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Community Profile of Adelaide Metropolitan area

By

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Abstract

The paper presents a community profile of Adelaide metropolitan area (South Australia), which depicts the population which lives in the area. It describes and explains social indicators, namely population, computer usage, education and economic status. The major source of data is the Australian Census 2001, conducted by the Australian Bureau of Statistics. The geographical scope of the profile is the Adelaide Statistical Division (ASD with Adelaide's Local Government Areas (LGA) being the spatial unit of analysis. Maps, graphs and tables, developed in a Geographical Information System (GIS), are analysis components which describe community characteristics and identify social patterns, are also included. The purposes of the paper are to inform local communities of the socio-economic characteristics of people in each LGA, to assist local and state governments in the formulation and evaluation of policies, and as a resource document for government and non-government agencies.

Key words: community profile, social indicators, census, geographical information system

1. Understanding Australian census geography classification

Australia has census administrative boundaries standard to define social data, called The Australian Standard Geographical Classification (ASGC).

The ASGC is used for censuses and surveys within the Australian Bureau of Statistics as it allows greater comparability of statistics and a standardisation of terminology. The ASGC, as outlined below, is a classification, which is enabled from low (large scale) to high (small scale) level:

1. Collection District (CD) – typically 200 houses
2. Statistical Local Area (SLA)-consists of Collection Districts (CDs)

3. Local Government Area (LGA)-under the responsibility of an incorporated local government council
4. Statistical Subdivision (SSD)-represents an intermediate level, general purpose, regional type geographic unit
5. Statistical Division (SD)-represents a large level, general purpose, regional type geographic unit
6. Statistical District (S Dist)-consists of SSDs and may cross LGA boundaries
7. Statistical Region (SR)-defined area which has sufficient population to be suitable for the presentation of both population census and labour force statistics within the frameworks for standard statistical outputs from these collections.
8. Major Statistical Region (MSR)-divide each of the five larger states (New South Wales (NSW), Victoria (Vic), Queensland (QLD), South Australia (SA), Western Australia (WA)). Due to less population, Tazmania, Northern Territory (NT) and Australian Capital Territory (ACT) become one MSR.
9. Urban Centre/Locality (UC/L)-defined as a population cluster of 1.000 or more people
10. Section of State (SOS)-population counts to define CDs as urban or rural
11. State/Territory (S/T)-(NSW, Vic, QLD, SA, WA, Tazmania, NT, ACT)
12. Whole of country - Australia

2. The Region of Adelaide Metropolitan Area

Adelaide is the capital city of the state of South Australia. It is located in the southern part of South Australia with a geographic position of approximately 138°38' E and 34°59' S (see figure 1). The approximate dimensions of the Adelaide metropolitan area are 90km North-South and 30km East-West. Adelaide's metropolitan area boundary in this report is based on the Adelaide Statistical Division (SD), with the City of Adelaide located in the center of Adelaide SD (red color in figure 2).



Figure 1. South Australia State boundary and Adelaide Metropolitan Area boundary



Figure 2. Adelaide Statistical Division and City of Adelaide

The Adelaide SD, covering 1,813 km², contains 19 Local Government Areas (LGA) (based on GIS Analysis in Census 2001). Figure 3 shows all LGAs together with an enlargement of a portion of the SD.

550,537 persons. These numbers include permanent residents and non-permanent residents or visitors staying in hotels, flats, hospitals or institutions such as university's boarding house. To analyze the number of the total population of males and females by age, this report categorized age groups by sex by with age group counts in the categories of 0-19, 20-39, 40-59, 60-79 and 80-over.

