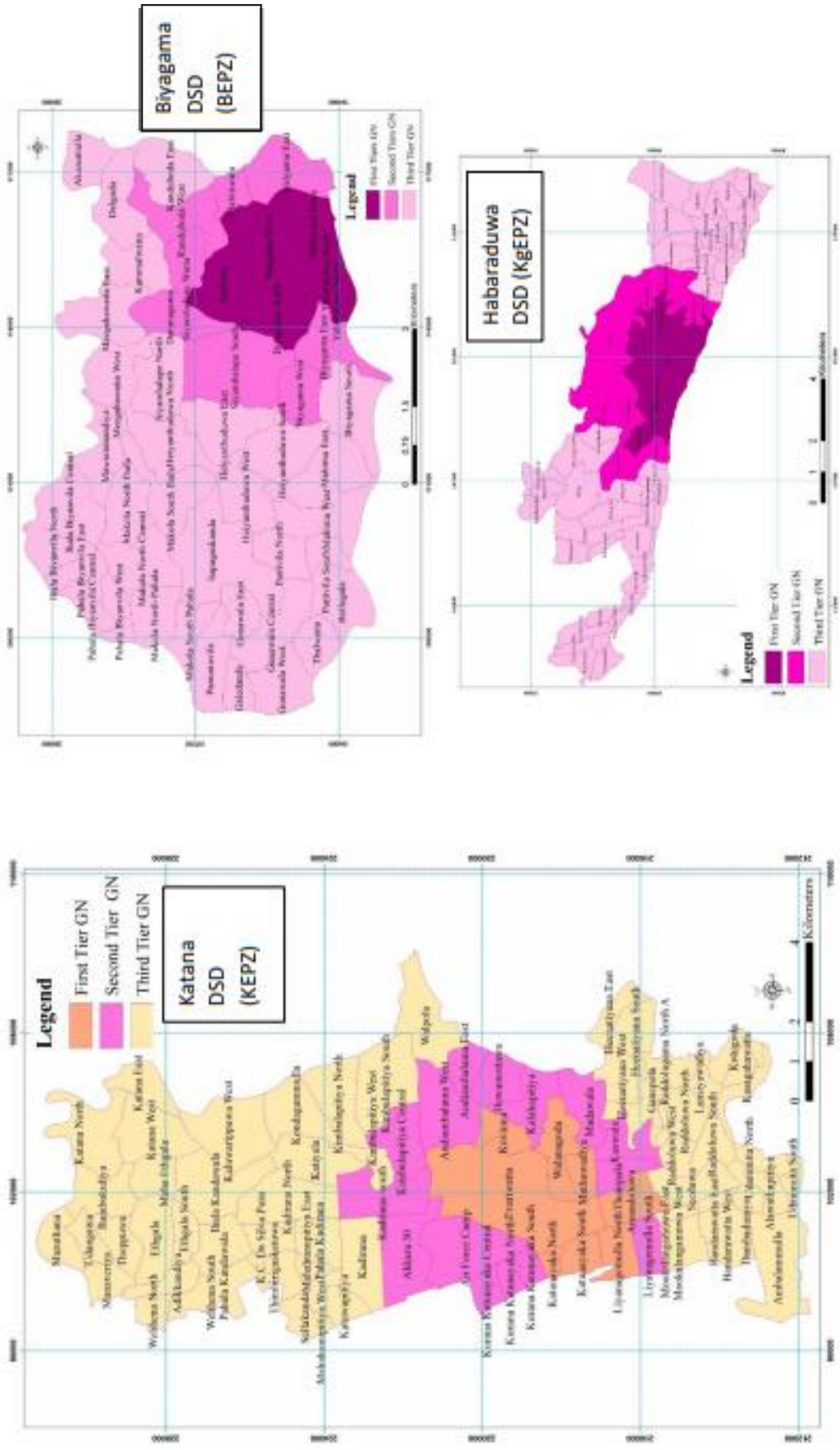

Figure 01: Categorization of the GNDs according to the proximity to the EPZ for the analysis
Source: Compiled by authors using Survey Department , 2013

Materials and methods

The GNDs belonging to the selected DSD were categorized into three tiers according to the proximity of the particular GND to the selected EPZ (Figure 01). The GNDs located within approximately two kilometers from the EPZ were categorized as the first tier and were regarded as the immediate neighbourhood of the EPZ. The GNDs located adjacent (sharing the same GND boundary) to the first tier GNDs were categorized as the second tier and the rest of the GNDs in the particular DSD were considered as the Third tier. These three spatial dimensions were used in the analysis of census data. Primary data collection was limited to 19 GNDs belong to the immediate neighbourhood (eight from Katana, six from Biyagama and five from Habaraduwa).

The study employed a mixed-method using both quantitative and qualitative methods. The main sources of secondary data were the DCS (2001;2012, published and unpublished data) and BOI (2013, unpublished data) to analyse the population dynamics in relevant DSDs. Primary data were gathered through a questionnaire survey directed to EPZ workers (N=275) in three areas (as a part of the doctoral research of the first author) using a simple random sampling technique, and informal interviews with native residents. Primary data were used to analyse the demographic characteristics of migrated EPZ workers in three areas. The time frame for the collection of field data was from October 2013 to April 2016. Preliminary observations regarding the occupation categories in the census data (DCS, 2001) confirmed that the majority of the employees in the selected GNDs belong to the machine operators and assembly line workers' category. The total number of machine operators and assemblers living in the selected 19 GNDs was 8,973 and the sample percentage was 3%. Since a list of EPZ workers residing in each GND was not available, the list of households (DCS, 2001) was used as the sample frame for selecting the respondents. Data analysis and presentation are based on SPSS (22), MS Excel and ArcGIS (10.1). Demographic measures (average annual growth rate, sex ratio, age-sex pyramids) and descriptive statistics were used in the analysis.

However, the influence of the methodological adjustments of the national census enumeration, from *de facto* to *de jure*, in 2012 on the results of this study cannot be excluded. There would be a considerable possibility to exclude temporary residents (migrants) from the census 2012 and the variations between 2001 and 2012 had to be identified in this context.

Results and discussion

The findings of the study are presented along with the discussion in this section. Firstly, the dynamics of the population in selected DSDs and GNDs concerning population distribution, population change, the age-sex structure of the population have been analysed. Secondly, the population characteristics of EPZ workers were analysed to ascertain the significance of the flow of workers' migration to the first tier GNDs. Informal interviews with native residents were used to confirm the findings derived from secondary data and the questionnaire survey.

Population dynamics of the selected regions

Total population and population distribution

Figure 02 and Figure 03 compare the total population in selected DSDs and the first tier GNDs in 2001 and 2012. There was an increase in population from 2001 to 2012 in three DSDs similar to the national pattern. In contrast, the first tier GNDs in three regions show a population decrease in 2012 compared

to 2001 with the most significant change in Katana DSD. These figures further suggest that the impact of the exclusion of a part of temporary residents, the EPZ workers, in these GNDs in the 2012 census.

