Abstract- Cocooning and Precariousness among Indian Immigrants in Spain: A demo-spatial analysis

At the turn of the new millennium, when Spain was passing through immigration boom period, the size of its Indian community also increased rapidly and reached to 40,580 individuals listed in the municipal register in 2015. Contrary to most of the immigrant groups in Spain, the number of Indian immigrants remained increasing despite a severe economic crisis (2008-2014). Along with their exponential growth, they had an intense residential and occupational segregation, which raises the risk of their isolation and socioeconomic exclusion from the host society. In this paper, our main objective is to explore the existence of material characteristics of a ‘bubble’ in Indian community in Spain. For this we are going: 1) to create two indicators, i.e. ‘cocooning’ and ‘precariousness’ (which for us are the basic characteristics of a bubble) based on socioeconomic and demographic variables available in 2011 census data, 2) to compare the values of both indicators for Indians with other immigrant groups in Spain; and 3) to check the regional differences of these indicators in different Autonomous Communities in Spain. We have used micro-data from 2011 census records and municipal register (Padrón Continuo, 2015) of Spain. In conclusions, we found that the Indian immigrants in Spain have a high level of cocooning and a moderate level of precariousness, which converts their high concentration areas into “precarious bubbles”.

Key words: Indian immigrants; Spain; Cocooning; Precariousness; Comparative study.
1. Introduction

Diaspora communities, as a social form (Vertovec, 1997) commonly mix their transnational experiences and tendencies to stay close to each other as a part of their socio-cultural and demographic reproduction strategy at all new destinations. The tendency of maintaining strong ties with origin or so called ‘homeland’ (in the form of information flow, remittance or family relations) and within their own group at new destinations, limits their exposure to diversity in the host societies. The exposure to diversity is referred to the probability of encountering people with different attributes. According to Wilson (1987), exposure to diversity would create better socialisation opportunities, better conditions for offering strong role models, and more supportive social networks. On the contrary, lack of it results to the residential and occupational segregation that affects the use of public spaces, services, and upward social mobility of immigrants (Santiago and Wilder 1991). It often contributes to the formation of ethnic enclaves or isolated “bubbles”, which are mostly characterized with high segregation and precarious socioeconomic conditions (Massey and Fischer 2000). With the passage of time, these bubbles may disappear through the assimilation of immigrant minority into the host society, which is the most desirable
outcome, but in the worst scenario, if the situation of isolation exists for a long time, these bubbles can emerge as poverty stricken ethnic enclaves or ghettos.

Spain, like most of the south European countries, is a recent addition to the countries of global Indian diaspora (Garha et al. 2016b). Indians, with 40,580 residents listed in the municipal register (on the basis of birth place) on 1 January 2015, make a relatively small, but highly diverse immigrant community in Spain. They have different ethnic origins, languages, religions, socioeconomic profiles, legal statuses, skills and qualifications (López Sala 2013). Mass immigration from India to Spain started in the 1990s (Garha and Domingo 2017). They have maintained a high degree of residential segregation in their all old and new settlements in Spain (Garha et al. 2016a). In recent studies, the contribution of Indian community to the economic sphere (Beltran 2002; López-Sala & Sánchez 2010), their territorial distribution and socio-demographic profile (Garha et al. 2016b), social networks and ethnic enclaves (Valenzuela et al. 2014), religious communities (Lum 2010; Garha and Domingo, 2017) and their changing profiles from traders to worker (López-Sala 2013) have been studied by some researchers in Spain.

The reasons behind the selection of Indian immigrant community in Spain for this study are: 1) Spain is a good example of peripheral diaspora country, which has no colonial or historical links with India. It can be used as a laboratory to study the evolution of socioeconomic conditions of Indian immigrants at new diaspora locations; and 2) Despite the economic crisis (2008-2014) in Spain, the number of Indian immigrants kept on increasing, which makes their immigration unique. In this paper, our main objective is to explore the existence of material characteristics of “bubble” in the Indian community in Spain. For this we are going: 1) to construct two indicators i.e. ‘Cocooning’ and ‘Precariousness’ (which are the basic characteristics of a Bubble) by using several socioeconomic and demographic variable available in 2011 census records in Spain; 2) we are going to compare Indian immigrants with 10 other immigrant communities selected on the basis of their size and level of concentration in Spain; and 3) we are going to explore the regional differences regarding the socioeconomic conditions of Indian immigrants in different Autonomous Communities with high concentration of immigrant population.

This paper is structured as follows: second section provides a theoretical framework regarding the concept of ‘bubble’ and its material aspects i.e. ‘cocooning’ and ‘precariousness’. Third section presents detailed description of data sources and methodology used for the construction of cocooning and precariousness indicators from different variables selected from census micro-data records 2011 for Indians and 10 other
immigrant groups. Fourth section, presents the results about the cocooning and precariousness indicators. In the fifth section, we have explained the regional differences in the values of both indicators, and the degree and causes of dispersion. Last section, presents some conclusions.

2.- Theoretical background

In this paper, the term ‘Bubble’ refers to a minority group that becomes encapsulated in its own boundaries due to some external (discrimination in the housing and labour market) or internal (groups own will to maintain their separate identity like ‘gated communities’ mentioned by Atkinson, 2004) factors. When it appears because of external reasons, it breeds social conflicts between hosts and immigrants, and generate socioeconomic inequalities, which further contribute to the emergence of poverty stricken areas or ghettos (Iceland, 2014). Conversely, when it comes from some internal reasons, it helps in the formation of ethnic enclaves, in which group members interact with each other, and maintain strong ties and control inside the group (Galeano et al. 2014; Krysan and Reynolds 2002; Peach, 1996). However, a consequence of this may be decreased exposure to the majority society, which often maintained in all domains of life e.g. residential, occupational and social (van Ham and Tammaru 2016). This concept was explained by Boterman & Musterd (2016) as ‘Cocooning behaviour’, which is a necessary prerequisite for the formation of a bubble.