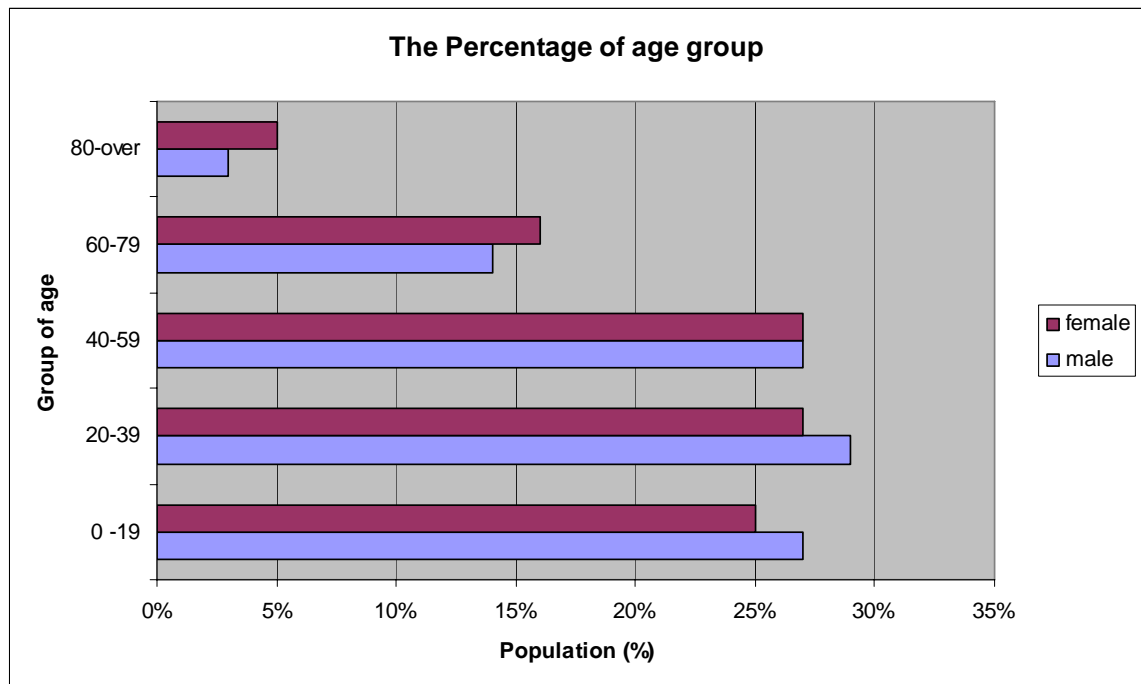


Figure 4. The percentage of total population by age group by sex

Based on figure 4, the highest proportion for males is in the age group of 20-39 (29%) (see blue bar). Then for the females there are 2 groups which reach the highest proportion, namely group of 20-39 and 40-59 by 27% for each other (see red bar). In the earlier years of life males exceed females with this trend reversing in the latter years of life.

From figure 4, it can be explained that the highest proportion of population who stay in Adelaide SD are included in the age groups of 0-19, 20-39 and 40-59. These groups are generally considered as the more productive ages (from a work, education perspective).

3.1.2. Density

In this section, the paper analyzes the population densities across the Adelaide SD. To calculate the density, this report use formula: **[Density= (total population for each LGA)/(area of LGA)]**. The result of calculation can be seen in the figure 5. This calculation clearly assumes population is homogeneously distributed across the spatial units of analysis; an assumption which could be varied by consideration at a larger scale and one that takes into account actual land uses.

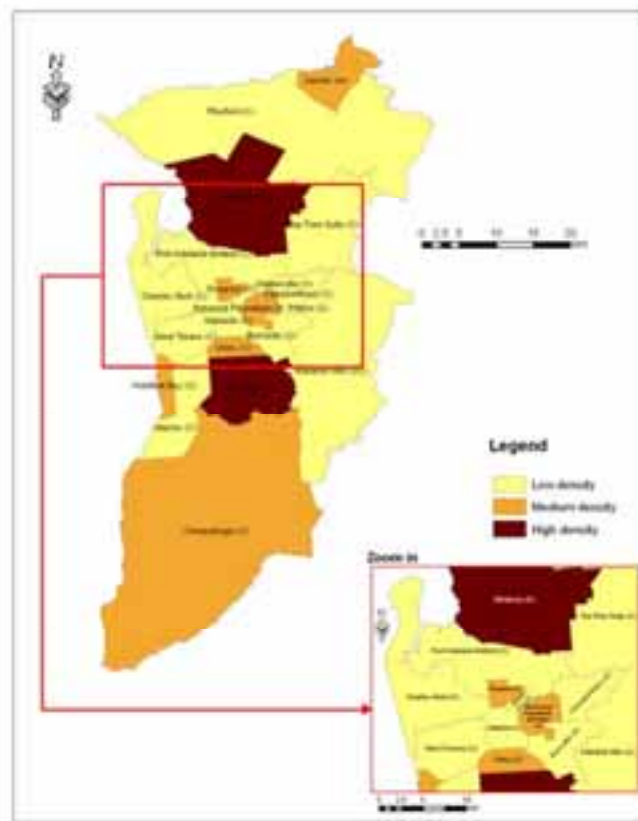


Figure 5. Population densities within Adelaide's LGA

Consultation of figure 5 shows that the highest population density is in the Central and Northern part Adelaide SD, with the highest densities in Mitcham LGA in the central area and Salisbury LGA in the northern region. It can be assumed that there are a large number of settlements developed in these areas. On the other hand, the lowest density is in the middle of the Adelaide SD, which corresponds to the City of Adelaide. This LGA has a relative low population with

most land use in the office, retail, education and open space categories (also see fig.3 for LGA locations).

3.1.3. Ethnic Structure

In the Adelaide metropolitan area, a huge number of people came from overseas, mostly, these phenomena occurs because of economic reason (Hugo *et al*, 1993). Based on Census 2001, there are 5 dominant groups (dominant here means, the number of population more than 10,000 persons); namely people from the United Kingdom, Italy, Greece, Germany, and Vietnam. Detailed information on dominant ethnics resident in Adelaide SD is shown in the figure 6.