Katana has been reported as the most populous DSD in the Gampaha district. The population in Katana DSD in 2001 (222,683) was equivalent to 10.8% of the district population and 10.2% share in 2012 (235,291). There is a considerable concentration of population of Katana DSD in the first tier GNDs in 2001(22.6%) and 2012 (16.2%). The highest population share was reported from Evariwatta GND (5.9%) in 2001, although approximately half of the land belongs to KEPZ and Katunayake International Airport. Amandoluwa GND reports the highest population in Katana DSD (8,538) in 2012 (DCS, 2012).

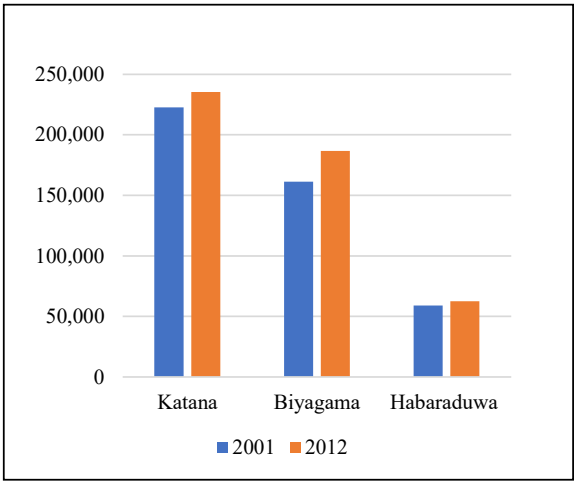

Figure 02: Population in DSDs (2001-2012)

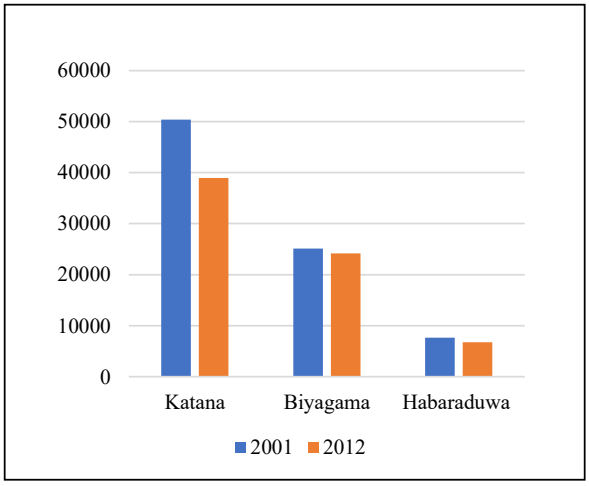

Figure 03: Population in first tier GNDs (2001-2012)

Source: Compiled by authors based on Department of Census and Statistics (DCS) (2001, 2012)

GNDs belong to the first tier in Biyagama DSD contribute 15.6% of the total population of the DSD in 2001 with a decrease to 12.9% in 2012. Walgama West GND has recorded the second highest population in the DSD (Sapugaskanda GND, where the oil refinery is located, made the highest share of population) in 2001. Population distribution in Habaraduwa shows a dispersed pattern. Six GNDs in the first tier accounted for 13.1% population concentration of the DSD in 2001 and it has decreased to 10.8% in 2012. Although the KgEPZ belongs to Koggala GND, the highest population distribution is reported from Koggala Athireka II GND in Habaraduwa DSD in 2001.

The population growth between 2001 and 2012

According to the general pattern in Sri Lanka, the population is increasing. However, the GNDs located in the immediate neighbourhood of the EPZs have disclosed a different pattern of population decrease. Due to the change of enumeration method from *de facto* (census moment) to *de jure* (usual residents), a part of migrated EPZ workers could be excluded from the population of these GNDs. Average annual population growth rates (2001-2012) for GNDs, DSDs and three tiers were computed (in MS Excel) using the compound interest formula presented by Bogue (1969, p.35) based on DCS (2001 and 2012). Figure 04 illustrates the population growth in Katana DSD, Figure 05 shows the population growth in Biyagama DSD and population growth in Habaraduwa DSD is shown in Figure 06. Katana, Biyagama and Habaraduwa DSDs showed a similar pattern of population change between 2001 and 2012 with minus growth in the first tier.