The idea of cocooning was first popularized by Popcorn (1992), suggesting that cocooning could be of three different types: the socialized cocoon, in which one retreats to the privacy of one's home; the armoured cocoon, in which one establishes a barrier to protect oneself from external threats; and the wandering cocoon, in which one travels with a technological barrier that serves to insulate one from the environment. The different dimensions of the cocooning are rightly explained by Atkinson & Flint (2004), arguing that the time-space trajectories of immigrants suggest a dynamic pattern of separation that goes beyond the place of residence and includes the place of work and mobility.

The cocooning of a group is more visible in residential and occupational domains, where people spend most of their time. Hence, residential and occupational segregation are considered to be the most important indicators of cocooning behaviour. According to Iceland (2014), residential segregation is widely perceived as ‘the antithesis of successful
immigrant integration’. In recent studies, segregation is positively correlated with the deprived living status of immigrants (van Gent & Musterd 2016; Iceland & Wilkes 2006). Oliver and Wong (2003) found that interethnic proximity corresponds with lower levels of prejudice to the out-group and saw this as a plea for more diverse environments. The recent research into occupational segregation (on the basis of ethnicity and migrant status) highlights its importance in causing the exclusion of immigrant minorities’ from the host society and the persistent difference in the income and standard of living among foreigners and native workers (Liu et al. 2004; del Río & Alonso-Villar 2015; Farber & Allard 2012). Some studies have argued that the diversity at the workplace may have positive effects on the integration of immigrants into the host society (Thomas & Jackson 1992). On the contrary, some scholars have questioned the effect of ‘exposure to diversity’ on cocooning, emphasising that residents of specific groups even when they live in proximity hardly interact with residents of other groups (Blokland & Van Eijk 2010) and the proximity to others does not equate with meaningful contact and often generates or aggravates negative viewpoints toward other groups (Valentine 2008).

Some authors consider that residential segregation is too static as an approach, and fails to address the fact that most people move out of their neighbourhood to work, recreation and socialize with others (Ellis, Wright, & Parks, 2004; Kwan, 2013). Kwan (2013) therefore, argues for an integration of segregation literature with time-space geographies and mobility literature that includes the temporal dimension. Wong and Shaw (2011) present an alternative evaluation of segregation based on ‘activity space’. Activity spaces encompass a combination of spheres of life; not just the residential, but also spaces such as work and leisure (Wang, Li, & Chai, 2012). Following this, we argue that the concept of bubble is not only limited to residential or occupational segregation; rather it has a dynamic part also, which is related to their mobility and activity space. As Wong and Shaw (2011) state in their activity space approach, exposure to others occurs in time and space, and on the move people meets others, interacts with them, and may even establish social bonds.

Mobility is assumed as an important feature of exposure to host society, as movement results in contact with other individuals. Hence, transport spaces (inside a bus, tram, metro, car etc.) are key sites of encounter and identity formation (Wilson, 2011). Exposure to others in transport space or mobility space depends on the mode of transport, as well as the route, the time of day and the duration of journey (Alaily-Mattar, 2008). Modes of transport can also be used as means to get separate from others, as Atkinson and Flint (2004) have referred to the transport from the neighbourhood to workplace as ‘corridors’.
Sometimes the affluent upper middle class use private cars as a status symbol or to maintain distance from others (Atkinson 2006).

Another important concept used in this study is of ‘Precariousness’, which is literally defined as unsure, uncertain or a delicate situation, and is generally used to explain the unstable working or housing conditions. Precarious working conditions is the most important factor in consistently low standards of living and low social upward mobility of immigrant minorities (Fleras 2015). On the other side, it is well acknowledged that the standard of housing can affect migrants’ health and quality of life (Lee and Park 2010). Housing also situates migrants in a neighbourhood, a physical and social environment, which provides opportunities to work, access to public services, to socialize with natives, and to feel more or less secure from crime and discrimination (Phillips 2006). Hence, when measuring the socioeconomic conditions of immigrants, the standard of housing, level of segregation, proportion of migrants living in deprived areas and levels of homelessness are often included within the basket of indicators (Ager and Strang 2004; Entzinger and Biezeveld 2002). A key argument of Massey & Denton's (1993) American Apartheid was ‘the residential segregation and minority poverty rates combine interactively to produce spatially concentrated poverty zones’. This explains that the existence of cocooning is one of the main causes and effects for the precariousness among immigrant communities, which contributes to the formation of ‘precarious bubbles’.

3.- Data source and Methodology

3.1. Data Sources

The data has been extracted from 2011 census of population and housing, and municipal register of inhabitants (Prador Continuo, 2015) of Spain. To measure the level of residential segregation, we depend upon the municipal register data. It provides information about the present residence of all individuals, including immigrant population, at census section level. The data has been collected on the basis of the variable ‘place of birth’ for different immigrant groups. For the study of occupational structure, demography, housing, and mobility, we have used 2011 Census data. It is the only source of data on various socioeconomic aspects of the whole population and most importantly about the immigrant minorities, which are owing to their small size, often neglected by the surveys conducted at national level.
3.2.- Methodology

We have constructed two indicators based on several variables that directly or indirectly affect ‘exposure to diversity’ and ‘socioeconomic conditions’ of different immigrant communities. The first, which we named as “Cocooning”, is used to measure the existence of possible situations of isolation or segregation among Indian immigrants and the other selected immigrant groups in Spain. The second indicator, which we named as ‘Precariousness’, shows the socioeconomic characteristics of immigrant communities marked by several factors related to labour market and housing.

