Social and Ethnic Segregation of Muslim community in Matara District, Sri Lanka

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Abstract— **This paper discusses the process and characteristics of social and ethnic segregation in Sri Lankan Muslim community. The research is aimed at analyzing the ethnic segregation of Muslim community in Matara district. A sample survey to investigate the segregation process and its characteristics was conducted in two DS divisions selected based on the index value and Muslim population density. The Study revealed that the causes of segregation were their higher birth rate and weak economic status which led to vertical segregation of Muslim community in Weligama and Welipitiya DS Divisions. The dissimilarity index, which is a primary statistical measurements of segregation provided evidence of a high Muslim segregation in Matara.**

Keywords- Social and Ethnic segregation; Muslims; dissimilarity index; Matara

I. INTRODUCTION

Ethnic diversity, segregation, and fractionalization have long been thought to play a critical role in the socioeconomic structure and overall stability of many developing countries. Studies based on cross-country regressions generally point to a detrimental effect of ethnic diversity on economic performance (Easterly and Levine, 1997; Collier, 1998). Many experts believe that ethnic segregation in Sri Lanka has depicted variations over the time (Manawadu, 2006). Among all ethnicities, Muslim segregation has been the most evident and the cause for many sociological changes over the last decade. Segregation process covers both segregation due to immigration and higher number of birth rate in a community. Segregation process consists of four fundamental components known as security function, transformation function, proactive function and attacking function (Boal,1972). Segregation process in urban or sub-urban areas are generally based on fourteen facts including social capital, employment, identity, housing stock, social welfare, education, inclusiveness, economy and trust (Legeby, 2010).

II. METHODOLOGY

Segregation process study methodology has evolved from Chicago school of thought of anthropology and sociology to modern statistical techniques and micro modeling on human behavioral patterns. This study involved parts of all three methodologies. Segregation can be quantified under five different dimensions namely evenness, exposure, concentration, centralization and clustering. This study has used the dimension of evenness to measure the segregation (Duncan &Duncan.1955).

Dissimilarity index is the most commonly used evenness indicator (White,1983). Conceptually, dissimilarity measures the percentage of a group's population that would have to change residence for each neighborhood to have the same percentage of that group as the overall. The index ranges from 0.0 which is a complete integration to 1.0 a complete segregation and a value over 0.5 indicates that the area is already segregated (Duncan & Duncan.1955; Duncan, & Lieberson,1959; Massey & Denton, 1989).

Using general census data of Sri Lanka 2011, Matara district segregation index was calculated.

$$\text{Dissimilarity Index} = \frac{\sum_{i=1}^{n}\left[t_i \left| (p_i - P) \right| \right]}{[2TP(1 - P)]}$$

T – Total Population
P – Ratio of Minority to Total Population
ti - Total Population of the ith Track
pi – Ratio of Minority to Total Population of the ith Track

Population map of Muslims (Fig.1) was generated through Geographical Information Systems (GIS) software and highest populated areas were identified. Out of sixteen DS divisions in Matara district, the highest Muslim populated Weligama and Welipitiya DS divisions were selected to investigate segregation process, socio-economic processes and its characteristics.
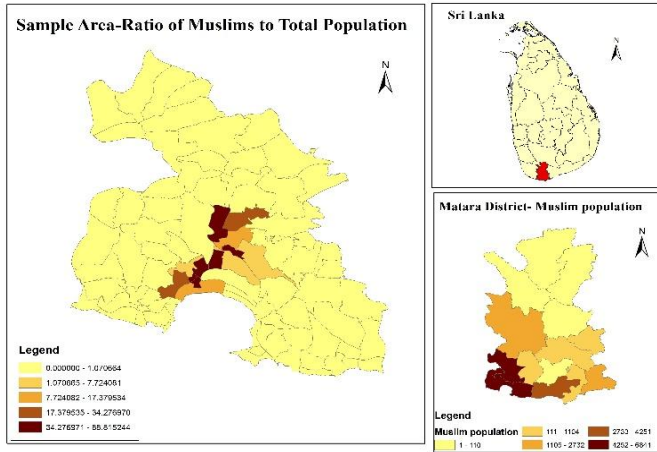
Figure 1: Study area
Source: Department of Census and Statistics, 2011

From above two DS divisions, purposive sampling was carried out and primary data were collected using questionnaire survey and a sample of 220 Muslim families.