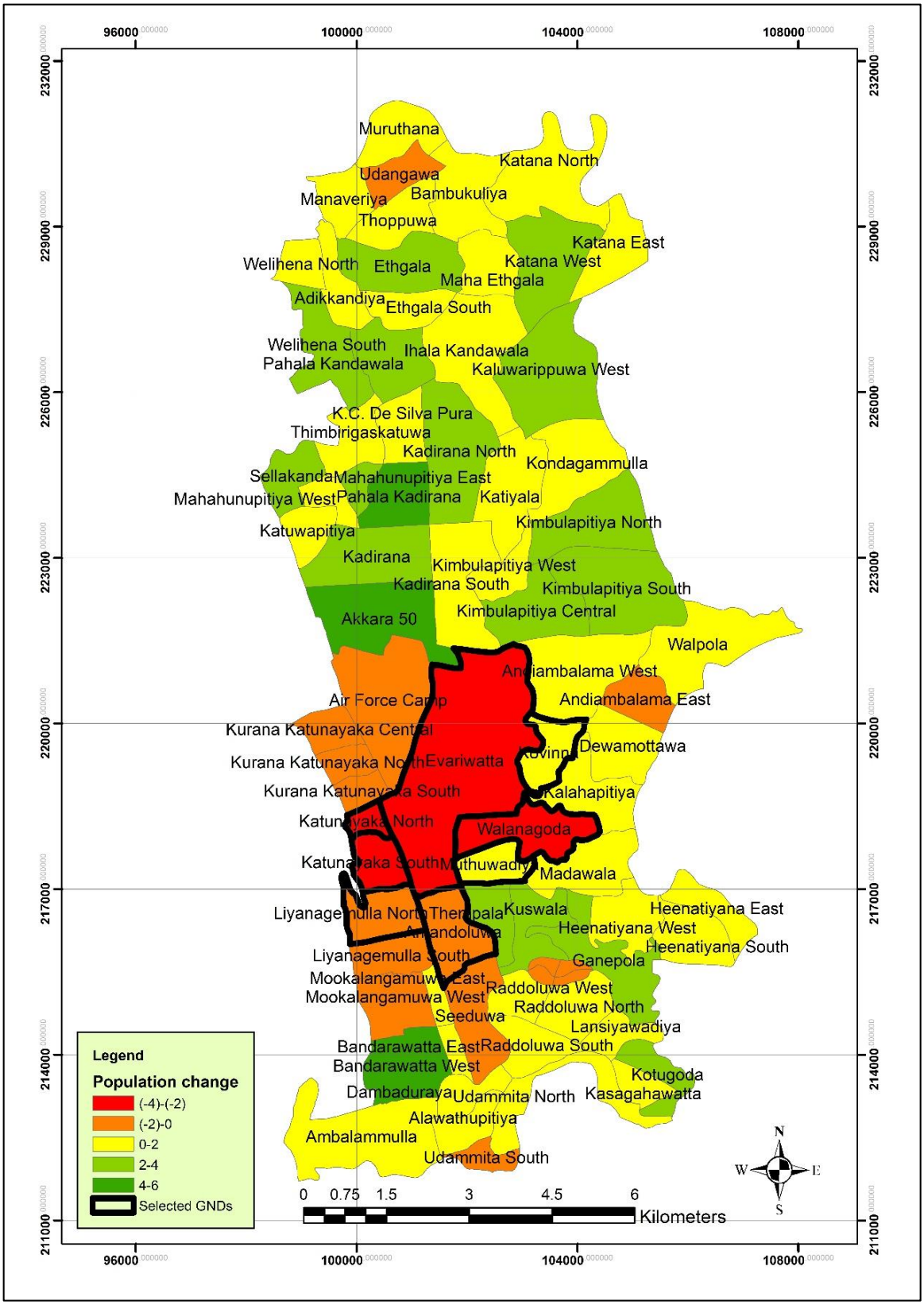

Figure 04: Annual population change in Katana DSD between 2001 and 2012
Source: Compiled by authors based on DCS (2001, 2012)

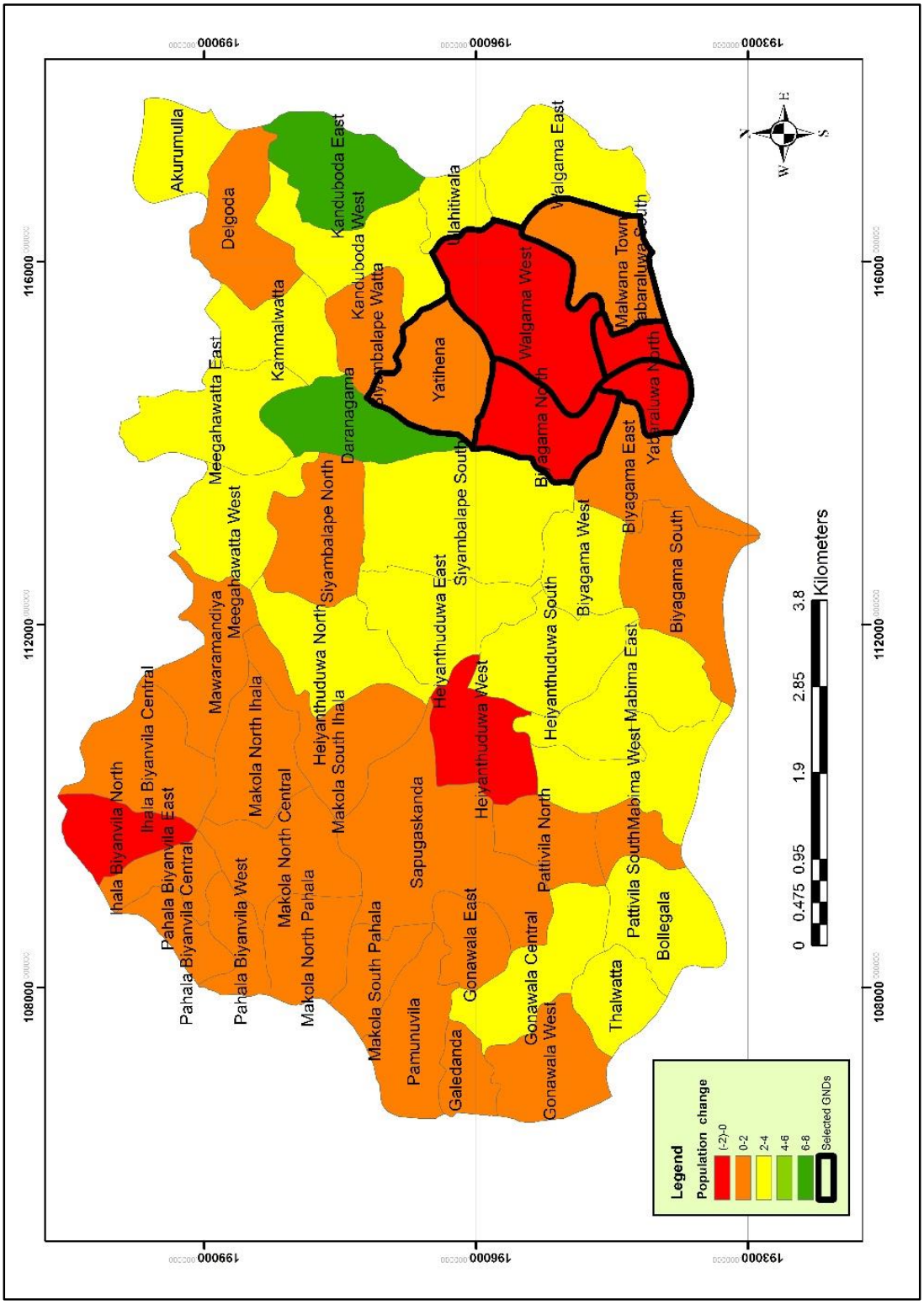

Figure 05: Annual population change in Biyagama DSD between 2001 and 2012
Source: Compiled by the authors based on DCS (2001, 2012)