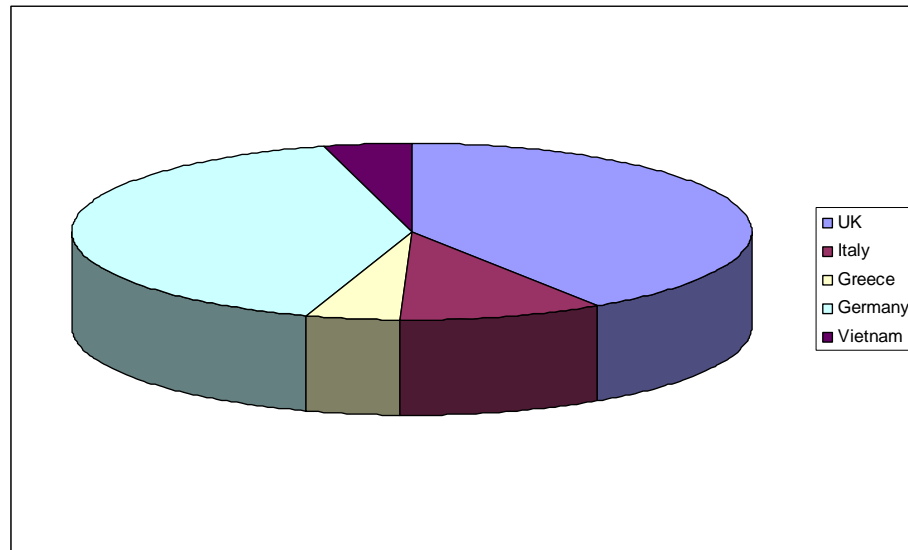


Figure 6. The Proportion of dominant ethnics who live in Adelaide SD

Based on figure 6, the migrants from the United Kingdom are the most dominant of the five ethnic groups living in Adelaide's LGA. This can be explained based on history, where the British colonized Australia and continue to migrate here. At the next level, came German migrants, then Italian and Greeks , mostly after World War II with the majority of their descendants still living in the same region. Vietnamese migrants came to Adelaide as Refugees after 1975 (end of Vietnam War; refugees mostly from South Vietnam), and their descendants still continue live here. This finding is supported by Gargett and Marsden (1996) who state that "European (British and Germany) [migrants] arrived and settled on Australia continent since 1788." "... the biggest impact

occurred after the Second World War. ...Migrants arrived in their hundreds after the war, first as refugees, and then as assisted migrants from 1952. The largest groups were of Italians and Greeks then followed by Vietnamese” Marsden (1996).

Further information about ethnic distribution can be seen in the figure 7 and in table 1.