Using standard statistical methods such as post stratification, post stratified sampling theory, estimation theory and hypothesis testing, conclusions are inferred with regard to Muslim population living in the segregated area. Based on inferred statistical parameters, population dynamics and socio-economic characteristics of the segregated Muslim community is explained.

III.   DATA DESCRIPTION

The sample consisted of 220 household units with 1262 individuals.

Table 1: Composition of the sample according to gender

Gender	Count	Percentage
Male	649	51.4
Female	613	48.57

Source: Field Survey, 2017

Table 2: Composition of the sample according to marital status

Marital State	Count	Percentage
Married	632	50.08
Unmarried	630	49.92

Source: Field Survey, 2017

Table 3: Schooling pattern of the study population

Age category	International School	Muslim School	Pre School	Sinhala School
5-10	9	82	5	14
10-15	15	96	0	10
15-20	6	57	0	7

Source: Field Survey, 2017

Table 4:-Descriptive data of land size

House Type	Mean	SD	Var	Q1	median	Q3
Permanent	11.38	8.76	76.80	7.00	10.00	12.00
Temporary	8.90	3.25	10.57	6.62	8.00	11.00

Source: Field Survey, 2017

Table 5:-Descriptive data of house acquisition year

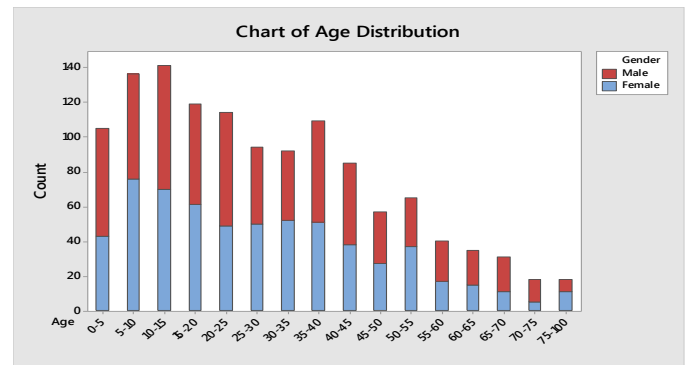| House Type	Mean	SD	Var	Q1	median	Q3
Permanent	1992	16.6	274.5	1985	1996	2004
Temporary	2013	2.71	7.33	2010.5	2014	2015.5

Source: Field Survey, 2017

Figure 2: Age Structure of the sample Source: Field Survey, 2017

IV.   DATA ANALYSIS

A.   Segregation measurement

Using the census data of year 2011 published by the Department of Census and Statistics the Dissimilarity Index was calculated as follows.

Dissimilarity Index = 0.937

This implies intense Muslim segregation in Matara District. In other words, 93% of Muslims are bound as groups compared to total ethnic ratio of Matara district.
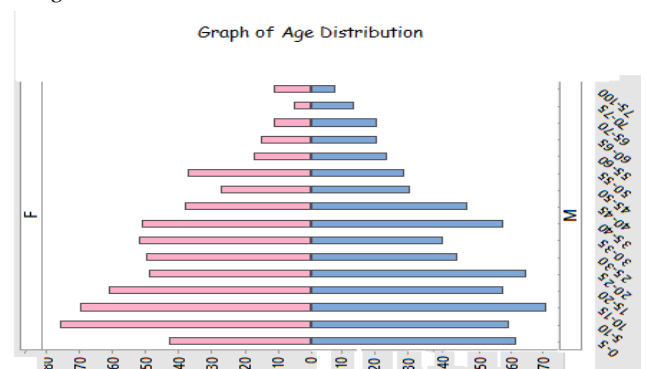
B.   Age Distribution