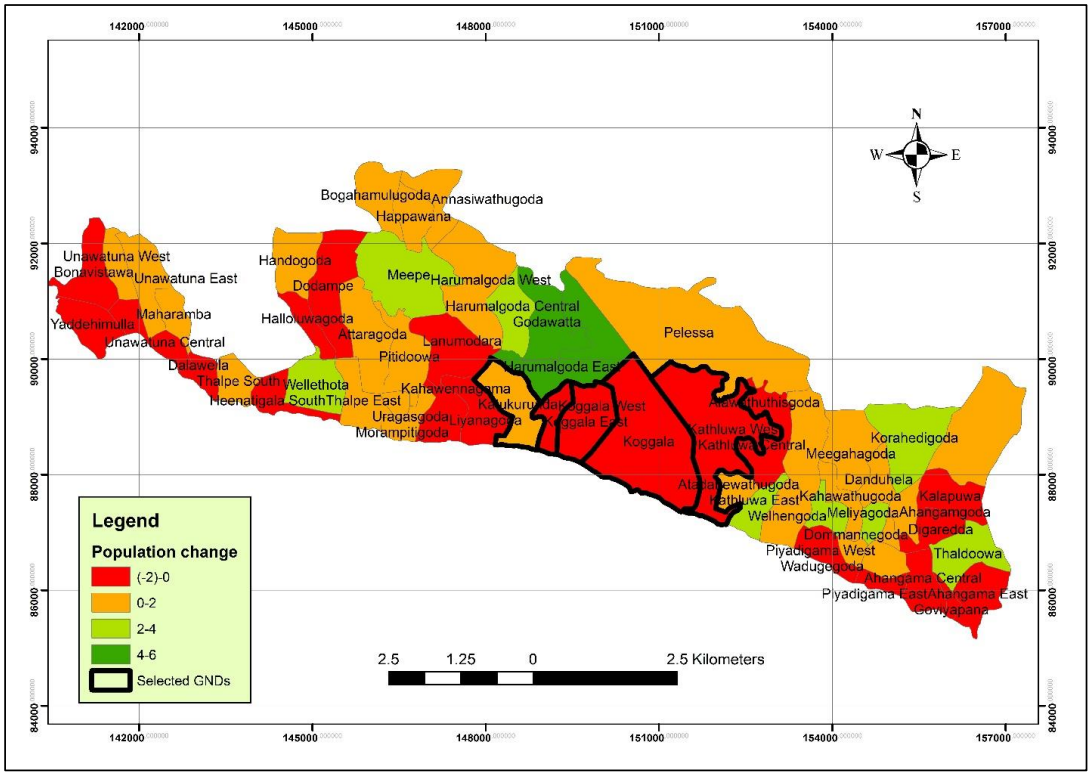

Figure 06: Annual population change in Habaraduwa DSD between 2001 and 2012
Source: Compiled by the authors based on DCS (2001, 2012)

As indicated in Table 01, the cluster of the first tier (selected for primary data survey) GNDs belonging to each EPZ, generally showed a decrease of population in terms of population size and annual growth rate between the year 2001 and 2012. The population change in the first tier GNDs significantly differs from the other GNDs. This unusual population change may be a result of the exclusion of temporary inhabitants in the census enumeration. The increase of population is noticeable in second and third tier GNDs in three regions. Evariwatta reported the highest annual change of population -5.9% among the 19 GNDs belonging to the first tier followed by Koggala and Yabaraluwa North reporting the highest change in the particular DSD.

Table 01: Population change and average annual growth rate of the population by proximity to the EPZ (2001-2012)

DS division	First tier		Second tier		Third tier		DS division	
	Population change	Average annual growth rate (%)	Population change	Average annual growth rate (%)	Population change	Average annual growth rate (%)	Population change	Average annual growth rate (%)
Biyagama	-973	-0.36	3,339	2.13	22,919	1.56	25,285	1.33
Habaraduwa	-925	-1.16	1,750	1.67	2,523	0.52	3,348	0.50
Katana	-11,486	-2.32	2,782	0.51	21,312	1.45	12,608	0.50

Source: Calculated by authors based on DCS (2001, 2012)

The first tier in Katana has reported minus growth except for Kovinna and Muthuwadiya. Yabaraluwa North GND has reported the highest change with an annual decrease of -2.0% in Biyagama DSD. On the other hand, the highest increase of population was reported in Malwana town where the Muslim ethnic group dominates the population. The first tier of Habaraduwa except Katukurunda has shown a decrease in annual growth rate between 2001 and 2012. Koggala GND has reported the highest population change with annual growth of -3.1%. There is a significant correlation between population growth and row/ line houses.

Thus, as the proximity to EPZ increases change in the population is more evident. A similar pattern of population change could be identified among the first tier GNDs in the three regions. The highest population change was reported from the closest GND which has the highest impact due to the availability of temporary migrants as EPZ workers. This numerical change is not a result of an actual population decrease but a result of enumeration changes of the census in 2012 as confirmed by the native residents.

Distribution of row/line houses and EPZ workers

The impact of workers' migration on demographic changes in these areas can be analysed with the distribution of the particular housing unit, row/ line houses. According to the observations and the empirical research, it is obvious that the migrated EPZ workers reside in row/ line houses. Therefore, a relationship between row/ line houses with population distribution and growth could be identified. While Gampaha district accounts for 10.8% of row/ line houses in Sri Lanka, Katana and Biyagama DSDs concentrate 77.5% of the row/ line houses in the Gampaha district. Population growth and the percentage share of the row/ line houses in three DSD by proximity to the EPZ are shown in Table 02.

Table 02: Annual population growth and distribution of row/ line houses by proximity to the EPZ (2012)

DSD	Annual population growth (%) 2001-2012			Row/line houses within DSD (%) 2012		
	1st tier	2nd tier	3rd tier	1st tier	2nd tier	3rd tier
Katana	-2.32	0.51	1.45	69.0	19.7	11.3
Biyagama	-0.36	2.13	1.56	67.0	17.8	15.2
Habaraduwa	-1.16	1.67	0.52	7.7	46.1	46.2

Source: Compiled by authors based on DCS (2001, 2012)

Accordingly, the first tier accounts for the highest decrease of the population with minus population growth and the highest concentration of row/line houses within the DSD in three areas. Thus the concentration of migrated EPZ workers in the first tier is significant. Although the BEPZ is located in Walgama West GND the impact of migration of EPZ workers was more evident in Yabaraluwa North. Native Muslim residents, especially females, do not serve the BEPZ unless for a higher position. The availability of boarding houses in Malwana is negligible (1.1%). According to the native residents in the three regions, between 70% and 90% of the native families have built line rooms to facilitate the tenants (EPZ workers). The number of tenants exceeds the native population specially in the Katunayake region. However, most of the boarders in the Koggala area stay in in-house rooms while labour migration is significantly decreasing.

Age composition in the selected regions

As per the existing literature, EPZs attract young male and female groups as their workers from various parts of the country. This flow of the young population to a certain area contributes to a significant change of age and sex structure of the region. The first tier and some of the second tier GNDs have disproportionately converged age groups 20-24, 25-29 and 30-34. But the third tier demonstrates a pattern similar to the national age-sex structure. Age-sex pyramids for the three tiers (2012) in three regions are graphically shown in Figure 07 to confirm this situation.