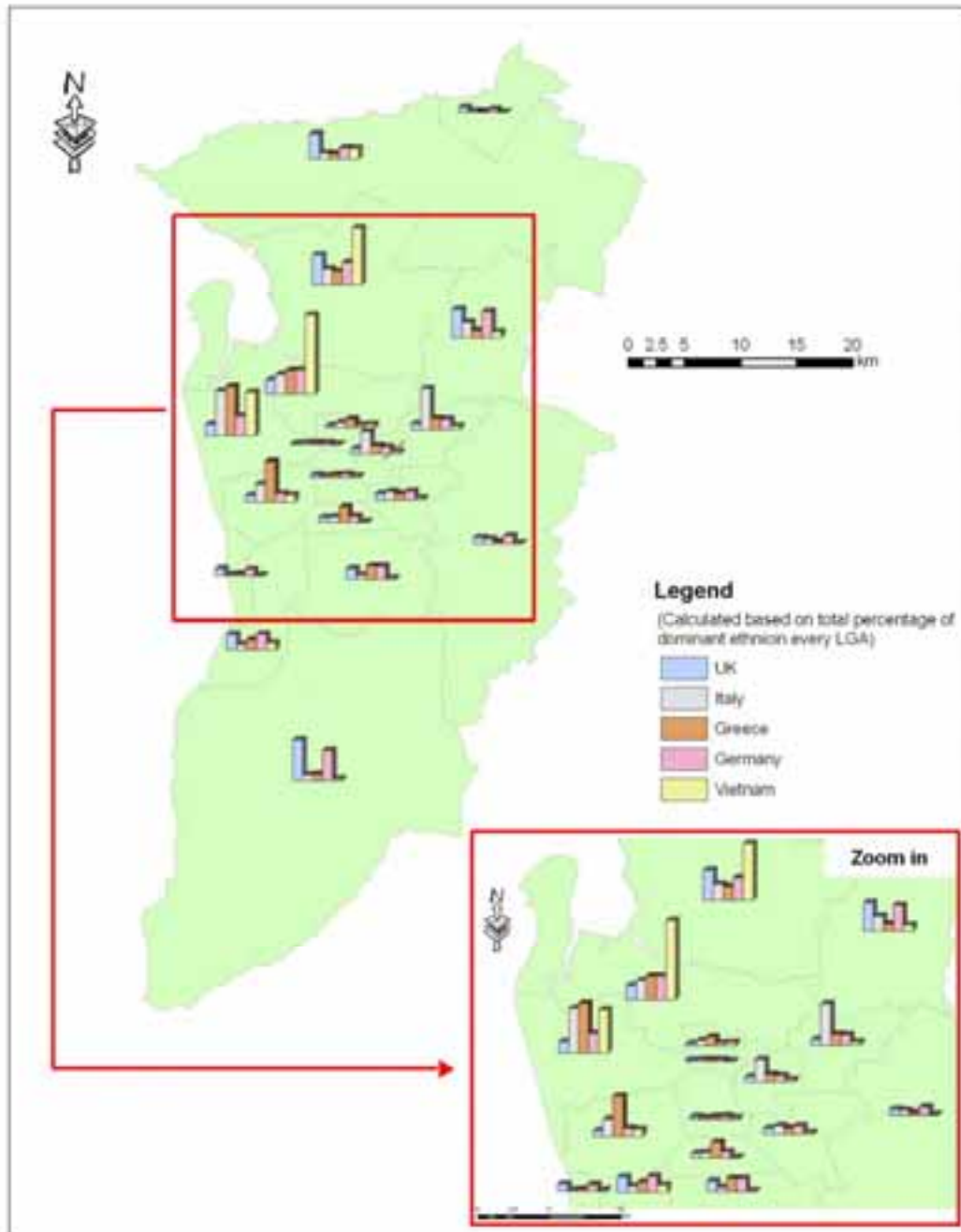


Figure 7. Ethnic Distribution in Adelaide's LGA

Table 1. The detailed numbers of dominant ethnic people resident in Adelaide's LGA by Percentage

LGA	The UK	Italy	Greece	Germany	Vietnam	TOTAL PERCENTAGE
Adelaide (C)	68.6207	10.2956	7.88177	9.31034	3.89163	100
Adelaide Hills (DC)	72.5988	13.9754	2.46009	10.1806	0.78513	100
Burnside (C)	61.5224	20.9385	6.73618	8.75912	2.0438	100
Campbelltown (C)	32.2642	53.3751	6.44837	6.00134	1.91104	100
Charles Sturt (C)	33.912	31.7176	15.6112	5.99633	12.7628	100
Gawler (m)	87.7043	5.18834	1.10163	5.33049	0.6752	100
Holdfast Bay (C)	85.0894	3.89077	2.41663	7.70904	0.89415	100
Marion (C)	76.1258	6.90669	5.43611	8.01217	3.51927	100
Mitcham (C)	72.8143	7.36309	9.7846	9.06659	0.97142	100
Norwood Payneham St. Peters (C)	42.5687	43.0818	6.93479	5.57762	1.83714	100
Onkaparinga (C)	88.4244	3.07733	1.50309	6.58158	0.41357	100
Playford (C)	85.5046	5.0776	1.92429	3.91179	3.58171	100
Port Adelaide Enfield (C)	44.9186	14.6775	7.94137	7.6873	24.7752	100
Prospect (C)	44.6875	24.5313	18.4375	5.46875	6.875	100
Salisbury (C)	69.4041	8.87605	3.30405	5.3285	13.0873	100
Tea Tree Gully (C)	79.0435	9.96831	2.11466	7.30625	1.56727	100
Unley (C)	56.1255	15.5378	19.995	7.51992	0.82171	100
Walkerville (C)	62.3028	17.9022	8.12303	8.51735	3.15457	100
West Torrens (C)	38.3873	25.8159	26.2603	5.21905	4.31746	100

According to the table 1 and figure 7, the highest proportion of British live in LGA of Onkaparinga, LGA of Tea Tree Gully and LGA of Playford, this is followed by German ethnics. Italian and Greece ethnics, have the highest proportion of people living in LGA of Charles Sturt and LGA of West Torrens. The latest arrivals – Vietnamese – have the highest proportion living in LGA of Port Adelaide Enfield and LGA of Salisbury (also see fig.3 for LGA locations).

3.1.4. Speaks English

The Adelaide metropolitan area is highly multicultural, and has many immigrants from a large number of countries who do not use English as their major first language. Community communications are normally undertaken not in English. The pattern of English speaking as a first language is illustrated in figure 8.