Figure 1.- Main variables of Cocooning and Precariousness indicators

The indicators are constructed at the national level to see the overall conditions of Indians and other immigrant communities, and at regional levels to explore the regional disparities regarding the conditions of immigrants in different regions of Spain. To avoid dispersion of values between variables and to ensure their comparability we have used the following...
method to normalize minimum and maximum values obtained (OECD 2008). In this case, it applies the following formulation to each of the x values of the different variables v:

\[
I_v = \frac{x_v - \min(x_v)}{\max(x_v) - \min(x_v)}
\]

3.2.1.- Cocooning indicator

For the construction of Cocooning indicator, we have focused on the three major domains marked by Boterman and Musterd (2016): residential, occupational and daily mobility. To these we have added a fourth domain i.e. socio-demographic characteristics. We argue that the socio-demographic characteristics (age structure, sex composition and family structure) have an enormous impact on the exposure of immigrant population to host society. We have selected two representative variables for each of the first three domains. For residential domain, we have selected ‘residential segregation’ and ‘per capita living space’; for occupational domain, we have selected ‘occupational segregation’ and ‘the proportion of inactive population’; and for the daily mobility, we have selected ‘the share of people working at their usual place of residence’ and ‘the share of workers using private transport’. However, in the socio-demographic sphere, we have used three variables i.e. ‘the sex-ratio’, ‘the percentage of complex households’, and ‘the period of stay in Spain’. In the final value of the indicator all domains have same weighting. The high value of these variables depicts high cocooning and vice versa.

First, in the residential domain, residential segregation has been calculated with the help of dissimilarity index (D) proposed by Duncan and Duncan (1955). This is a classic indicator that computes the differences in the distribution pattern of two population groups. Formulation of dissimilarity index (D) is as follows:

\[
D = \frac{1}{2} \sum_{i=1}^{n} \left| \frac{x_i}{X} - \frac{y_i}{Y} \right|
\]

The xi refers to the population of the studied group (X) and yi refers to the population of the reference group (Y). The ‘i’ refers to the number of spatial units. On a scale of 0 to 100, it indicates residential proximity or relative distance of the immigrant population to autochthons. The minimum value indicates that the two groups have the same distribution.
pattern in all spatial units; on the contrary, the maximum value shows that groups do not coincide.

Secondly, per capita residential space is calculated, by dividing the ‘average area of house’ with the ‘average household size’. Owing to the lack of sufficient data for all immigrant groups at the regional level, we have ruled out the use of the indicator of residential overcrowding (Myers and Lee 1996), which in fact measures more accurately the living condition by relating the number of occupants and square meter space available.

In the occupational domain, firstly, occupational segregation is measured by the above mentioned classical measure of segregation i.e. dissimilarity index. One digit coding of occupation (CNO11) in the Census 2011, which classify total occupations in nine major categories, has been used for the calculation of occupational segregation. On a scale from 0 to 100, lower numbers indicate a high proximity to the occupational structure of the reference group and vice versa. Secondly, the variable proportion of inactive population has been calculated only for the working age group (16 to 64 years), to avoid the effect of age-structure on the value of the variable, which affects countries with large dependent (minors or elders) population. Furthermore, in this calculation we have excluded those individuals who remained studying after the age of 16. The inactive situation therefore includes three categories: people with permanent disabilities; early retirees, pensioners or annuitants; and a group of other situations, including housewives.

The third domain is the daily mobility. Generally, most of the daily mobility is related to jobs, as people travel to reach their work places. It is therefore appropriate to use ‘proportion employed at home’ as a suitable measure for exposure to others. In some professions, like old-care services at home or agricultural labour in remote areas, this would be a clear indicator of limited exposure to the outer world. The second variable is related to the means of mobility, in this area the proportion of private transport users for job purposes, has been calculated. Here, we assume that the possibility of contact with other people in public transport is much higher than in private transport. To operationalize this variable, those who travel by car or motorbike are placed in the category of private transport, while those who travel by train, metro or bus are placed in the category of public transport.
Finally, in the socio-demographic domain, we assume that the demographic composition of the group contributes to the existence of possible coocooning, like the imbalance among sexes, the existence of complex households, and small time of stay contributes to the increased level of coocooning, and vice versa. Firstly, we have calculated the sex-ratio with the data provided by the municipal register 2015. To avoid potential problems of symmetry in the distribution, the sex-ratio is calculated as \( R = |\ln(M/F)| \), Where, M corresponds to the number of Males and F to Females, expressed as an absolute value. Total equality between males and females gives a value of \( R \) as zero. \( R \) becomes further from zero when there is a major imbalance in the number of individuals of any of both sexes. The use of the logarithm ensures symmetry, i.e. apply the same value if inequality is caused by a higher concentration of males or females. We assume that the imbalance of sexes leads to less exposure and hence promotes coocooning behaviour. Secondly, we have used the percentage of individuals living in complex households, i.e. where in addition to the nuclear structure (couple with or without children, or a single parent) other people also live in the home. We consider that the presence of complex households is a symbol of high segregation, which contributes to coocooning. Thirdly, the duration of stay in Spain is important because with time people form contacts at new destination and they generally become less “cocon”, as compared to their early immigration and settlement period. Hence, less time is positively related with coocooning.

For the construction of Cocooning Index (CI), the weighted averages of all above mentioned variables have been used. Its value lies in between 0 to 100. Higher CI values interpreted as high level of coocooning and vice versa.

3.2.2.- Precariousness Indicator

The precariousness is a common feature of immigrant communities from developing world. In the initial stages of settlement, it is quite normal that the displaced people find difficult to get better jobs and houses. The problem arises when this state of precariousness persists for a long time, resulting in the emergence of poverty stricken areas in big cities or around them.