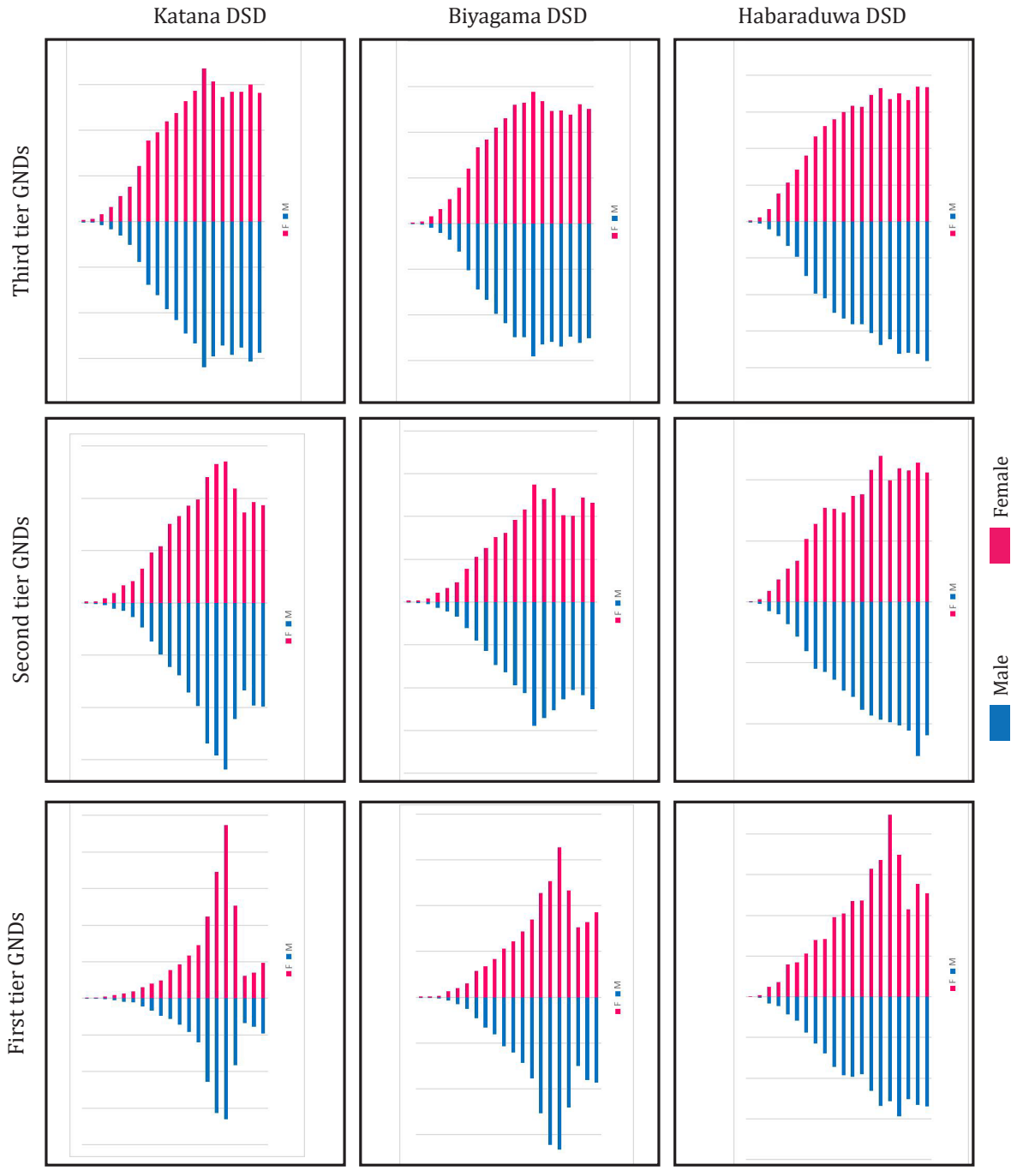

Figure 07: Age-sex pyramids of three tiers in Katana, Biyagama and Habaraduwa DSDs, 2012
Source: Compiled by authors based on DCS, 2012

Evariwatta contributes to 28% of the total female population in Katana DSD. The male counterparts contribute 23.9%. Similarly, 20.2% of the female population and 18.9 % of the male population belong to the 20-24 age group in Biyagama DSD converged in Walgama West. Compared to the other two regions, the variations in Habaraduwa DSD are slightly different. Although the concentration of the young population in the first tier in Koggala is noticeable, the difference is relatively less. This confirms that workers' migration has reshaped the age distribution in these regions, especially in Katunayake and Biyagama.

Sex composition in the selected regions

The demographic impact of EPZs can be analysed further by considering the sex imbalance in the immediate neighbourhood using sex ratios. The sex ratio refers to the number of males per 100 females of a given population. According to the demographic explanations regarding sex ratio, it normally ranges between 95-105 with slight changes at both ends. In 2012, the sex ratio in Sri Lanka was 93.8 males per 100 females.

The calculated (in MS Excel) sex ratios for the first tier GNDs in 2001 and 2012 are shown in Table 03 to explore the sex imbalance in the region where young female labour is dominating. Sex ratios in the first tier GNDs are significantly lower than the national level, district level and DSD level. The lowest sex ratios were reported in Katana DSD in 2001 and Habaraduwa DSD in 2012. The unusual female share in the first tier GNDs is more obvious in 2001. The feminisation of the population was more significant even beyond the immediate neighbourhood of KEPZ. The increase of the share of male workers in BEPZ (as revealed through BOI, 2013) is represented by the higher sex ratios in 2012 than in 2001 in the first tier in Biyagama DSD. An increase of the sex ratio from 2001 to 2012 is observable in three regions, particularly in the first tier GNDs in Biyagama DSD. Walanagoda GND (Katana) reports the lowest and the most unusual sex ratio among all the first tier GNDs both in 2001 (29.9) and 2012 (60.0). This can even be the lowest sex ratio reported in Sri Lanka at the GND level. Katana contributes to the highest population (235,291) and the lowest sex ratio (92.1) in the Gampaha district at the DSD level in 2012, probably because of the demographic impact of KEPZ female workers.

The female dominance of the population was confirmed by the native residents as well. The young males in the region easily find a female partner and marry at a relatively lower age. The bazaar near the KEPZ and other business activities such as jewellery shops and salons provide evidence for this demographic characteristic.

Demographic characteristics of the EPZ employees

The characteristics of the EPZ employment were analysed by several variables i.e., place of residence, age, sex, occupational categories, education level, marital status and worker category. The EPZ workers in the sample were categorized into migrated workers (240 cases) and native workers (35 cases) according to their permanent residence. EPZ workers who resided in a temporary address (in a boarding house or hostel) were categorised as migrated workers. If the respondent worker was permanently residing in the particular GND, they were categorised as native workers.

Sex composition of the EPZ employees

By the year 2012, the decrease of female proportion is observed, but the degree of the decline varies by EPZ and by employment category. The number of employees by sex in the three EPZs is shown in Table 04.

Table 03: Sex ratios of the first tier GNDs in 2001 and 2012

District, DSD and GND	Sex ratio 2001	Sex ratio 2012
Sri Lanka	104 *	93.8
Gampaha district	95.4	94.0
Katana DSD	81.7	92.1
Kovinna	59.9	85.2
Evariwatta	71.9	69.4
Katunayake North	76.5	98.5
Katunayake South	36.1	81.7
Walanagoda	29.9	60.0
Muthuwadiya	59.6	98.0
Liyanagemulla North	68.6	100.6
Amandoluwa	46.6	87.6
Average in the first tier GNDs	**56.1**	**85.1**
Biyagama	93.0	97.5
Yatihena	89.3	106.7
Walgama West	97.6	109.8
Biyagama North	76.0	102.0
Yabaraluwa North	74.7	101.7
Yabaraluwa South	59.9	107.8
Malwana Town	68.7	99.1
Average in the first tier GNDs	**77.7**	**104.5**
Galle district	94.7	92.1
Habaraduwa DSD	88.6	90.2
Katukurunda	86.0	86.6
Koggala Athireka I	62.7	82.0
Koggala Athireka II	67.9	81.3
Koggala	92.3	74.8
Kathaluwa West	70.4	96.4
Average in the first tier GNDs	**75.8**	**84.2**