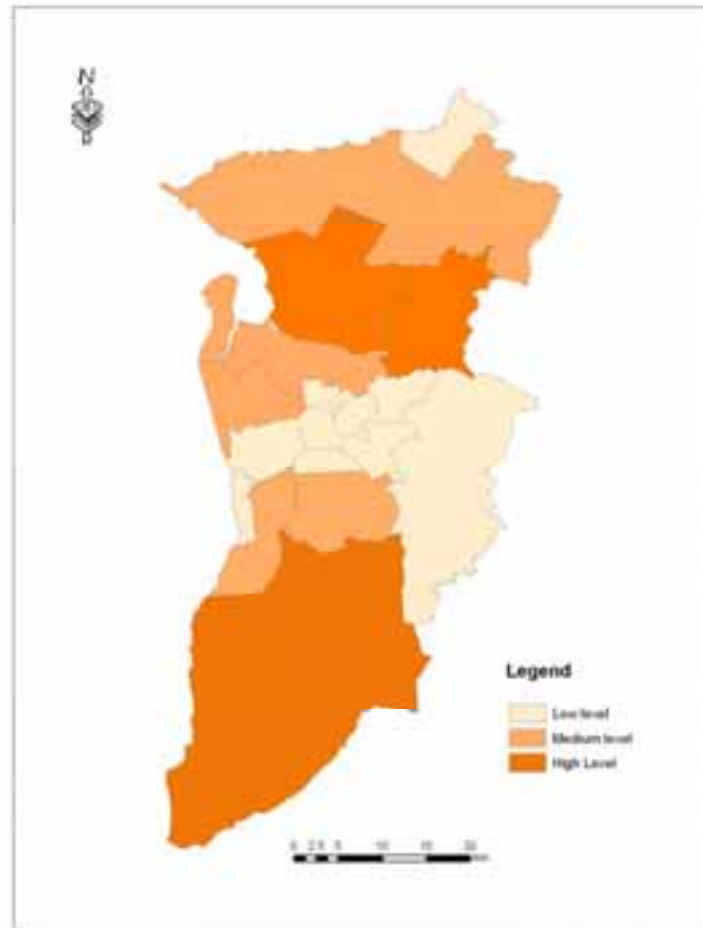


Figure 8. The level of English usage in Adelaide's LGA

In figure 8 it can be clearly seen that highest percentage of English speakers are spread in the fringe of areas of the SD. Average usage of English is witnessed in the middle of area of the SD, whilst low usage of English is concentrated in the center of area. This phenomenon can be explained in regard to the ethnic distribution. Australian and British people from English speaking countries prefer to live in the fringe areas. In the middle areas, including the city of Adelaide, there are mix of ethnic groups between English countries and non-English countries. Then in the center, particularly in port areas, there are many ethnics who have come from non-English countries, such as Italy, Greece and Vietnam.

3.2 Computer Usage

The Computer usage analysis in this paper use the formula: **[(Total Adelaide SD populations who use computer / total Adelaide population) X 100%]**. Computer usage proportion here categorized by 3 groups, namely low, average and high level. The result can be seen in the figure 9.