For the construction of Precariousness indicator, we focus on three areas where the precariousness is more apparent i.e. labour market, housing market and level of education. We have measured ‘Precariousness’ in the host labour market by calculating the proportion of ‘unemployed’, ‘temporary workers’ and ‘non-income households’ in the total population.
By unemployed we mean a person who is in the working age group (16-64 years), and searching for a work, but does not get any job. Unemployment is considered as the most important determinant of precarious living conditions (Martínez et al. 2003). Secondly, by temporary worker, we refer to a person who is working with a temporary work contract with a fixed tenure. Under-employment or temporary work contracts also adversely affect the wellbeing and living statues of immigrant workers (Rodríguez-Planas & Nollenberger 2014). Thirdly, non-income household is a household in which nobody is employed or receives any kind of retirement pension. To differentiate the immigrant-households from others, all households with at least one immigrant member have been considered as immigrant households. In some cases, where immigrants from different origins share the same house that house was attributed to the member (or origin), who has spent more time in Spain.

In the housing market, ‘habitable conditions of the residential building’ and ‘house ownership (rental situations as opposed to property)’ were taken into consideration. The better habitable conditions and the high rate of house ownership show a lower degree of precariousness (Kees & Boumeester 2017). To explore the condition of houses, we classify all residential buildings occupied by immigrants as ‘well habitable’ or ‘sub-standard’. In sub-standard buildings, we include residential buildings with three different conditions i.e. in-ruins, bad and deficient, as categorised in the 2011 census records. The third area of prime importance regarding the precariousness is the level of education. It shows the quality of human capital among different immigrant groups and affects the pace of cultural and socioeconomic integration into the host society and labour market. In this variable, we consider the ‘share of illiterates’ in the total population of different immigrant groups in Spain. The large share of illiterate people in a group increases the possibility of precariousness, and vice versa (Rodríguez-Planas & Nollenberger 2014). Precariousness index (PI) is the weighted average of the values of all above mentioned variables. All variables have equal weighting in the final value of PI. It ranges from 0 to 100 points. Lower values show less precariousness and vice versa.

To compare the situation of Indians with other immigrant groups, we have selected 10 different immigrant communities of Spain, based on their population size and their spatial concentration levels in Spain. Firstly, we have selected the immigrant communities that are at the same population threshold as Indians (30,570 individuals listed in 2011 census records), like Belgians (39,075), the US immigrants (35,165), Philippines (31,770), Hondurans (30,675), Pakistanis (37,750) and Nigerians (23,470); secondly, two immigrant
communities with largest population in Spain, i.e. Moroccans (716,685) and Romanians (690,505); and finally, the immigrant communities with same concentration levels in big metropolitan cities as Indian immigrants, like Chinese (90,255) and Dominican Republicans (119,490).

And finally, to see the regional differences regarding the cocooning and precariousness among Indian immigrants, we have calculated both indices for 6 regional categories, i.e. 4 autonomous communities (Catalonia (1,279,511 immigrants listed in municipal register), Madrid (1,149,118), Valencia (826,653), Andalusia (786,266)), the Islands group (613,472), which consists of the Balearic and the Canary islands, and the sixth category Rest of Spain (368,467, including rest of the autonomous communities of Spain.

4.- Results: The Cocooning and Precariousness Indicators

4.1.- The Cocooning Indicator

Residential segregation is one of the most important components of cocooning. The dissimilarity index (D) values show that among all selected immigrant groups of Spain, in 2015, the Indian community, with D of 78.1, was only second to Philippines, which had the highest level of residential segregation i.e. 79.8 (Table 1). This high value of D shows that 78.1% of the Indians had to change their houses to get a residential distribution pattern similar to the host population. The main reasons behind this high D might be 1) the Indian immigration was mainly supported by the kinship networks, which support the entry and settlement of new immigrants in Spain (Garha et al. 2016a). Hence, the tendency of new immigrants to settle close to each other increases the degree of residential segregation. 2) The availability of cheap houses in the degraded poor residential areas in the big cities attracted Indian immigrants, which contributed to their segregation in poverty stricken areas (Garha & Galeano 2015). At the other extreme, Moroccans and Romanians had the lowest D values of 47.9 and 49.8, respectively. It was mainly due to their presence in more census section than other immigrant groups e.g. Philippines and Indians were living in only 18.8% and 19.2% of the total census tracts, however, Moroccans and Romanians were settled in 84.4% and 82.4% of them, respectively. For the total immigrant population in Spain the D was 34.4, as different immigrant groups complement each other on the territory to have similar residential pattern like the host community.
Table 1.- The values of different variables used in the construction of ‘Cocooning’ indicator