** Sex ratio of 1981, due to unavailability of data for 2001*
Source: Calculated using DCS (2001, 2012)

Table 04: Number of employees in selected EPZs by sex, 2013

EPZ	Male		Female		Total number of employees
	Number of employees	Percentage	Number of employees	Percentage	
Katunayake	15,825	40.3	23,427	59.7	39,252
Biyagama	12,272	56.5	9,442	43.5	21,714
Koggala	3,243	27.0	8,752	73.0	11,995
Total	**31,340**	**43.0**	**41,621**	**57.0**	**72,961**

Source: Compiled based on Board of Investments, 2013

Female domination in KgEPZ is higher (73%) than other EPZs while the females contribute 59.7% of the labour force in KEPZ. According to BOI (2013), 56.7% of the workers in BEPZ are males. One of the possible reasons for this change is the transformation of the structure of industrial activities in BEPZ. While the apparel companies are declining, other manufacturing companies which seek more male workers are increasing. Most of the females in three EPZs engaged in apparel sector companies (75% females in KEPZ, 63% females in BEPZ and 91% females in KgEPZ) (BOI, 2013).

The male and female share of the sample EPZ workers confirm this situation further. Forty percent of the sample were males and 58.9% were females. The highest female share was observed in Koggala (85.2%), and the highest male share was observed in Biyagama (54.1%). The sex composition of EPZ workers varies by category (migrated workers and native workers) and by EPZ as shown in Figure 08.

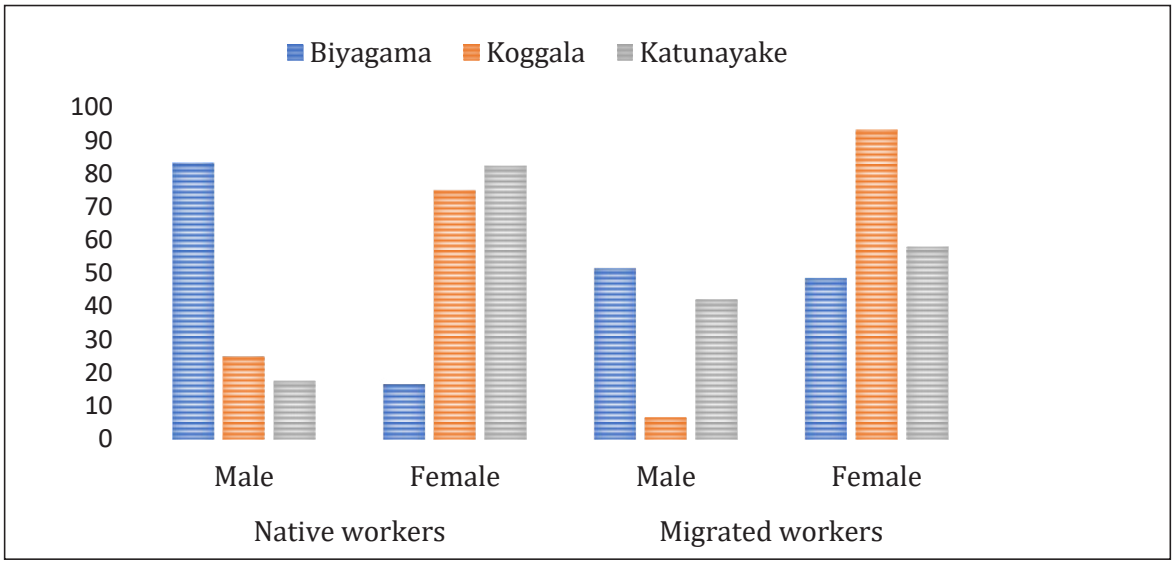

Figure 08: Sex composition of native workers and migrated workers by EPZ, 2016
Source: Perera, 2019

There was a lesser proportion of female native workers (16.7%) than male native workers (83.3%) in Biyagama while the male share in migrated workers was 51.5% and 48.5% in females. In contrast, female migrated workers' share (93.3%) was much higher than male migrated workers' share in Koggala. Similarly, female dominance in native workers (75%) is significant in Koggala as well as in Katunayake with 82.4% of native female workers. There were more female workers (58%) among migrated workers in Katunayake as well. Variation of the male and female share by EPZ and the worker category is not significant at 0.05 significance level (χ^2 (1)>=1.547, p=0.214).

Age composition of EPZ employees

The EPZ workers were categorised into five age groups and the age composition of workers is shown in Table 05. Most of the workers in the sample (71.6%) belonged to two age groups 20-24 and 25-29 in three regions. A statistically significant association (α=0.05) was found between the category of workers (native and migrated) and the age groups of the workers (χ^2(4)>=39.159, p=0.000). The differences in the age distribution between native (local) and migrated workers are shown in Figure 09.

Accordingly, most of the migrated workers belonged to the age group 20 to 24 while most of the native workers belonged to the 25 to 29 age group. Thus, the age distribution of native workers has skewed towards the 25 to above 35 age groups and the age distribution of migrated workers has skewed at

the 20 to 29 age groups. Workers who belonged to age below 19 years were mainly migrated workers, specially in KEPZ and BEPZ. Therefore, it is observed that the concentration of young and female population as the EPZ workers may result in an unbalanced age and sex structure in the first tier, the immediate neighbourhood of EPZs.

Table 05: Age composition of EPZ workers (%), 2016

Age group	EPZ			Total (%)
	Biyagama (%)	Koggala (%)	Katunayake (%)	
Below 19	14.9	3.7	5.7	8.0
20-24	45.9	44.4	35.1	38.9
25-29	23.0	37.1	36.2	32.7
30-34	13.5	3.7	13.2	12.4
Above 35	2.7	11.1	9.8	8.0

Source: Perera, 2019

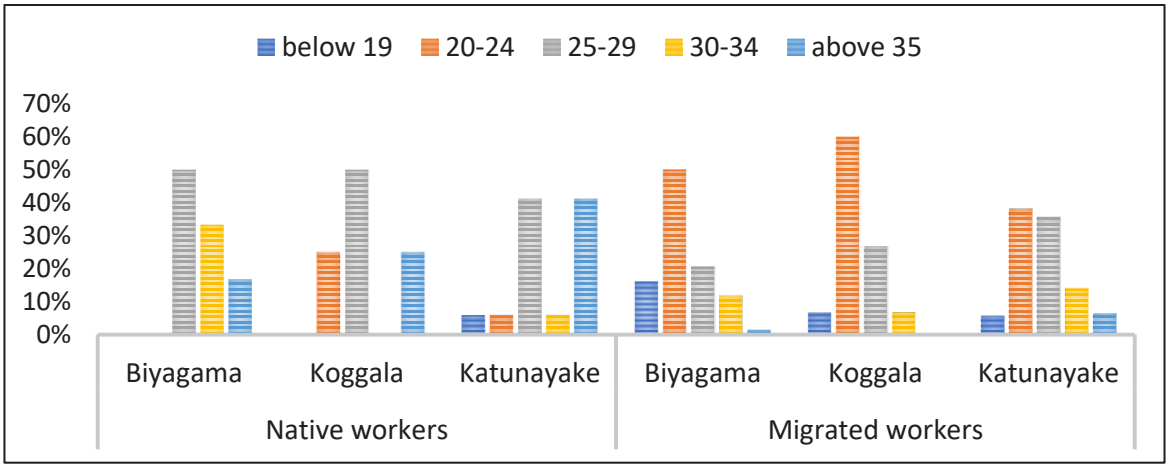

Figure 09: Age groups of the native and the migrated EPZ workers, 2016
Source: Perera, 2019

Level of education of the EPZ employees

The highest education level obtained by the workers is shown in Figure 10. Accordingly, 60% of the workers had passed the General Certificate of Education (G.C.E.) Ordinary Level (O/L) examination and another 27.6% of the workers have done G.C.E. Advanced Level (A/L) examination.