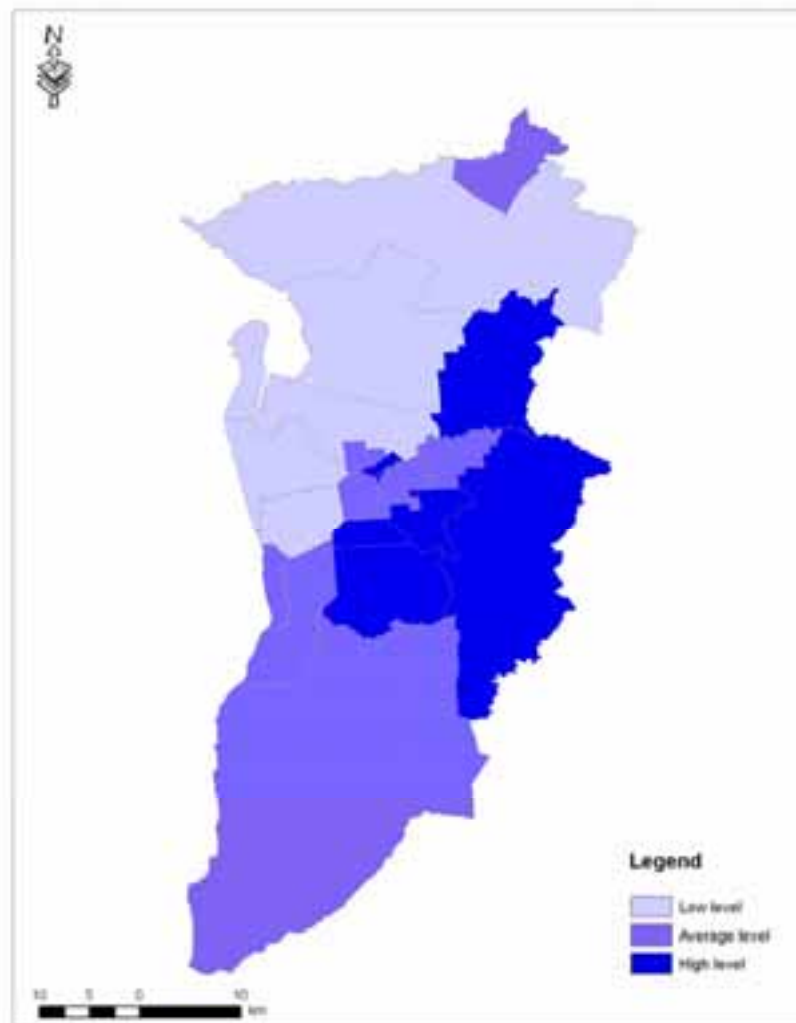


Figure 9. The proportion of computer usage in Adelaide's LGA

According to the figure 9, it can be clearly seen, the high proportion of computer usage held by people who live in the Eastern part of Adelaide metropolitan area. This can be explained by the fact that people in these areas share the highest socio-economic status thus having the financial capacity to purchase computers and an educational background suited to their use.

3.3 Education

This section of the paper discusses the number of people who study at varying levels of education. The levels of educational institutions in this report is divided into 5 groups. The report does not consider other people, not attending educational institutions ; rather it focuses on those who do attend educational institutions (see table 2).

Table 2. Attendance by percent at educational institution in Adelaide SD

Type of Educational Institution	Number of percentage
Pre-School	1%
Infants/Primary	10%
Secondary	6%
TAFE	3%
University	4%
<i>Other</i>	<i>1%</i>
<i>Not attending</i>	<i>71%</i>
<i>Not stated</i>	<i>4%</i>
TOTAL	100%

Based on the table 2, a high proportion (more than 5%) of people study at Infants/Primary and secondary levels. This situation is followed by University attendance (4%), then TAFE attendance (3%). This phenomenon can be explaining the people who enroll school age (around 6-15) interest to study. After graduated from school, it can be assumed some or many people prefer to work then continue to high level academic, so that, for TAFE and University level, only few people interest to continue their study. Figure 10, 11 and 12 display the level of attendance at higher education (university level) in Adelaide's LGA.



Figure 10. The proportion level of Bachelor degrees in LGA



Figure 11. The proportion Postgraduate level of Graduate Diploma/ Graduate Certificate in LGA



Figure 12. The proportion Postgraduate level of master and PhD in LGA

The figures can be explained: people living in LGAs of Mitcham and of Burnside have the highest level education from all level of education (also see fig.3 for LGA locations).

3.4 Economic Indicators

3.4.1. Employment

This section explains the status of labor for people who live in the Adelaide metropolitan area. In the census 2001, two main groups are considered, namely employed and unemployed. In the employed group a subdivision into 3 items, full-time, part-time and not stated is presented. The unemployed group, is categorized by 2 items: unemployed looking for full-time work and part-time (see table 3).

Table 3. Labor force status for the Adelaide SD

Labor Force Status	Number of Percentage
Employed Full-time	58%
Employed Part-time	32%
Not Stated	2%
Total Employment	92%
Unemployment looking for Full-time work	6%
Unemployment looking for Part-time work	2%
Total Unemployment	8%
Total Labor Force	100%

Consideration of table 3 shows total employment at 92%. This percentage represents Adelaide's economic situation which is very good; most of people have a job to fulfill their needs. They prefer work in full-time work and for the unemployed; they prefer looking for full-time work. This fact can be assumed because full-time working is more secure (earn money regularly) than part-time working. The Labor force status geographic distribution in Adelaide metropolitan area can be seen in the figure 13.