<table>
<thead>
<tr>
<th>Immigrant countries</th>
<th>Residential Segregation (D)</th>
<th>Per capita Space (m²)</th>
<th>Inactive Population (%)</th>
<th>Occupational Segregation (D)</th>
<th>Work at Residence (%)</th>
<th>Private Transport users (%)</th>
<th>Private Complex Households (%)</th>
<th>Stay in Spain (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>78.1</td>
<td>22.4</td>
<td>29.2</td>
<td>32.6</td>
<td>7.0</td>
<td>74.7</td>
<td>58.6</td>
<td>11.9</td>
</tr>
<tr>
<td>Nigeria</td>
<td>74.7</td>
<td>25.7</td>
<td>16.7</td>
<td>39.2</td>
<td>9.0</td>
<td>69.6</td>
<td>37.1</td>
<td>20.3</td>
</tr>
<tr>
<td>Philippines</td>
<td>79.8</td>
<td>23.1</td>
<td>12.1</td>
<td>50.9</td>
<td>26.9</td>
<td>46.1</td>
<td>54.7</td>
<td>14.6</td>
</tr>
<tr>
<td>USA</td>
<td>59.7</td>
<td>40.8</td>
<td>20.9</td>
<td>37.4</td>
<td>13.3</td>
<td>70.5</td>
<td>14.5</td>
<td>18.2</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>55.7</td>
<td>23.1</td>
<td>11.9</td>
<td>37.9</td>
<td>10.0</td>
<td>61.8</td>
<td>44.8</td>
<td>11.5</td>
</tr>
<tr>
<td>Belgium</td>
<td>62.2</td>
<td>45.9</td>
<td>20.6</td>
<td>10.6</td>
<td>15.5</td>
<td>81.7</td>
<td>1.4</td>
<td>22.6</td>
</tr>
<tr>
<td>Romania</td>
<td>49.8</td>
<td>24.9</td>
<td>15.1</td>
<td>34.8</td>
<td>6.6</td>
<td>77.1</td>
<td>4.4</td>
<td>24.7</td>
</tr>
<tr>
<td>Morocco</td>
<td>49.7</td>
<td>23.1</td>
<td>22.7</td>
<td>35.1</td>
<td>10.7</td>
<td>77.8</td>
<td>30.4</td>
<td>14.8</td>
</tr>
<tr>
<td>Pakistan</td>
<td>77.5</td>
<td>17.6</td>
<td>26.3</td>
<td>32.8</td>
<td>5.6</td>
<td>66.5</td>
<td>116.9</td>
<td>9.5</td>
</tr>
<tr>
<td>China</td>
<td>51.3</td>
<td>25.9</td>
<td>19.7</td>
<td>48.6</td>
<td>9.6</td>
<td>71.4</td>
<td>11.8</td>
<td>11.8</td>
</tr>
<tr>
<td>Honduras</td>
<td>69.4</td>
<td>24.0</td>
<td>15.9</td>
<td>44.8</td>
<td>13.4</td>
<td>61.8</td>
<td>103.7</td>
<td>8.5</td>
</tr>
<tr>
<td>Total Immigrants</td>
<td>34.4</td>
<td>29.2</td>
<td>16.1</td>
<td>16.34</td>
<td>9.5</td>
<td>71.9</td>
<td>3.2</td>
<td>20.1</td>
</tr>
</tbody>
</table>

Source: own elaboration with data from the Census of Population and housing 2011, INE.

The second important variable is per capita residential space available to immigrants. To calculate it first we calculated the average house size and second we have calculated the average household size and then we have divided the average house size with the average household size. For Indian immigrants in Spain the average house size was 82 square meter. It situates them between Pakistanis (70.3 square meters) and the US immigrants (108.3 square meters). However, it was below the average immigrant house size, i.e. 85.9 square meters. The average immigrant family size in Spain was ranging from close to 4 among Indians (3.67) and Pakistanis (3.99), to a lower of 2.22 persons for Belgians. It gives an average of 22.4 square meter space per person for Indian immigrants, which is more than Pakistanis, who had the smallest per capita space (17.6 square meters) as compared to all other immigrants, but lower than the US (40.8 square meters) and Belgians immigrants (46.0 square meters), who had more per capita space than the average foreigners.

After residential, the other domain where the cocooning is more apparent is occupational. Mostly, the insertion of unskilled immigrants into the labour market depends upon their ethnic network (Patacchini and Zenoudef, 2012). The recruitment of new workers through kinship chains and lack of access to other occupational areas contribute to the occupational segregation of immigrants in some specific niches in the labour market, e.g. the segregation of Indians in agricultural activities and hospitality services in Spain (Lopez Sala, 2013). The census data shows that the Indian immigrants have the dissimilarity index value of 32.6 (Table 1), which places them in between the lowest value of Belgians (10.1) and the highest
of Philippines (51.0). But still they have higher occupational segregation than the average immigrants (16.3). In the selected immigrant communities Honduras, China and the Philippines have high values, mainly because of their strong occupational concentration in trade or domestic service.

In the economic sphere, another important variable is ‘share of inactive population’. The inactive population has very limited contact with the host community as compared to the active one (Gallie et al. 2012). In Spain, Indian immigrants had the maximum share of inactive population (29.2%) followed by Pakistanis (26.3%) and Moroccans (22.7%). In all these communities the limited participation of females in labour market was responsible for their high share of inactive population. Indian immigration is always remained male led. Mostly, males migrate first in search of work opportunities, and later females follow them through family reunion process (Garha et al. 2016). These females are normally limited to their houses; hence, their low participation in the labour market and social sphere increases the inactivity rate and contributes to cooconing. On the contrary, the share of inactive population among Philippines (12.1%) and Dominicans (11.9%) was the lowest, mainly owing to the highest rate of female participation in the labour market, as compared to other immigrant groups.