The EPZ workers are, therefore, moderately educated (completed G.C.E. Ordinary Level) although the EPZ companies mainly seek unskilled labourers and trainees equivalent to 18.6% of the total EPZ workforce (BOI, 2013). There is no significant difference between native and migrated categories or sex in this regard.

Marital status of the EPZ employees

The EPZ companies prefer unmarried persons as indicated in the literature. The workers in the sample revealed that married persons, as well as single persons, are engaged in EPZ employment. A higher proportion of migrated workers were single (58.8%) while most of the native workers (74.3%) are married as indicated in Table 06.

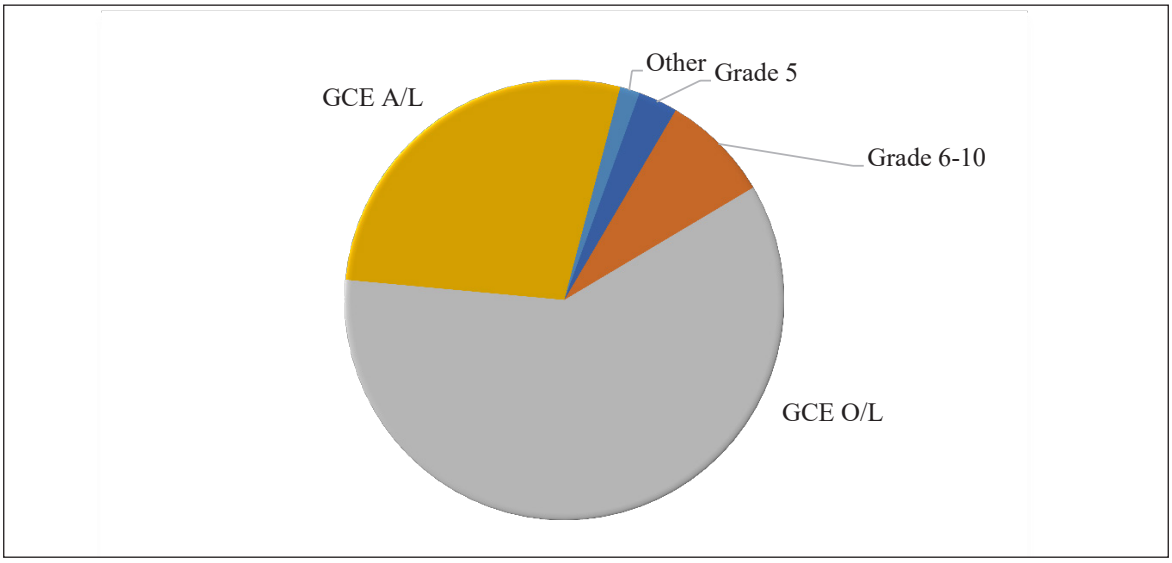

Figure 10: Education level of the EPZ workers, 2016
Source: Perera, 2019

Table 06: Marital status of EPZ employees, 2016

Marital Status		Category		Total
		Native workers	Migrated workers	
Single	Number	9	141	150
	Percentage	25.7	58.8	54.5
Married	Number	26	99	125
	Percentage	74.3	41.3	45.5
Total	**Number**	**35**	**240**	**275**
	Percentage	**100.0**	**100.0**	**100.0**

Source: Perera, 2019

Marital status does not show a significant difference by sex, where 54.9% of the male workers and 54.3% of the female workers are single. This pattern is similar in the three regions.

Place of origin of migrated EPZ employees

The migration pattern of the workers in selected EPZs could be identified through the questionnaire survey. Workers had gathered to EPZs from various districts and provinces of the country. Figure 11, which consists of three pie charts for three EPZs, shows the contribution of eight provinces (except the North province) in sending employees to each EPZ.

Accordingly, KEPZ and BEPZ had converged workers from all provinces. Most of the workers have migrated from Sabaragamuwa, Central and North Central provinces to KEPZ and BEPZ. The KEPZ has attracted more workers from North Central and North Western provinces than BEPZ and KgEPZ. On the other hand, Biyagama has more workers from Uva province than KEPZ and KgEPZ. This pattern explains the role of accessibility to particular EPZ. The KEPZ has more accessibility from North Central and North Western provinces. Similarly, workers from the Uva province have easier access to BEPZ than other EPZs. The KgEPZ has converged 96% of the workers from Southern province and the rest from Sabaragamuwa.