Figure 3: Age distribution pyramid Source: Field Survey, 2017

Table 6:-Estimation of 0-15 age category   Proportion

	Count	Total	Proportion
0-15 Age	385	1262	0.305071

Source: Field Survey, 2017

Confidence interval of 0-15 age category under 5% significant level (0.279750, 0.331304)

Table 6 demonstrates that around 27%-33% of Muslim population is in the age category of 0-15 which indicates a higher birth rate among this community. Fig 3 shows that 20% of Muslim population is eligible for marriage within 10 years' time, which will guarantee a similar future birth rate as well. Due to the trend of above mentioned high marriage and birth rates, the average marrying age may decrease from 20 years to 18 years for females. Since 15-60 age group accounts for 61-66 percent of the population (Table 7), there will be a boom in labor force in Muslim community within next 10 years according to the pyramid structure (Fig 3) of the population.

Table 7: Estimation of 15-60 Age category proportion

	Count	Total	Proportion
15-60 Age	810	1263	0.641330

Source: Field Survey, 2017

Confidence interval for 15-60 Age category with 5% significant level (0.614179, 0.667822)

High unemployment rate of females supports higher Population Growth since females are mainly contributing only for household activities. Following hypothesis testing (Table 8) further validates the above statement as to the high unemployment rate of females.

Table 8 : Hypothesis test for male and female employment difference

	Employed	Total	Proportion
Male	357	613	0.582382
Female	122	649	0.187982

Source: Field Survey, 2017

Difference = Male prop. – Female prop.

H_0 : Difference = 0 vs H_a : Difference $\neq$ 0

H_0 : There is no difference between the proportion of employed females and employed males

H_a : There is a difference between the proportion of employed females and employed males

Estimate for Difference: 0.394400

95% CI for difference: (0.345129, 0.443671)

Z = 15.69

P-Value = 0.000

Since p-value < 0.05, test rejects the Null hypothesis which indicates male employed proportion is larger than female employed proportion at the 5% significant level.

Table 9: Estimation of   5-29 age category goes to Muslim School

	Count	Total	Proportion
5-20 Age goes to Muslim School	229	302	0.758278

Source: Field Survey, 2017

Confidence interval of 5-20 age category goes Muslim school under 5% significant level (0.705935, 0.805475)

This shows that the 70-80 percent of younger generation's secondary socialization occurs among the Muslims themselves. According to sociological aspects, this may lead to have strong relationships among their own ethnics which in turn would lower their integration and interaction with other ethnics
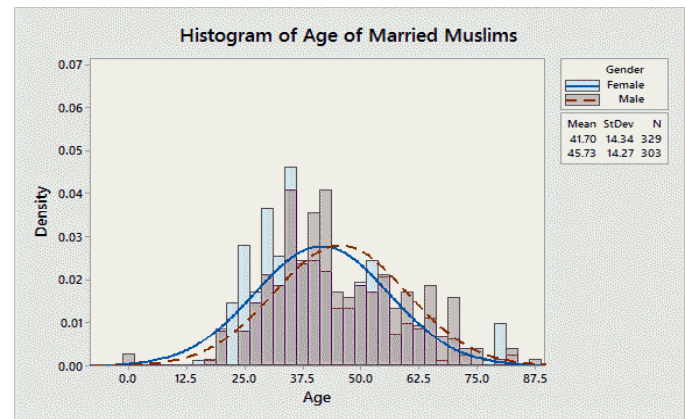