In the domain of daily mobility, the share of workers who work at their usual place of residence was almost same among the Spaniards (9.9%) and immigrants (9.5%). In the selected immigrant communities, Indians (7.0%) had the third last position after Pakistanis (5.6%) and Rumanians (6.6%). It shows that Indians were more exposed to diversity in the mobility domain. On the contrary, Philippines (26.9%) had the highest proportion of workers employed at their usual place of residence. It was mainly owing to their segregation in the category of domestic workers, who often live in the same house where they work. Second important variable is the ‘use of private means of transport’ for travelling to work places. In Spain, immigrants (71.9%) had a higher share of workers using private transport than the host workers (62.5%). Most of the Indian immigrants (74.7%) were using private vehicles, which contributed to their high level of cooconing. Among the selected immigrant communities, Belgians (81.7 %) were leading the foreigners, but also Moroccans and Romanians had a high use of private means of transport, i.e. 77.8% and 77.1%, respectively. On the other extreme, Philippines (46.1%) had the lowest use of private transport, as they mostly lived in densely populated areas of big cities where the public transport was cheap, easily available and of good quality.
In socio demographic domain, the most important factor is ‘sex composition’ of an immigrant population. The imbalance of sexes, caused by the shortage of one or another sex reduces the participation of immigrant groups in the social sphere. The results indicate that the Indian community (58.6) had a sex imbalance in favour of males. Among the selected immigrant communities Pakistanis (117.0) had the highest presence of males and Honduras (103.7) had the highest presence of females. Belgium and Romania were on the opposite ends with lowest disparity between sexes. Secondly, the percentage of complex households, which we consider that leads to cocooning, among autochthons (7.7%) is significantly lower than immigrants (20.1%). In the selected immigrant communities, Indians (38.1%) had the highest share of complex households followed by Philippines (36.6%). It is mainly due to the high rate of shared houses in the Indian community, where two families or a family with other relatives live together to share the cost of living. On the contrary, Belgians (6.1%) and the US immigrants (12.1%) have the lowest share of complex households.

Thirdly, the time of stay in Spain is also important, as the new immigrants often find it very difficult to relate with their new neighbourhoods and host society. The result shows that the average time of stay in Spain for Indians was 11.9 years, which was below the average for all selected communities, i.e. 13.6 years. It was mainly due to the recent mass immigration of Indians into Spain. In the selected immigrant communities Belgians (22.6) had the longest and Hondurans (8.5) have the shortest average duration of stay in Spain. India and Pakistan have the highest value (0.71) of Cocooning index (CI) in Spain, followed by Philipsines and Honduras (0.64). The high level of cocooning among Indians is mainly due to their high residential, and occupational segregation, high use of private transport, large number of complex households, and less duration of stay in Spain. At the opposite extreme, Belgians (0.30) and the US immigrants (0.40) had the least score of cocooning (Fig. 2). In sum, the high CI value illustrates the existence of cocooning behaviour among Indian immigrants, which is a material feature of a bubble.
4.2.- The Precariousness indicator

The precariousness is mainly visible in the economic sphere. The 2008 economic crisis in Spain resulted in high unemployment and sharp decrease in job security among immigrants, especially low skilled ones (Chaloff, et al. 2012). The economic crisis had affected the Indian immigrants also, and left one-third of the population unemployed (35.6%). However, as compare to other immigrant groups, they were at an intermediate position. In selected communities, Nigerians had the highest share of unemployed population (62.9%), followed by Moroccans (55.5%) and Dominicans (49.3%). On the contrary, Chinese (16.7%) and Philippines (22.3%) had the lowest proportion of unemployed people. The high unemployment rate among Indians affected adversely their standard of living in Spain and forced them to live in poor residential areas, where cheap flats were easily available (Garha and Galeano 2015). After unemployment another variable that defines ‘precariousness’ in the labour market is working conditions related to work-contracts, and the stability of jobs for the employed population. In 2011, the share of temporary workers among natives (21.6%) was much lower than the immigrant workers (34.1%). In the Indian community, 40.5% of the total working population were temporarily employed, which was above the average for the selected immigrant communities (34.8%). The temporary workers normally receive fewer salaries and incentives from their employers, and enjoy limited access to social security (Polavieja 2006). High share of
temporary workers in the Indian community shows their high level of precariousness. While, comparing with other immigrants, Pakistan (56.8%) and Nigeria (55.7%) had the highest share of temporary workers, but Philippines and Belgians had the lowest share, 18.7% and 19.4%, respectively. Finally, the share of non-income households also shows the degree of precariousness among different immigrant groups. In the Indian community, the share of non-income households was 11%. However, there are immigrant communities, like Nigerians, who had one in three households in the same situation. Chinese (4.8%) and Philippines (5.5%) had the lowest share of non-income household among the selected immigrant communities. (Table 2).

Table 2. The variable used for the construction of Precariousness indicator

<table>
<thead>
<tr>
<th>Immigrant countries</th>
<th>Labour Market Unemployment (%)</th>
<th>Labour Market Temporary Workers (%)</th>
<th>Labour Market No Income Household (%)</th>
<th>Housing Market Rented apartment (%)</th>
<th>Housing Market Substandard Housing (%)</th>
<th>Education Illiterates (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>35.6</td>
<td>40.5</td>
<td>11.0</td>
<td>54.2</td>
<td>13.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Nigeria</td>
<td>62.9</td>
<td>55.7</td>
<td>33.9</td>
<td>61.8</td>
<td>12.4</td>
<td>16.7</td>
</tr>
<tr>
<td>Philippines</td>
<td>22.3</td>
<td>18.7</td>
<td>5.5</td>
<td>45.1</td>
<td>16.6</td>
<td>4.2</td>
</tr>
<tr>
<td>USA</td>
<td>24.3</td>
<td>31.5</td>
<td>6.6</td>
<td>33.1</td>
<td>4.6</td>
<td>2.4</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>49.3</td>
<td>33.1</td>
<td>16.9</td>
<td>62.4</td>
<td>9.4</td>
<td>7.9</td>
</tr>
<tr>
<td>Belgium</td>
<td>27.2</td>
<td>19.4</td>
<td>8.5</td>
<td>23.9</td>
<td>5.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Romania</td>
<td>42.3</td>
<td>41.3</td>
<td>16.7</td>
<td>70.8</td>
<td>7.3</td>
<td>2.9</td>
</tr>
<tr>
<td>Morocco</td>
<td>55.5</td>
<td>43.5</td>
<td>27.3</td>
<td>60.8</td>
<td>15.6</td>
<td>29.9</td>
</tr>
<tr>
<td>Pakistan</td>
<td>45.1</td>
<td>56.8</td>
<td>16.4</td>
<td>63.5</td>
<td>15.2</td>
<td>17.1</td>
</tr>
<tr>
<td>China</td>
<td>16.7</td>
<td>29.6</td>
<td>4.8</td>
<td>39.3</td>
<td>4.7</td>
<td>20.1</td>
</tr>
<tr>
<td>Honduras</td>
<td>34.5</td>
<td>43.8</td>
<td>9.9</td>
<td>66.9</td>
<td>8.2</td>
<td>4.7</td>
</tr>
<tr>
<td>Total Immigrants</td>
<td>39.9</td>
<td>34.8</td>
<td>19.8</td>
<td>52.4</td>
<td>8.9</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Source: own elaboration with data from the Census of Population and housing 2011, INE.