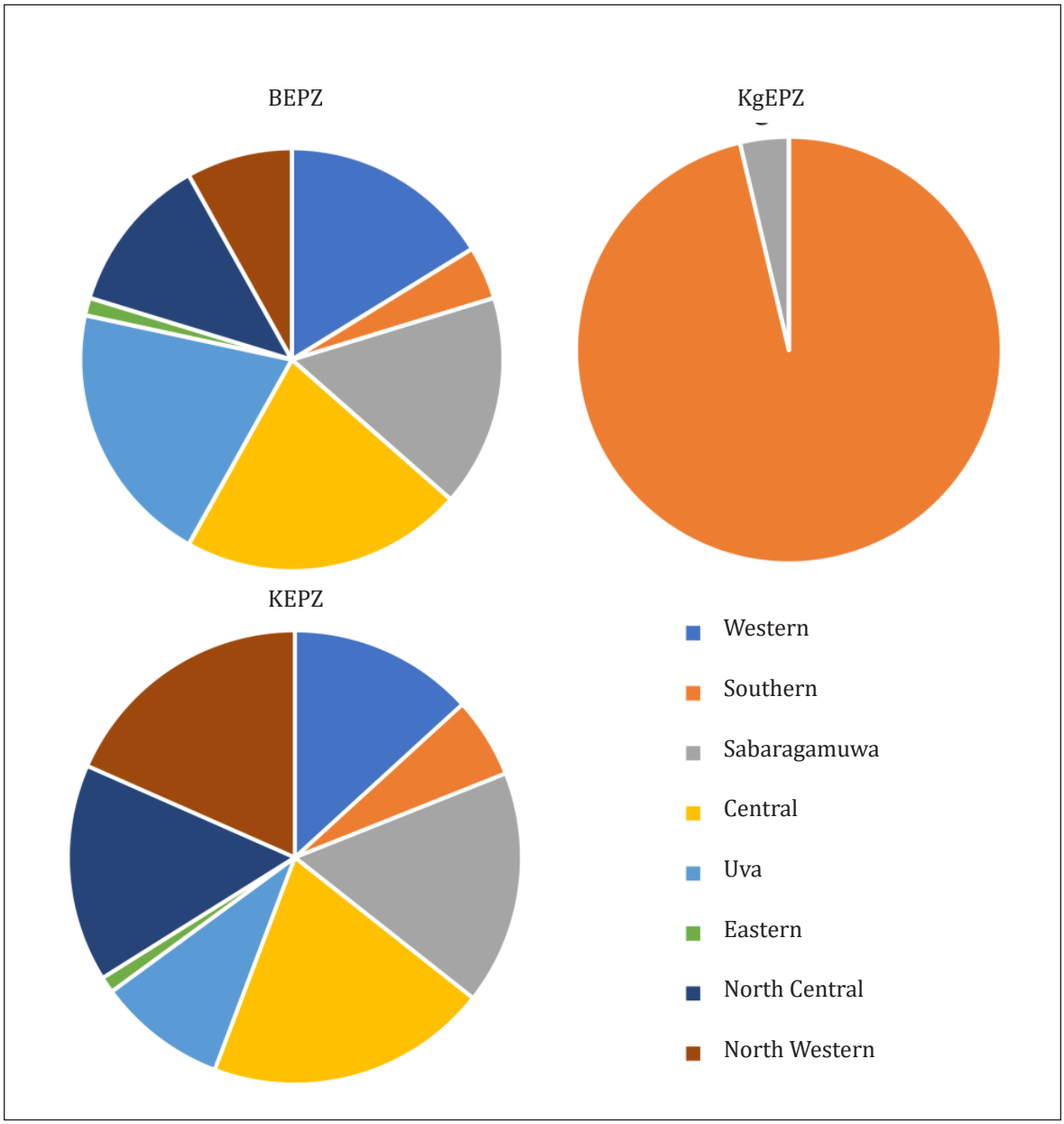

Figure 11: Place of origin of the migrated workers of the EPZs by province, 2016
Source: Perera, 2019

No workers from the Northern Province were reported in the sample but the residents revealed that there is a tendency of migration of male and female workers from the Northern Province to the KEPZ and BEPZ. Especially Tamil-speaking male workers have migrated to the Biyagama area through manpower business. In addition, rehabilitated LTTE carders were settled in hostels run by the companies in Katunayake. Since the p-value is less than the chosen significant level (α=0.05), there is significant evidence to suggest an association between the EPZ and the place of origin (province) ($\chi^2(14)>=176.723$, p=0.000).

As revealed in the questionnaire survey, 4.4% of the migrated workers in BEPZ and 2.6% of the migrated workers in KEPZ were Tamil but they were from Nuwara Eliya and Badulla districts. Although few other Tamil workers (from the North) were included in the sample, they were not willing to communicate

due to the language problem. Therefore, the actual percentage of workers from the Northern districts is not represented in the given figures.

The residents revealed that not only the workers but also different kinds of businessmen also have migrated from other districts. Many migrated workers and businessmen (mostly married to a partner from the local region) have become permanent residents of the area.

Impact of labour migration

Migrated workers changed not only the demography of the regions but also brought social, economic and environmental impacts to the regions. The available employment opportunities in the EPZs have not been attracted the native people. But the EPZ workers migrated from other parts of the country have generated a treasure for the native residents. They acquired the opportunity to generate a higher income by providing accommodation, meals, retailing, transport and other services to EPZ workers. However, most of these opportunities are gradually fading because of the recent changes in the EPZ activities (such as corporate social responsibility (CSR) strategies and the manpower business) in Biyagama and due to the decrease of labour migration in Koggala. Migrated workers have re-shaped the socio-cultural environment of the region. The native people in Katunayake and Biyagama, perceive this socio-cultural change as a completely negative impact of the EPZ. Several scholars (Hettiarachchi,1994; Hettiarachchi and Schensul, 2002; Hevamanne, 2003) have explored the behavioural concerns of migrated EPZ workers. Residents of Koggala revealed that workers' behaviour has not created significant social issues in the region since the origin of the migrated workers in Koggala is limited to the Southern province itself. The increase of population density due to the workers' migration is resulted in environmental issues such as garbage disposal, but not that significant.

Conclusion

Demographic characteristics of the region were explored with several aspects in this paper to investigate how the EPZ workers' migration has reshaped the demography of the region. The analysis was based on DCS (2001 and 2012) published and unpublished data to identify the population dynamics of three DSDs and the questionnaire survey assisted to analyse the demographic characteristics of migrated EPZ workers in three areas.

A significant concentration of total population in Katana and Biyagama DSDs and dense population distribution in the first tier, the immediate neighbourhood of the EPZ, was identified. The population growth and change between 2001 and 2012 were affected by the change of the enumeration method of the census in 2012 but the negative growth of population in the first tier represents the exclusion of part of the migrated EPZ workers. According to the observations and residents' views, migrated EPZ workers live in row/ line houses. The distribution share of the row/ line houses in the first tier in Katana and Biyagama DSDs is extremely significant. A convergence of population belongs to 20-24, 25-29 and 30-34 age groups in the first tier is also significant. The second tier in Katana and Biyagama demonstrates an unusual age-sex structure while the age-sex pyramid of the third tier demonstrates a pattern similar to the national age-sex pyramid. The number of males per 100 females of the first tier is significantly lower than the national level in 2001. The same pattern is visible in the first tier in Katana and Habaraduwa, while more males are reported in the first tier GNDs in Biyagama in 2012. These demographic characteristics could be further confirmed by the sample survey of EPZ workers living in the first tier. The sex and age composition of the sample shows a similar pattern. More females in Katana and Habaraduwa first tier and more males in Biyagama. Most of the migrated workers belong

to the 20-24 age group followed by 25-29. Most of the native workers belong to the 25-29 group. Most of the workers have passed the GCE Ordinary Level examination followed by GCE Advanced level. While the majority of the migrated workers are not married, the majority of the native workers are married. The place of origin of the EPZ workers in Katana and Biyagama showed a pattern that attracts workers from every province of the country except the North. Such attraction for workers' migration is not observable in Habaraduwa and therefore, the demographic impact of KgEPZ is relatively low. Thus, this paper concludes that the migration of young male and female EPZ workers has re-shaped the demographic characteristics of the immediate neighbourhood of the EPZ. These workers have re-shaped the economy, social structure, social values and environment of the region while becoming vulnerable to socio-cultural issues. If the government facilitates workers' migration with a suitable plan, both workers and the residents of the region would be benefitted.

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