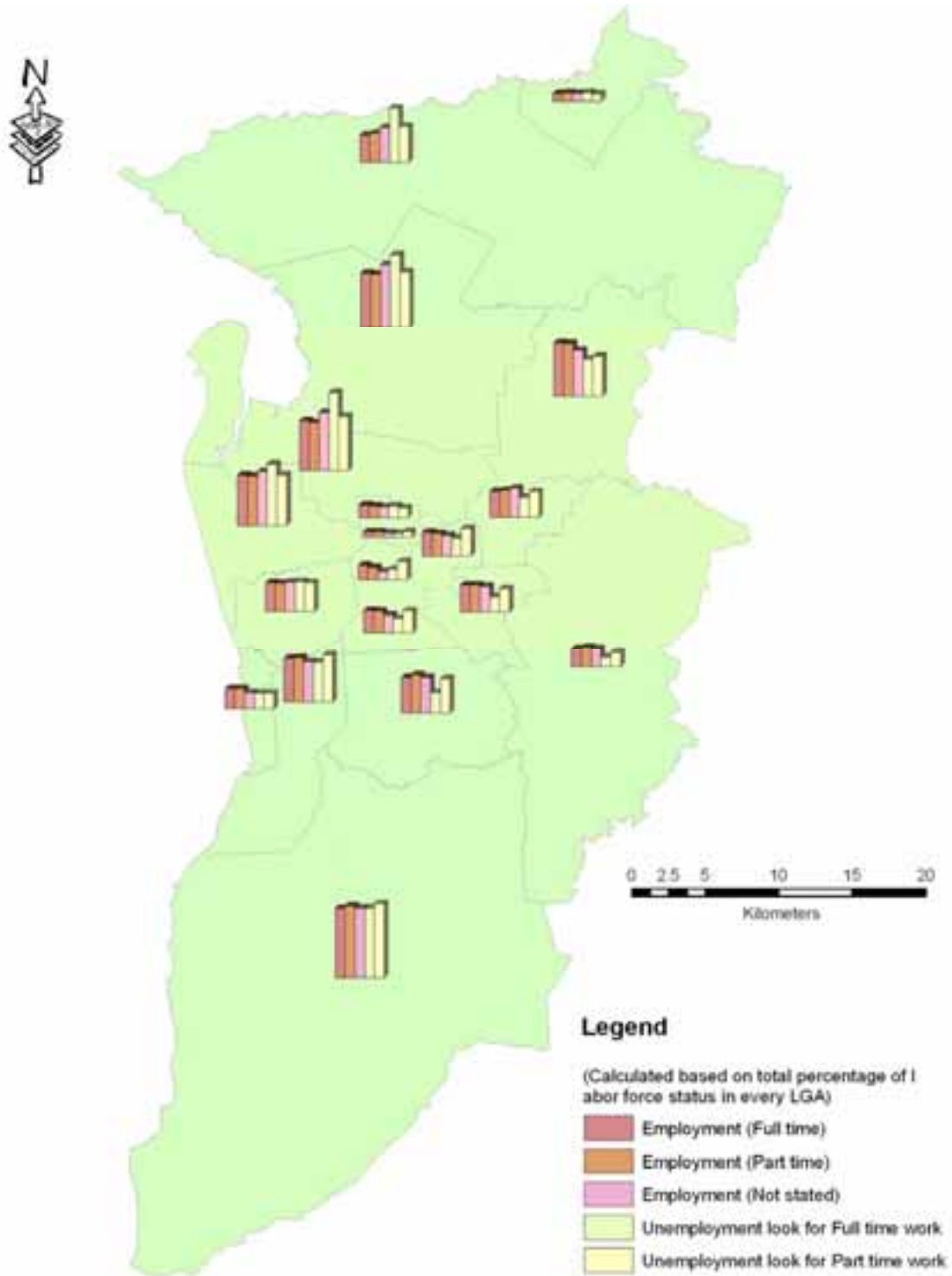


Figure 13. The Labor force status distribution in Adelaide metropolitan area

Figure 13 illustrates a high proportion of employment held by LGA of Tea Tree Gully, LGA of Adelaide Hills, LGA of Mitcham and LGA of Unley. On the

other hand, high proportion of unemployment held by LGA of Playford, LGA of Salisbury, LGA of Port Adelaide Enfield, LGA of West Torrens, LGA of City of Adelaide and LGA of Norwood Payneham St. Peters (also see fig.3 for LGA locations). Unemployment in this case has different meaning. It can be students, retired people and pure unemployment. Unemployment in LGA of West Torrens, LGA of City of Adelaide and LGA of Norwood Payneham St. Peters can be categorized into students group, because, a huge numbers of students (local students or overseas students) stay in those areas in close proximity to schools and university ampuses. Next, unemployment in LGA of Playford, LGA of Salisbury can be categorized into retired people and people who are genuinely unemployed. They prefer live in fringe area, because costs are lower and thus it is more comfortable.

3.4.2. Income

Data on income is presented at the level of total household income. This includes family household and non-family household groups and income numbers of the group where income is more than Aus\$800/week (see figure 14).