The second main area where the precariousness is more apparent is housing market. In Spain, home-ownership is considered as the most important factor of security and stability. For immigrant communities it has been seen as a symbol of integration and economic stability (Módenes et al. 2013). The percentage of people living in the rental houses is much higher among immigrants than the natives. More than half of the immigrant population is living in rented accommodation. India (54.2%) was not an exception to this. This high proportion of rented apartment shows the unstable situation of Indian immigrants in the housing market. Among the selected countries Romanians (70.8%) had the highest share of rented apartments; on the contrary, Belgians (23.9%) and the US immigrants (33.1%) had
the lowest share of it. Secondly, the condition of houses is also a very good indicator of precariousness. The share of Indians living in substandard houses was 13%, which was above the average among immigrants (8.9%). This percentage was exceeded by Philippines (16.6%), Moroccans (15.6) and Pakistanis (15.2). On the contrary, the US, Chinese and Belgians immigrants had around 5% people, who had reported problems with their houses.

As the education is directly correlated with the success of immigrants in the labour market. Hence, a high share of illiterate population results in precariousness. Interestingly, the overall percentage of the illiterates in the total immigrant population (7.6%) is lower than the natives (11.4%). It can be explained by the difference of age-structure between immigrants and native population. Among the Indian immigrants in Spain, 12% were without any formal studies, which was much higher than the overall average for immigrants (7.6%). This high share of illiterate population contributed to their segregation in the low paid manual jobs and resulted in precarious living conditions. Belgians (1.9%) and the US (2.4%) immigrants had the minimum share of illiterate population, followed by Romanians (2.9%). On the contrary, Moroccans (33%), Chinese (20.1%) and Pakistanis (17.1%) had a significant share of illiterates in their total population.

The Precariousness Index (PI) shows that the Indian immigrants, with a moderate value of 0.48, situate themselves in the middle of selected immigrant communities. Moroccans (0.83), Nigerian (0.83) and Pakistani (0.71) immigrants have the highest values of PI; while, at the opposite extreme, Belgians and the US immigrants have fairly good standards of living in Spain (Fig. 3).

**Figure 3.- The Precariousness Indicators of 11 selected immigrant communities**

Source: own elaboration, data from municipal registers (Padrón continuo, 2015) and census 2011, INE, Spain.
4.3.- The correlation between Cocooning and Precariousness indicators

At first glance, the correlation between Cocooning and Precariousness indicators tells us that there is a very low linear relationship between the two indicators (R² = 0.213). If we compare the degree of cocooning, India situates itself on the top position among all selected immigrant communities (Fig. 4). However, when it comes to precarious living conditions, Indian immigrants were at an intermediate position. The high degree of cocooning is a matter of worry for the Indian community, as it deteriorates their possibilities to participate in the labour market, which in turn is a prime cause for their precarious living conditions. If this situation of cocooning and precariousness persist with coming generations, it will convert the areas where they live into ghettos or ethnic enclaves, which we named ‘Precarious Bubbles’.

Figure 4.- Correlation between Cocooning and Precariousness indicator

If we compare with other countries, Pakistanis and Moroccans show extreme values, although not in the same direction. Pakistanis had the highest level of cocooning, coincided with high precariousness. Moroccan however, was an exception as they characterized with
the most precarious situation and comparatively lower cocooning values. Their low level of cocooning might be due to their more territorial dispersion and their relatively large size of population, as compared to other groups. For the precariousness indicators Moroccans and Nigerians had the worst position, with all values above the average for all immigrants. Furthermore, the level of education was extremely low. On the contrary to African communities, Belgians and the US immigrants were in the best situation. Belgians had the least levels of cocooning and precariousness, followed by the US immigrants, who were a little ahead of them. The main reasons behind their greater exposure and better living conditions were their proximity to the native population, high education level and better occupations.

5.- Regional differences of cocooning and precariousness

The territorial distribution of Indian population is highly skewed in the favour of some Autonomous Communities of Spain. According to the municipal registers 2015, almost half of the Indian immigrants were settled in Catalonia (46.6%), followed by some significant concentration in Valencia (13.9%) and the Canary Islands (13.1%). To measure the regional differences in socioeconomic status and level of exposure, we have calculated both previously mentioned indicators, for all selected immigrant groups, at different Autonomous Communities and selected regions.

The cocooning indicator in Catalonia and Madrid shows that the Indians among all selected immigrant groups were only second to Pakistanis in cocooning. Valencia, Islands group and Andalusia had the highest cocooning score for Indians. While, in the ‘Rest of Spain’ they were comparatively less cocooned than Pakistan, Honduran and Philippines immigrants (Figure 5).