Figure 04 : Histogram of male and female age distribution

Source: Field Survey, 2017

Table 10: Hypothesis test of married male and female age difference

	Count	Mean	StDev	SE Mean
Male	303	45.7	14.3	0.82
Female	329	41.7	14.7	0.81

Source: Field Survey, 2017

Difference = Mean of Male – Mean of Female

H_0 : Difference = 0 vs H_a : Difference = 0

Estimate for Difference: 4.03

95% CI for difference: (1.76, 6.30) T-Value = 3.49

P-Value = 0.001 DF = 628

Since p-value < 0.05, test rejects the Null hypothesis which indicates that there is a difference between male and female marrying age. Average age of Males getting married is higher than the average age of females getting married. Fig 4 and table 10 demonstrates that there is 2-6 years difference between male marrying age and female marrying age, which supports the argument that most Muslim marriages are arranged marriages.

C. Land usage

As a result of population dynamics in segregated residential area, a temporal pattern in land fragmentation can be observed as shown in Fig 5.
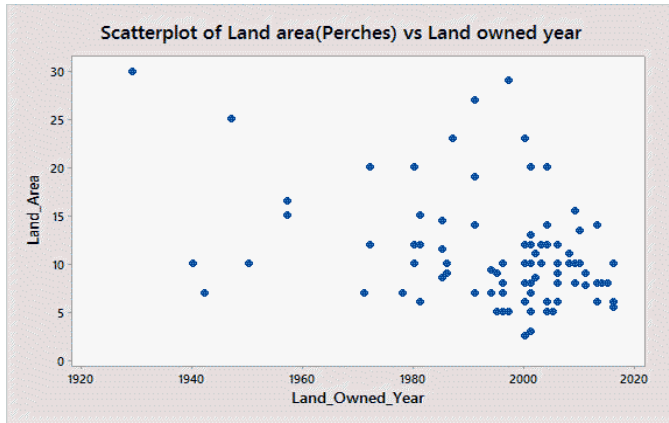
Figure 5: Scatter Plot of land size vs Settlement Year

Source: Field Survey, 2017

A primary fact that can be derived from the above graph is that the segregation has been a vertical development, which means Muslim community has not been spreading over region, but getting dense over the time by dividing the same land to smaller parts. As an indirect result of increasing land fragmentation, newer Muslim generations only expose to themselves, which will lead to a cultural segregation as well.
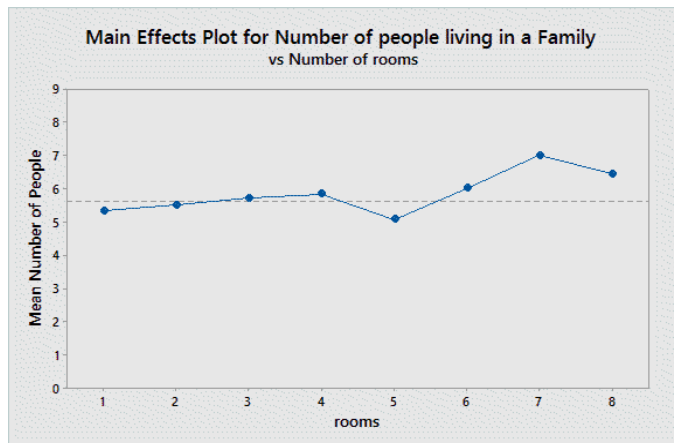

Figure 6:-Mean effect plot for number of people vs number of rooms per house

Source: Field Survey, 2017

Fig 6 indicates that there is no direct effect of the no. of rooms in a house on the no. of people which means that irrespective of availability of resources or wealth population growth remains the same.

V. CONCLUSION

The higher unemployment of females, higher population growth and social interaction of young population being limited to one's own ethnicity are key characteristics of Muslim cultural identity. Currently, Muslim community is limited to vertical ethnic segregation. However, due to land fragmentation reaching the maturity and the expected higher number of future marriage candidates, the segregation can be expanded to horizontal segregation as well. Further, it is noted that irrespective of wealth or availability of facilities, the population growth keeps continuing at the same rate.

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