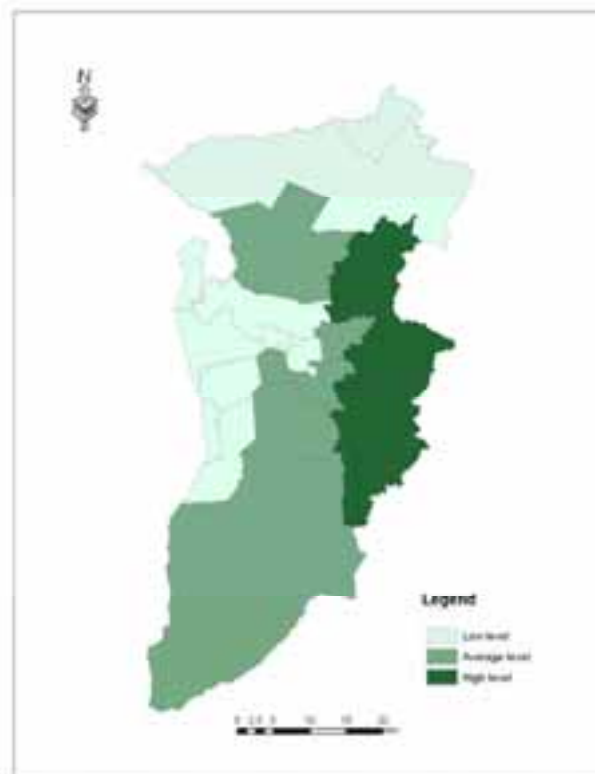


Figure 14. Income proportion for people earning Aus\$ 800 and over/week by LGA

Figure 14 presents a high proportion of people earning an income more than Aus\$ 800/week in the LGA of Adelaide Hills and the LGA of Tea Tree Gully (also see fig.3 for LGA locations). This phenomenon predicts land or housing in those LGA has expensive price.

4. Discussion

A community profile in an area can be utilized to assist in formulating policy or impact on strategic planning. The study in this paper provides a number of indicators some of which exhibit correlation amongst themselves. Therefore, in the future, policy can be developed that takes these correlations into account.

A summary of Adelaide metropolitan area community profile using GIS is listed below:

Density

The highest density held by LGA Mitcham and LGA Salisbury. On the other hand, the lowest density is in the middle of Adelaide SD.

Ethnicity

High proportion of British live in LGA of Onkaparinga, LGA of Tea Tree Gully and LGA of Playford. This is followed by German in the second place. For Italian and Greece, they have the highest proportion of people live in LGA of Charles Sturt and LGA of West Torrens, The latest, the highest proportion of Vietnamese live in LGA of Port Adelaide Enfield and LGA of Salisbury.

English Speaking

High proportion of English speakers spread in LGA of Onkaparinga, LGA of Tea Tree Gully and LGA of Salisbury. Average users of English speaking are collected in the middle of the SD and low users of English speaking concentrated in the center of area.

Computer Usage

High proportion of computer usage located in LGA of Adelaide Hills, LGA of Mitcham, LGA of Unley, LGA of Burnside and LGA of Tea Tree Gully.

Education (University level)

The figures can be explained by the observation that people living in LGA of Mitcham and LGA of Burnside have the highest level of education from all level of education.

Labor Force Status

High proportion of employment held by LGA of Tea Tree Gully, LGA of Adelaide Hills, LGA of Mitcham, LGA of Unley. On the other hand, a high proportion of unemployment is experienced in the LGA of Playford, LGA of Salisbury, LGA of Port Adelaide Enfield, LGA of West Torrens, LGA of City of Adelaide and LGA of Norwood Payneham St. Peters.

Income

High proportion of people earns income more than Aus\$ 800/week held by LGA of Adelaide Hills and LGA of Tea Tree Gully.

From those factors, there are correlations among them.

1. Income-Labor Force Status-Computer usage

High income society is concentrated in LGA of Adelaide Hills and LGA of Tea Tree Gully. Therefore, it makes sense if labor force status as employment has highest proportion in those areas. This phenomenon followed by their habits to use computer has highest level than other LGA. This study case can help local government to define price level for taxes, such as high price for housing rental or car parking in area where high income society live. Future, the taxes will contribute in urban development in their own areas or help other poor areas to improve their urban facilities.

2. Speak English-Ethnicity

High proportion of English speakers concentrate in fringe area, This phenomena can be explain related with the ethnics distribution, which are Australian and British also people from English countries prefer to live in the fringe area, so that, they use communication by English. Medium level concentrated in the middle, include the city of Adelaide; there are mix ethnic groups between English countries and non-English countries. Then in the lower level of English speakers in port areas, it can be explained, because there are many ethnics come from non-English countries, such as Italian, Greece and Vietnamese live here. These study cases encourage LGA council proposes English community centers build in location where people speak English in low frequent to help them in English improvement. Future, they can easily socialize with local people.

3. Education-Computer Usage

There are similar proportion level between education and computer usage in some LGA, for instance are LGA of Mitcham and LGA of Burnside. It means, education and computer usage have strong correlation. This study case presents people who still enroll in school/university age use computer in high frequent to do their school's/university's assignment. Therefore, the local government can help education institutions to improve their quality by donate computers. Future, the students and school/university staffs have embraced new communication technology and gain access to service and information delivery via electronic matters.

5. Summary

To sum up, GIS analysis in community profile has given key messages, namely:

1. The ability of city council to use information more effectively to plan and deliver services.
2. GIS is not only as technology, but it can improving the quality of community areas.
3. GIS is a strategic decision making support tool.

Acknowledgement

This paper based on author research in the year 2006 to analysis community profile of Adelaide metropolitan area using GIS method.

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