The precariousness indicator shows that the Indians had relatively good living conditions as compared to other immigrant groups in different territories of Spain. In the Island communities, they had better economic position than all other immigrant groups except the US immigrants. On the contrary, in Valencia they had the most precarious living conditions as compared to all other immigrant groups. Overall Indians were in relatively good conditions than Moroccans, Pakistanis and Nigerians in all Autonomous Communities except Valencia; while, Philippines, the US, Chinese and Belgian immigrants were in far better conditions than Indians at all places (Fig. 6).
Figure 5.- Cocooning Indicator for the selected immigrant countries in all Autonomous communities

Source: own elaboration, data from municipal registers (Padrón continuo, 2015) and census 2011, INE, Spain (*in the case of Pakistan the data for the island group was not significant, so we have not used it for the calculations).
Figure 6. - Precariousness Indicator, for the selected immigrant countries in all Autonomous communities

Source: own elaboration, data from municipal registers (Padrón continuo, 2015) and census 2011, INE, Spain (*in the case of Pakistan the data for the island group was not significant, so we have not used it for the calculations).
Now when we explore the correlation between both indicators (Fig. 7).

**Figure 7.** Correlation between the Cocooning and Precariousness for the selected immigrant countries in all Autonomous communities

Source: own elaboration, data from municipal registers (Padrón continuo, 2015) and census 2011, INE, Spain (*For Pakistan the data for the island group was not significant, so we have not used it for the calculations).
We find that the Indians were in the worst condition in Valencia, where they had the highest degree of cocooning and precarious living conditions, on the contrary, they were relatively well situated in Catalonia and Madrid. The Islands group (the Canary and the Balears islands) present an exception with high degree of cocooning and relatively better living conditions. A possible reason for this might be the high concentration of Sindhi trading community of Indian origin in Islands group, who have settled their businesses there and living in clusters within or near the central market areas of port cities (López Sala and Sánchez, 2010).

5.1.- The dispersion of Bubble indicators in different Autonomous Communities

As we have already seen that most of the Indian immigrants in Spain were living in a moderately precarious bubble. But it is a generalized view of the whole Indian community, which is a highly diverse group in terms of origins, education, occupations and legal statuses. Now an important question arises: Is the level of precariousness and cocooning same for all Indian immigrants in different regions of Spain? The values of Precariousness indicator show the maximum dispersion among the Indians as compared to other selected immigrant groups in different regions of Spain. The maximum (0.72 in Valencia) and the minimum (0.21 in the Islands group) values had the difference of 0.51 points. After them, Nigerians (0.49 points separation between maximum and minimum) also showed a similar dispersion caused by the exceptional case of Andalusia, where their precariousness indicator is 0.99. In all other cases, the difference is between the minimum of 0.10 (from 0.54 to 0.44) in the case of Dominicans and a maximum of 0.29 (0.50 and 0.21) for the Hondurans (Figure 8a).

The Cocooning indicator of different groups showed a smaller dispersion, ranging from the maximum of 0.30 points for Belgian or 0.27 points for the US immigrants, and the minimum of 0.05 points and 0.06 points for Chinese and Philippines. Indians had a dispersion of 0.22 points, from a high of 0.78 in Valencia to a minimum of 0.56 in the Rest of Spain. It explains the existence of cocooning behaviour among Indian immigrants over the entire Spanish territory (Figure 8b).
6.- Conclusion

It is now clear that the Indian population in Spain was living in a situation characterized by high cocooning and moderately precarious living conditions, which is previously defined as a ‘bubble’, in most of the autonomous regions of Spain. Their high level of cocooning in all domains was caused by their have high residential and occupational segregation, less use of public transport, high share of complex houses, high gender imbalance in favour of males and less duration of stay in Spain. Similarly, they had precarious living conditions in all regions, except the Island groups.

While comparing with other immigrant groups in Spain, Indian immigrants were at the intermediate positions in the selected immigrant communities. When compared with African immigrants, e.g. Moroccans and Nigerians, they were at much better position in terms of occupation, housing and education, but compared with their first world neighbours, like the US or Belgian immigrants, they were still lagging behind in all aspects of cocooning and precariousness. Among the Asian countries, Indians were only second to Pakistan in precarious living conditions, while China and Philippines were at much better position in terms of housing and the labour market participation.
In this study, following Boterman and Musterd (2016), we have focused on the different domains of cocooning, however, owing to the shortage of data on household income and neighbourhood relations for all immigrant groups, we have based our study on the information available in the census records regarding different socioeconomic and demographic aspects, which we consider, directly or indirectly affects their ‘exposure to the host society’ and ‘living conditions’ in different parts of Spain. We also found that the Indian bubble prevails throughout the Spanish territory with a comparatively great dispersion between different autonomous regions. As per regional differences, we found that they had worse situation in Valencia, where they had registered high degree of cocooning and precariousness as compared to all other regions.

As mentioned before, the ‘bubbles’ are not static objects, they can evolve socioeconomically or remain precarious forever or disappear with time. Indeed, we have seen a great dispersion in terms of precariousness among Indians, which was primarily related to their ethnic origins, i.e. rich Sindhi traders and poor Punjabi farmers. The Bubble always maintain a difficult balance between endogenic (the group’s own desire of not to be exposed to diversity), and exogamic forces (the boundaries maintained by the majority group to limit the exposure of minority group) that works together to secure its existence.

In Spain, a great majority of Indians were either from ‘first’ or ‘one and a half’ generation, and for new immigrants it is always a challenge to make their place at a new destination. Their cocooning behaviour, which was visible in all spheres of life, i.e. economic or social, can be a result of their personal desire to stay closer to their own group or owing to the lack of resources and the limited knowledge of Spanish language. Hopefully, with the passage of time, Indian immigrants will become familiar with their new social environment, become more exposed to diversity in all spheres, and begin to challenge the boundaries of the bubble that separates them from the host society. Then this bubble will disappear. On the contrary, if the precariousness persists with the next generations, then it will be more disturbing for the Indian immigrants and the host community, as it will affect their social cohesion, integration into the host society and their upward social mobility.
References:


