



SOCIO-ECONOMIC CHANGE ANALYSIS

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*Coping with Sea Change: Understanding Alternative Futures for
Designing more Sustainable Regions (LWA UNE 54)*



Australian Government
Land & Water Australia

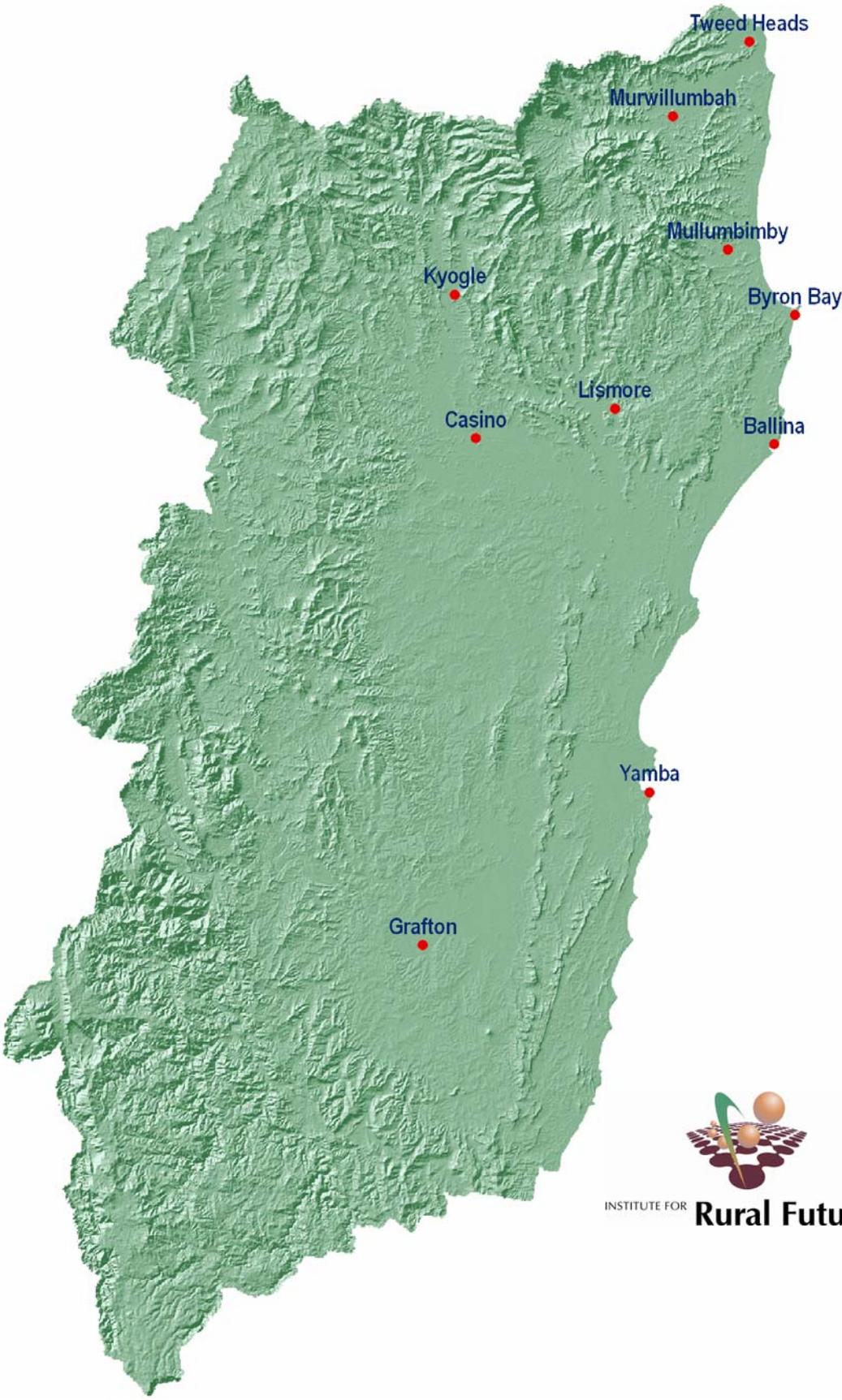
Institute for Rural Futures



CBRM Centre for
Bioregional
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UNE
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NEW ENGLAND

Identifying socio-economic trends for the Northern Rivers Region of New South Wales





1.0 Introduction

The Northern Rivers region is undergoing substantial social and economic change due to the effects of population shifts, global competition and industry restructuring. The rapid increase in the region's population, together with changing land use is impacting on the Northern Rivers' natural environment, natural resources and on major infrastructure requirements of the region. These pressures are creating numerous negative impacts on the unique features of the region (such as the rural and natural landscapes, rural activities, and diverse cultural and lifestyle opportunities) that are highly valued by current residents and visitors.

This report provides an overview of socio-economic trends using key social change indicators for the Northern Rivers Region of New South Wales. This work forms part of a larger project titled "Coping with Sea Change: Understanding Alternative Futures for Designing more Sustainable Regions". The social-spatial trends identified in this work will aid in the development of trajectories that will be used to create a series of landscape change scenarios for the Northern Rivers Region.

The data used in this document has been sourced from the Australian Population and Housing Census for the periods 1981, 1991 and 2001 (ABS 1989; ABS 1994; ABS 2003). A change analysis for each key socio-economic indicator was undertaken for the periods 1981 to 1991, 1991 to 2001 and overall change between 1981 to 2001. The Census Collector Districts are the smallest scale in which the data is available, as such the results are represented using the 1981 Census Collector District Boundaries¹. This allows us to examine change in the region at the finest possible scale, which will also aid in the interpretation of the Land Use/Land Cover Change Analysis Project that will be undertaken as part of the "Coping with Sea Change: Understanding Alternative Futures for Designing more Sustainable Regions" Project.

This report is divided into a number of sections. Firstly, a brief description of the region will be provided. Secondly, the demographic change in the region will be discussed. Thirdly, changes to industry and the economic base of the region will be identified. Fourthly, changes in development patterns within the region will be examined. Finally, a summary will provide an overview of socio-economic changes across the region.

¹ It is important to note that a number of Census Collector District (CCD) boundaries have been altered between census periods. Where this has been the case, data from these CCDs have been amalgamated to line-up spatially with the CCD boundaries for the 1981 census. In some cases a number of 1981 CCD boundaries have also been amalgamated. This has been necessary to allow direct comparisons between census periods.

2.0 Brief Description of the Northern Rivers Region

Located in the north east corner of New South Wales, the Northern Rivers is a rapidly growing region of over 278,000 people, covering an area of approximately 20,900 square kilometres (NRRS 2005). The region is bounded by the Queensland border to the north, the NSW coastal line to the east, the Great Dividing Range to the west that extends from the Queensland border through to just south of Grafton. The region includes the local government areas of Tweed, Byron, Ballina, Lismore, Kyogle, Richmond Valley and Clarence Valley (see Figure 2.0). The Clarence valley includes the amalgamated LGAs of Grafton, Copmanhurst, Maclean and Pristine Waters as indicated in Figure 2.0.

The region is characterised by three river valleys; the Tweed Valley, Richmond Valley and Clarence Valley; a scenic coastal escarpment with World Heritage listed rainforests, fertile farm land and its broad scenic coastline. The Northern Rivers has a strong sense of identity around its environmental and lifestyle attributes (Brunckhorst et al. 2006). The region has a predominantly rural outlook and is widely recognised for its unique environment, diverse communities and village communities. The regional landscape is dominated by agriculture land uses (~20%), forestry (~50%) and land for environmental conservation purposes (~30%) (NRRS 2005). Until the late 1970s, dairy farming was a predominant agricultural land use within the region, but this has declined over the last 30 years (DOTARS 2003). Sugar cane has also been a significant industry, however, this has also experienced declines across the region. At present, macadamia nuts, banana, avocados and beef are now typical products of the region (DPI 2004).

Scattered throughout the regional landscape are 300 cities, towns, villages and smaller communities (NRRS 2004). Historical factors have influenced the current settlement patterns within the region, with initial European settlements being linked to early transport routes and land use practices for economic development. Consequently, the economic base of the region originally developed around its natural resources, stimulating the growth of agricultural and forestry industries. It was not until the 1960's that the settlement patterns started to be influenced by other factors. During the 1960's lifestyle aspirations of families resulted in greater population concentrations in the coastal zone and then in the 1970's there was an emphasis on rural residential development (Cuming et al. 1996). The result has been the current settlement pattern, consisting of agricultural holdings and dispersed rural subdivision, scattered among a general distribution of village and smaller settlements with a focus on the region's larger towns and cities (Essex and Brown 1997).

In the thirty years from the end of World War II to 1976, the Northern Rivers experienced relatively modest population growth, rising from 75,000 to 92,000 persons (NRACC 2004). However, the period 1976 to 2005 saw rapid population growth as the population more than doubled from 92,000 to nearly 278,000 (DIPNR 2005). This growth tended to be concentrated on the coastal plains. Consequently, 43 percent of the region's population is concentrated along the coastal fringe with the remaining 57 percent of the population scattered throughout the inland cities, towns, villages and smaller communities. Currently the region is experiencing some of Australia's fastest population growth rates and it has been identified by Burnley and Murphy (2004) as one of the key 'sea change' zones. DIPNR (2004) suggest that the region's population will reach 348,880 by 2031, or approximately 1.8% of Australia's projected population.

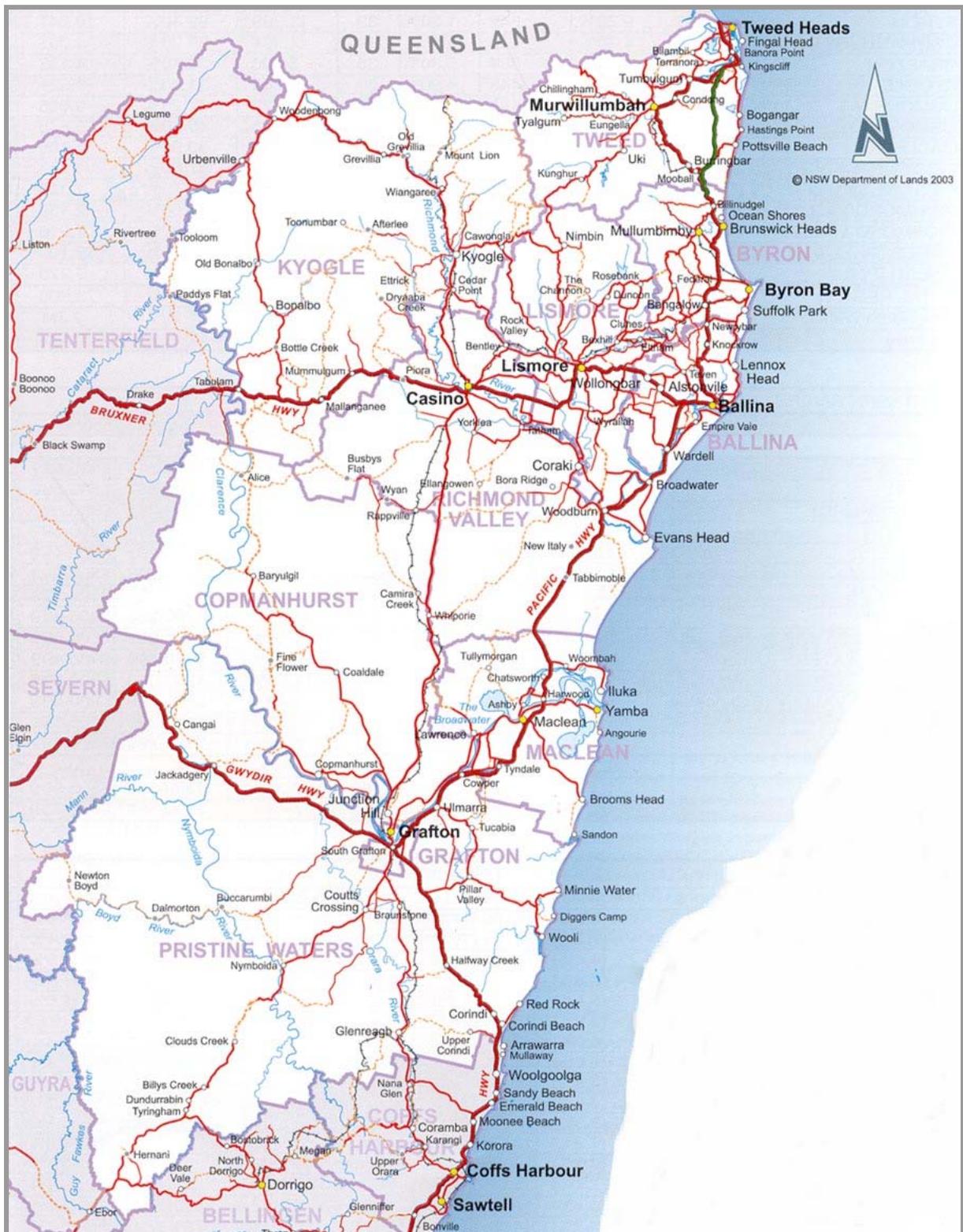


Figure 2.0. Map of the Northern Rivers Region

3.0 Demographic Change in the Region

3.1 Change in population

DIPNR (2005) identified that the population of the Northern Rivers had more than doubled from 92,000 to 278,000 between the period 1976 to 2005. Figure 3.1 shows areas of growth within the region between 1981 and 2001. Overall, declines in population were experienced within the regions larger towns and cities and predominantly along the west fringe of the region. Whereas, population growth was concentrated along the coastal fringe and along the fringes of the region's larger towns and cities. These population growth trends can be attributed to urban fringe development, the growth of the smaller towns and villages and the subdivision of agricultural land to rural residential blocks, driven by in-migrants seeking alternative rural and coastal lifestyles.

It is interesting to note the change in population between the periods 1981 to 1991 and 1991 to 2001. The earlier period generally experienced growth throughout the whole region, apart from the regions larger cities and towns and the north west corner of the region. Whereas, 1991 to 2001 experienced less growth across the whole region. This period saw similar population declines with that of 1981 to 1991, however, declines were also experienced across many of the inland rural areas. On the other hand, the coastal fringe continued to grow in population.

3.2 Patterns of in-migration across the region

The in-migration of people to a particular destination from other locations can have both positive and negative impacts on the receiving destination and consequently alter the socio-economic profile of the receiving destination. Measuring the level of in-migration allows us to identify locations that are more likely to change due to the composition of the in-coming population. Figure 3.2 shows the influence of in-migration across the region. It provides a spatial summary of the number of people that have moved to each particular area within the region 5 years prior to each census period.

Figure 3.2 shows the pattern of distribution of in-migrating population between each census period is generally similar across the region. For instance, those moving to the region were more likely to move to the north eastern coastal fringe. This pattern is consistent throughout all census periods, however, 2001 saw more people moving to the larger coastal cities and towns, particularly the fringes of these cities and towns. Patterns of in-migrating people are similar within the southern section of the region for each census period. With more in-migrating people moving to the southern coastal fringe and south west of Grafton. The central section of the region also saw little increase in population due to in-migration. One major difference between each census period is the greater increase of in-migration in the central west section during 1991.

3.3 Change in population structure

When examining changes in population it is important to examine the change in population structure. One indication is the age composition of the population and how it changes over time. This is of value in the analysis because different population structures generate varying demands for goods and services (e.g.

schools, hospitals, employment, pensions, shopping facilities) or may even use completely different services altogether.

Figures 3.3, 3.4 and 3.5 can be compared to identify changing age compositions across the region. Figure 3.3 shows the change in the proportion of the population aged younger than 15 years old (children), Figure 2.4 shows the change in the proportion of the population aged 15 to 64 years old (working age) and Figure 3.5 shows the change in the proportion of the population aged 65 plus (retirees). Overall, the region aged between 1981 and 2001. This may be attributed to a high proportion of the working aged and retirees in-migrating into the region, the aging of long term residents, and lower fertility rates like that experienced across Australia in more recent years.

Between 1981 and 2001 there was a decline in the change in the proportion of children across the region, with the exception of a few small increases, predominantly scattered across inland rural areas and on the urban fringe of some of the larger inland cities and towns. There were increases in the change in the proportion of retirees in all larger cities and towns, with the exception of Byron Bay and Mullumbimby that experienced increases in the proportion of the working aged. Tweed Heads, Ballina, Murwillumbah and Yamba all experienced high increases in the proportion of retirees. Other increases in the proportion of retirees were evident in the hinterlands and rural areas between larger cities and towns. Higher increases in the proportion of working aged are also evident in the hinterlands and rural areas surrounding Byron Bay, Nimbin and Coraki, and in the south western corner of the region around Nymbodia.

Comparison of the change in age composition between the periods 1981 to 1991 and 1991 to 2001 yields some interesting trends. Notable is the increase in the proportion of children in rural areas scattered throughout the northern part of the region and the south coastal fringe between 1981 to 1991. However, there have also been declines in the proportion of children in these areas between 1991 to 2001. The central part of the region experienced increases in the proportion of children between 1991 to 2001. However, again there were declines in the proportion of children in these areas between the earlier period 1981 to 1991.

When comparing the working aged between the periods 1981 to 1991 and 1991 to 2001 the southern part of the region experienced relatively constant increases in the proportion of the working aged between both periods. While, the central part of the region experienced high increases between 1981 to 1991, there was a decrease in the number of workers between 1991 to 2001. Also, interesting to note is the high increase in the working aged in Byron Bay and the surrounding hinterlands and rural areas of Byron Bay and Nimbin between 1991 to 2001. A greater portion of these areas had experienced decreases between 1981 and 1991.

Comparison of retirees between the periods 1981 to 1991 and 1991 to 2001 reveals that increases in the proportion of retirees in the larger cities and towns was relatively constant throughout both periods. Large increases were evident in areas surrounding Tweed Heads, Ballina and Yamba. Slight increases were also evident in rural areas surrounding the larger cities and towns. These areas continued to increase the proportion of retirees between 1991 to 2001. More remote rural areas also began to experience increases in the proportion of retirees during this period. The central part of the region experienced high increases in the

proportion of retirees between 1991 to 2001. This had not been the case during the previous period 1981 to 1991.

In summary, population structure changes are complex, but are reflected in general shifts in population from in-migration of people from outside the region and within rural inland areas to the coastal fringe and the fringes of the region's larger cities and towns. These in-migration shifts are generally dominated by aged members of the population.

FIGURE 3.1. Change in Population across the Northern Rivers Region

1981 to 1991

1991 to 2001

1981 to 2001

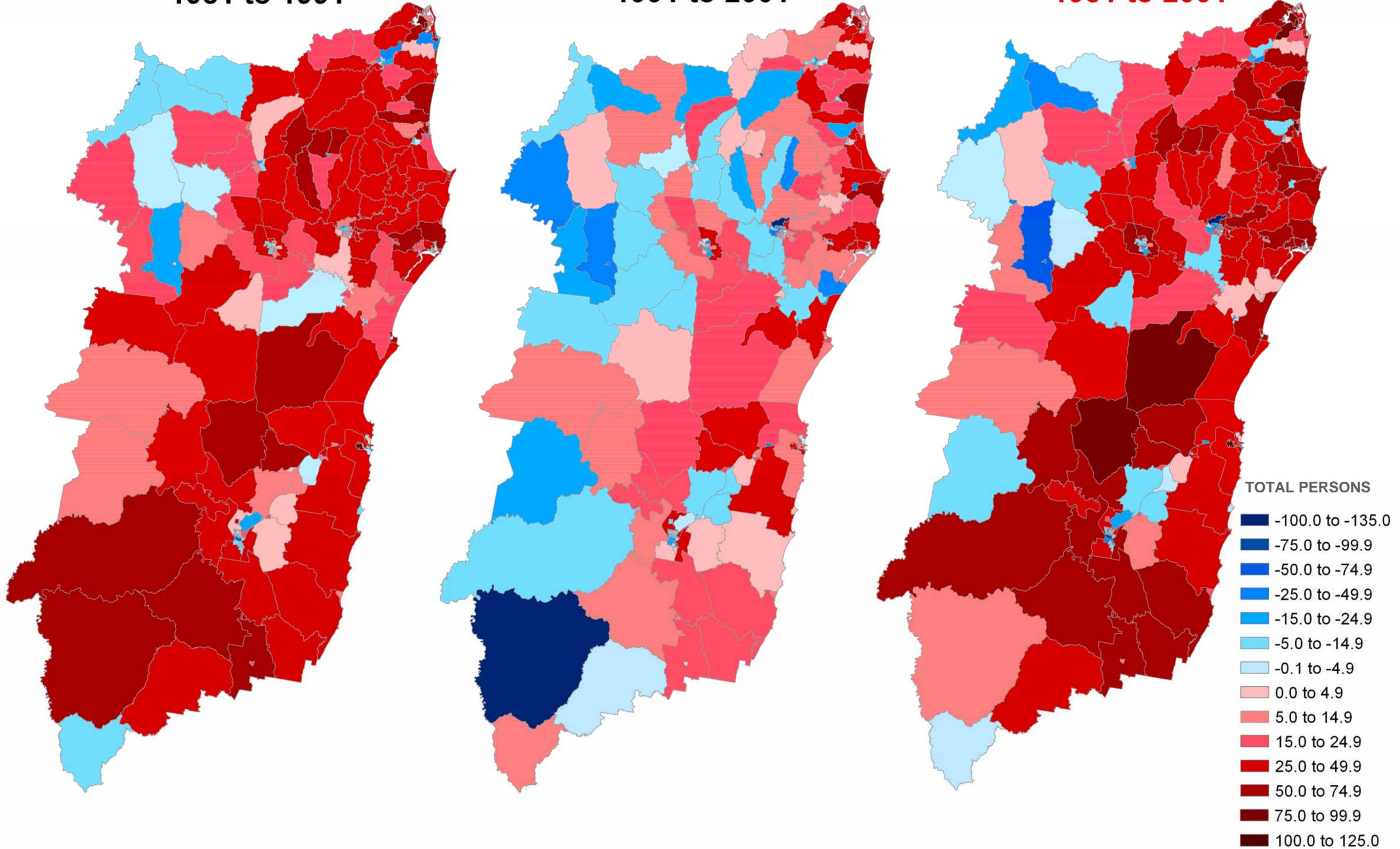


FIGURE 3.2. Number of People with a Different Address 5 Years prior to each Census Period

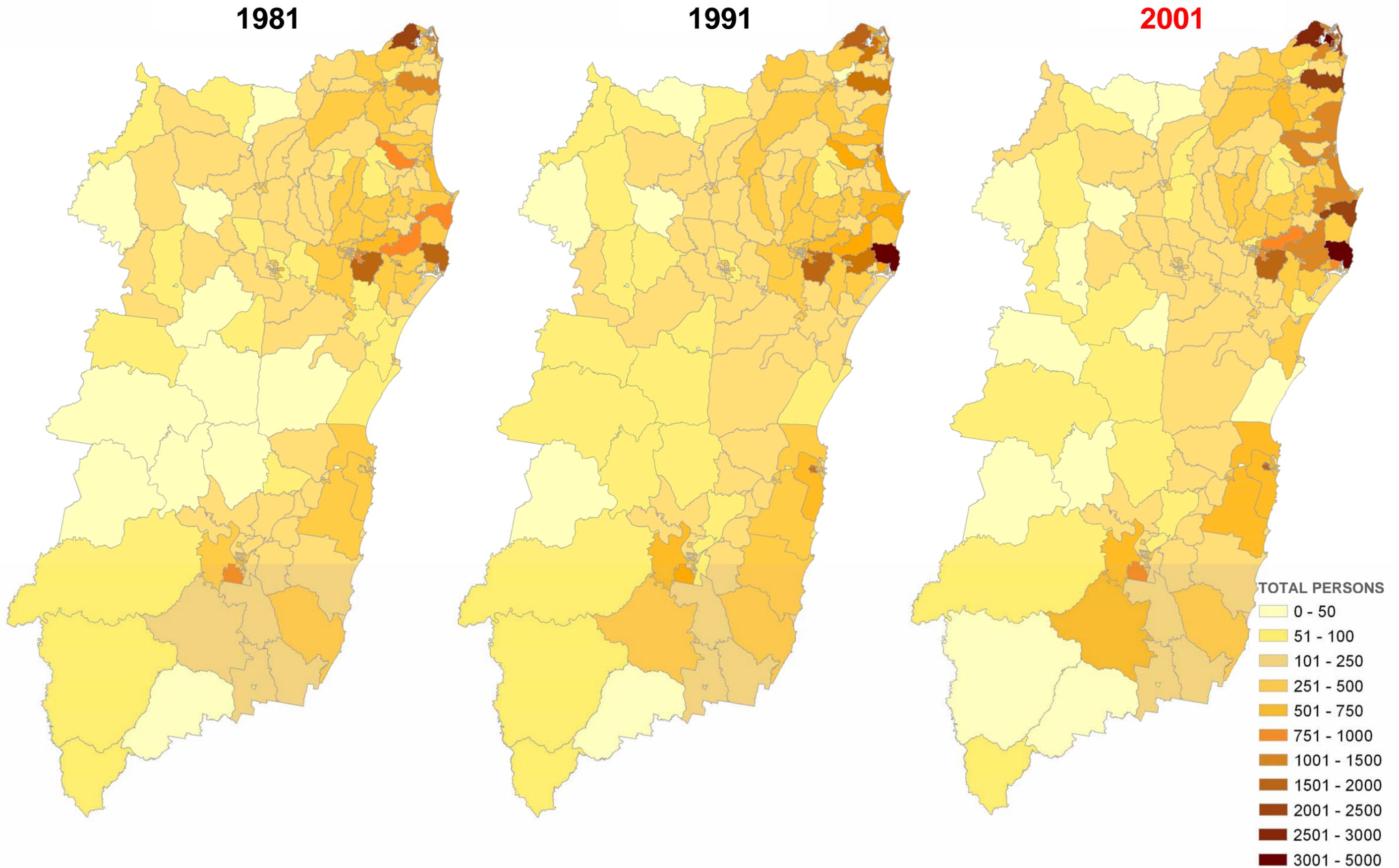
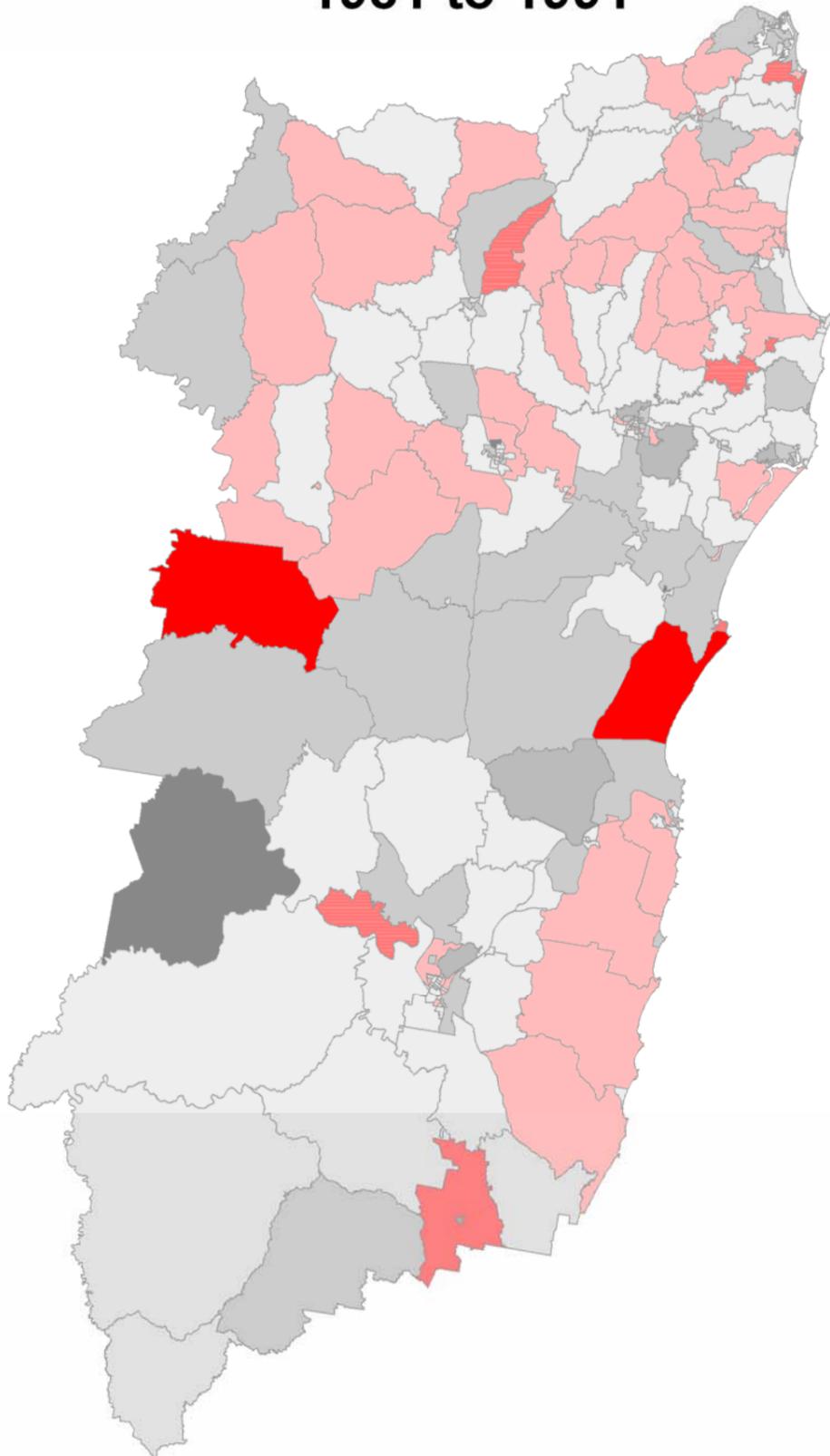
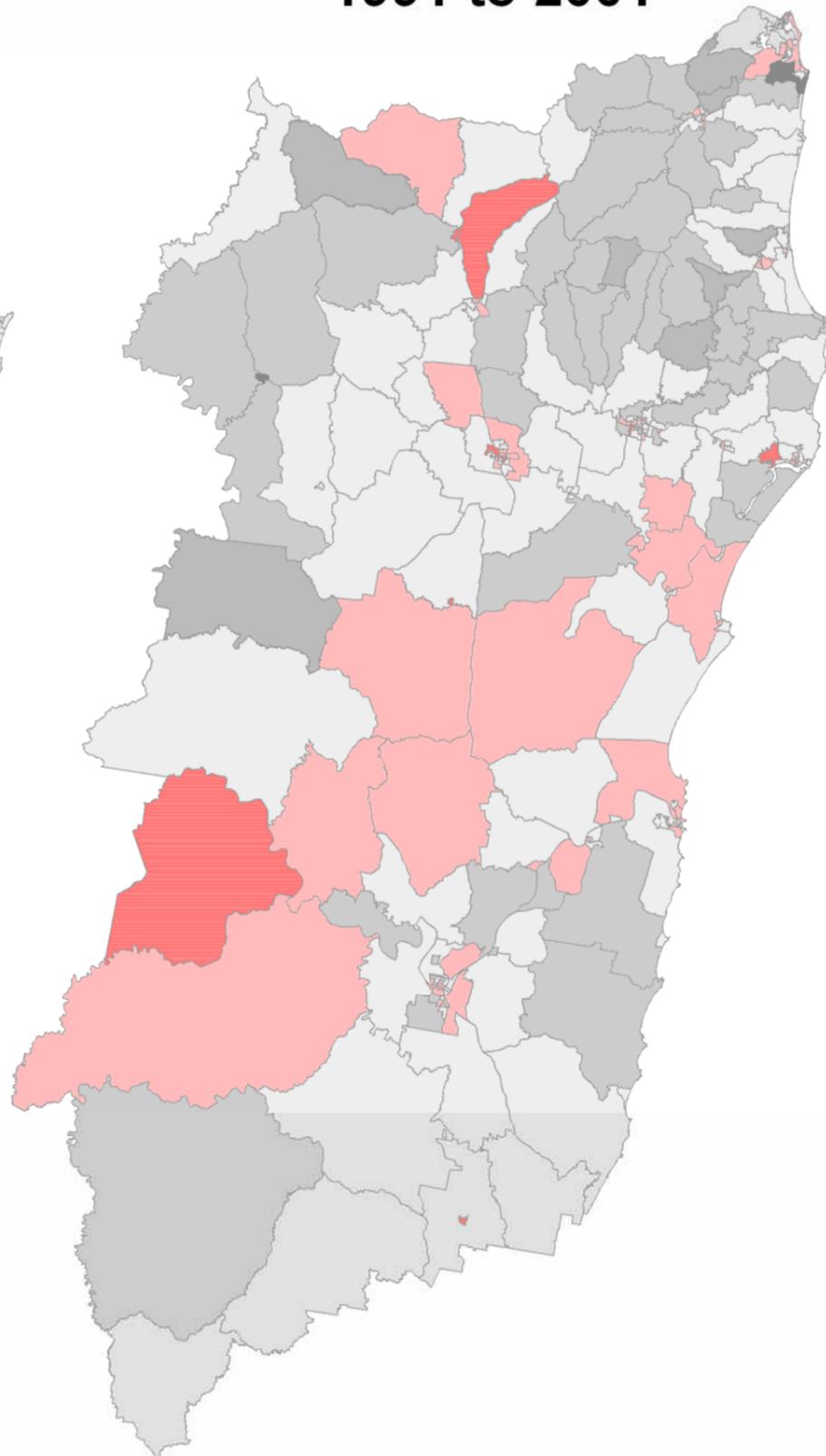


FIGURE 3.3. Change in the Proportion of the Population Aged Younger than 15 (Children)

1981 to 1991



1991 to 2001



1981 to 2001

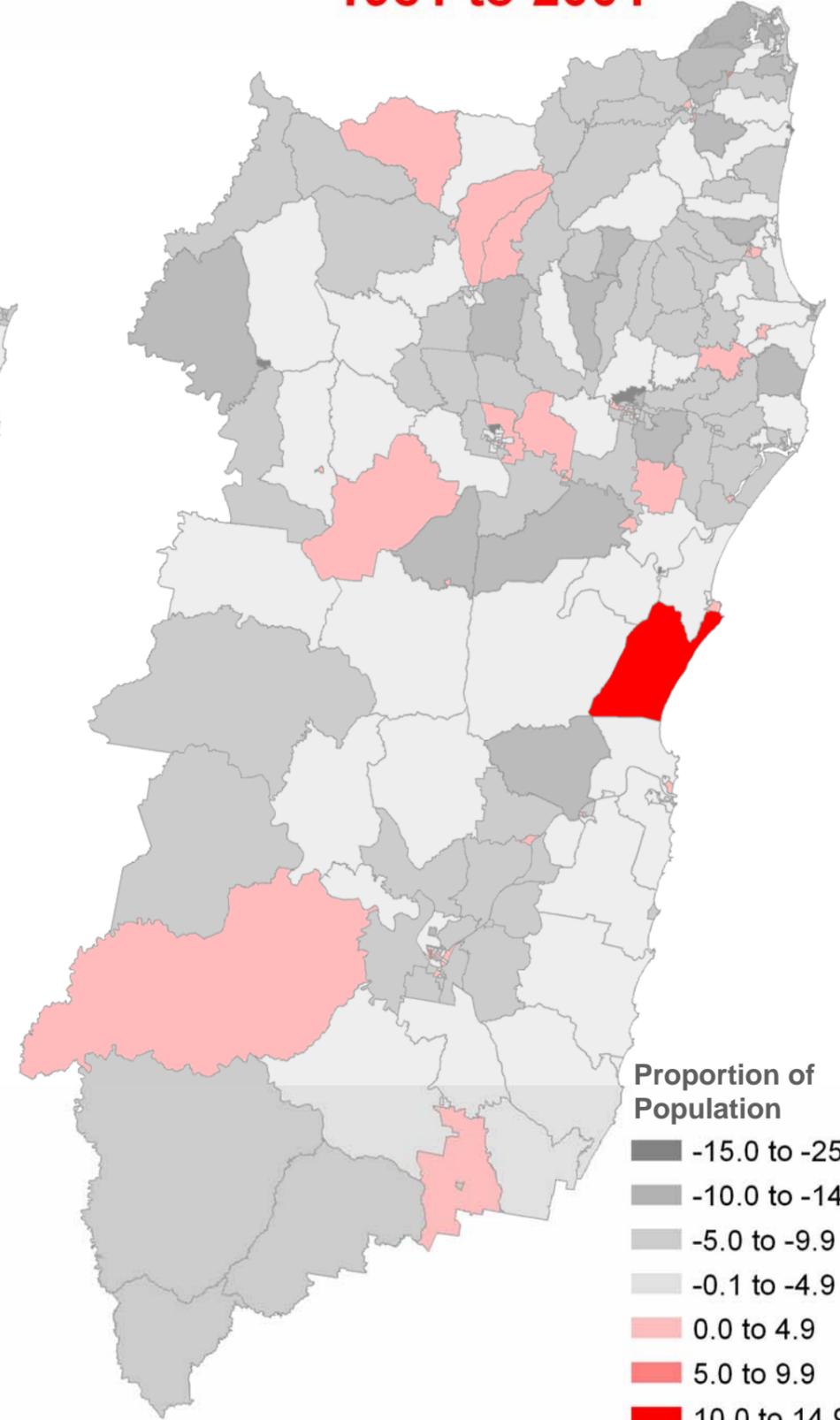
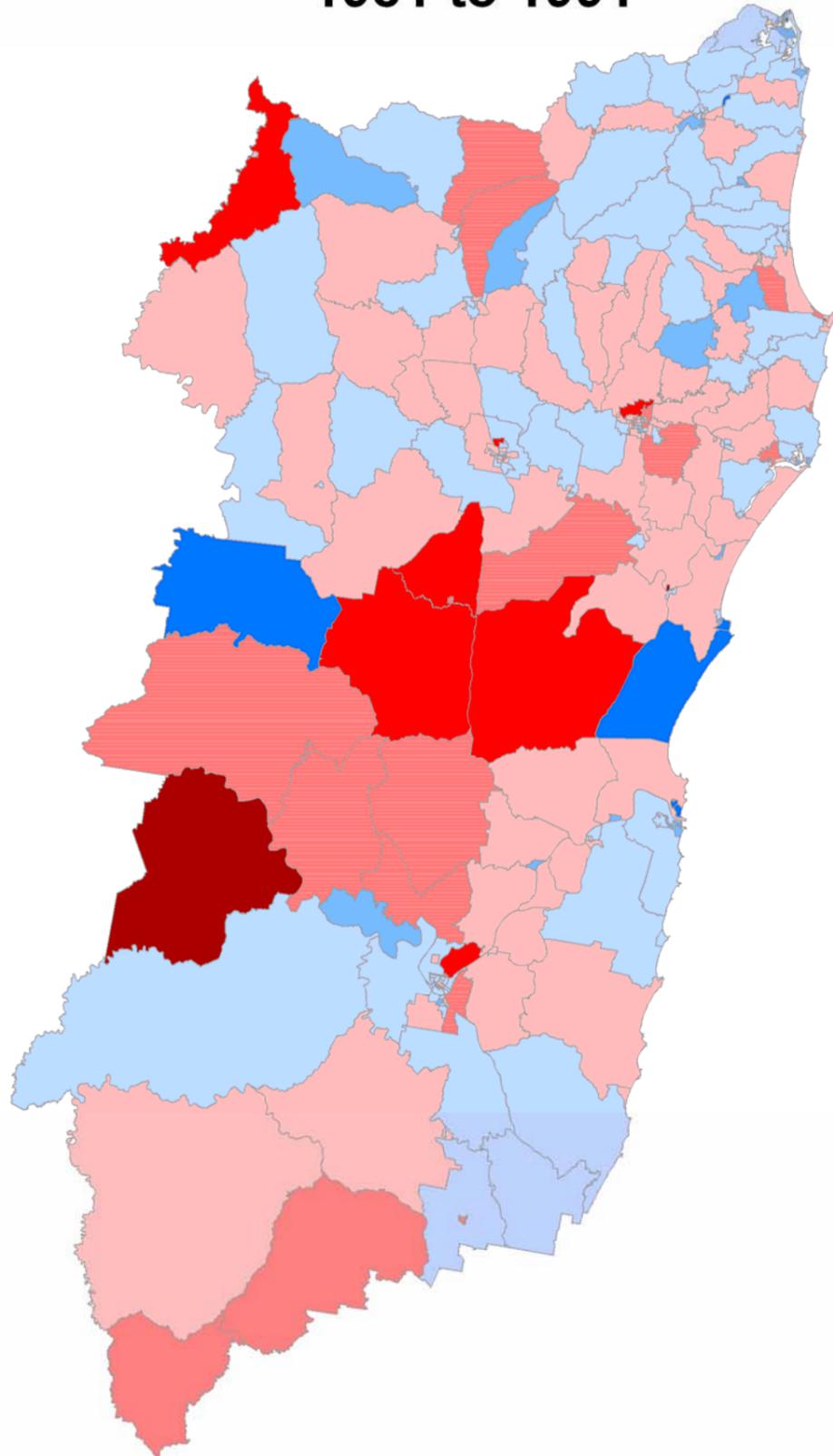
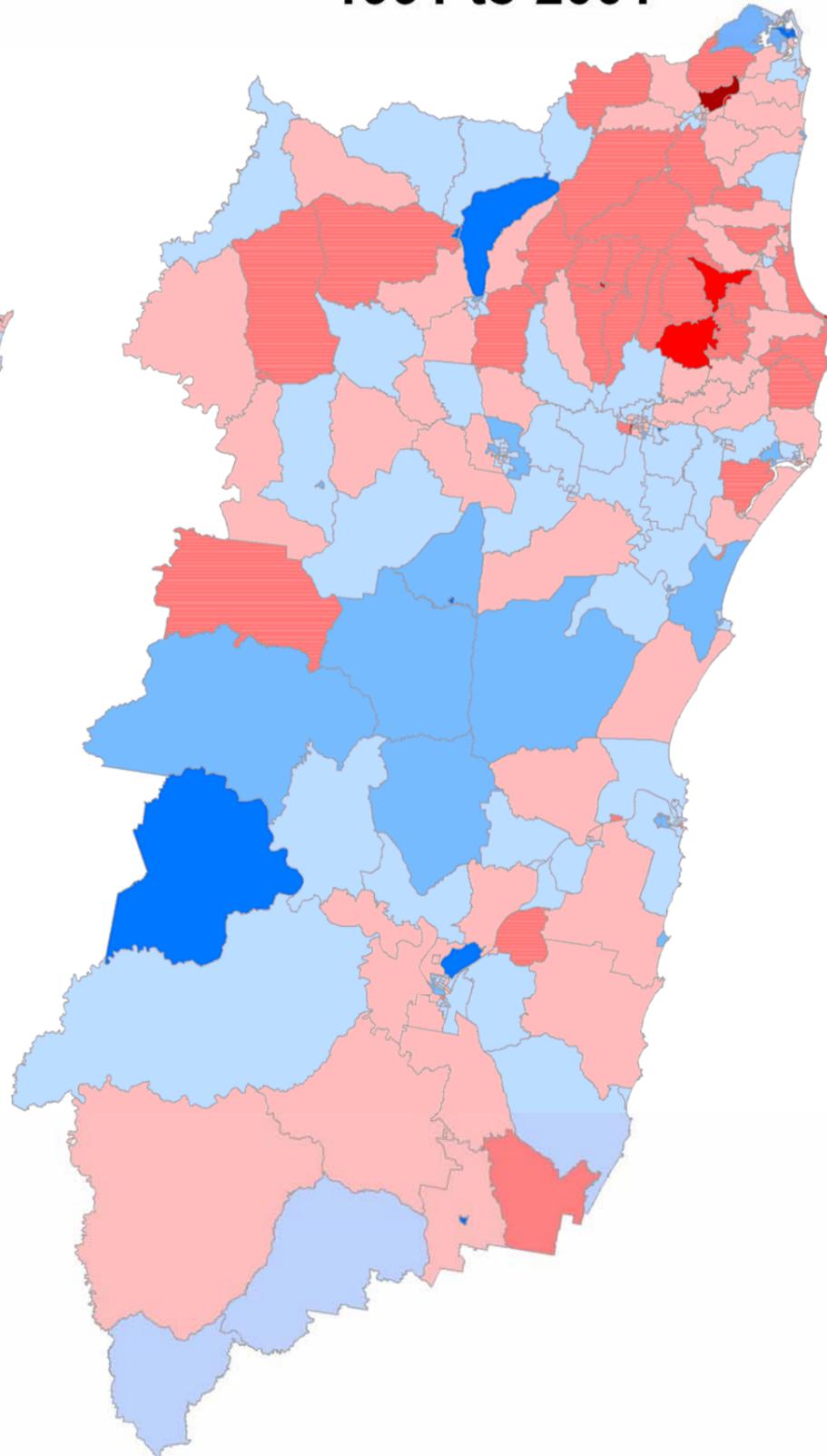


FIGURE 3.4. Change in the Proportion of the Population Aged 15 to 64 (Working Age)

1981 to 1991



1991 to 2001



1981 to 2001

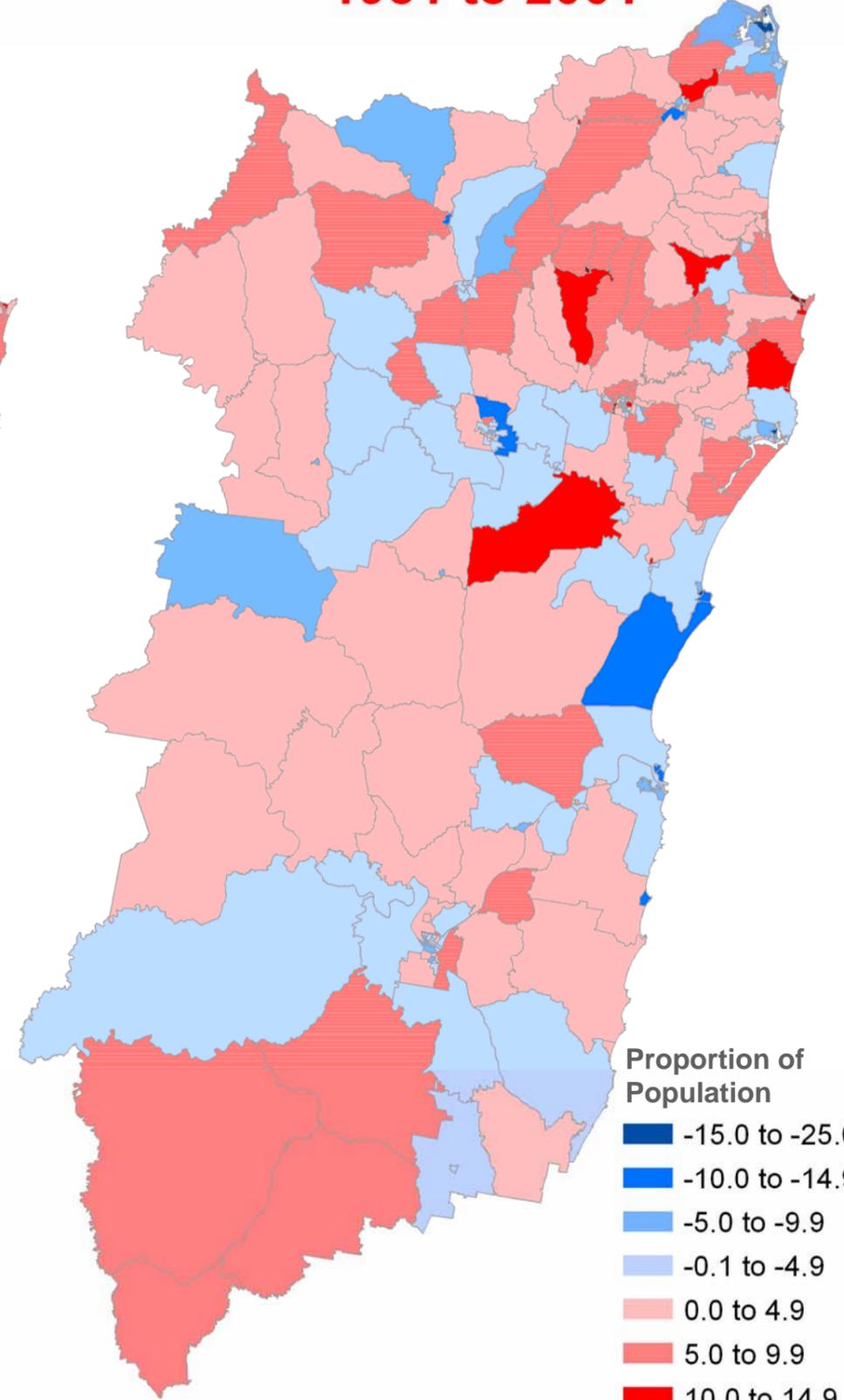
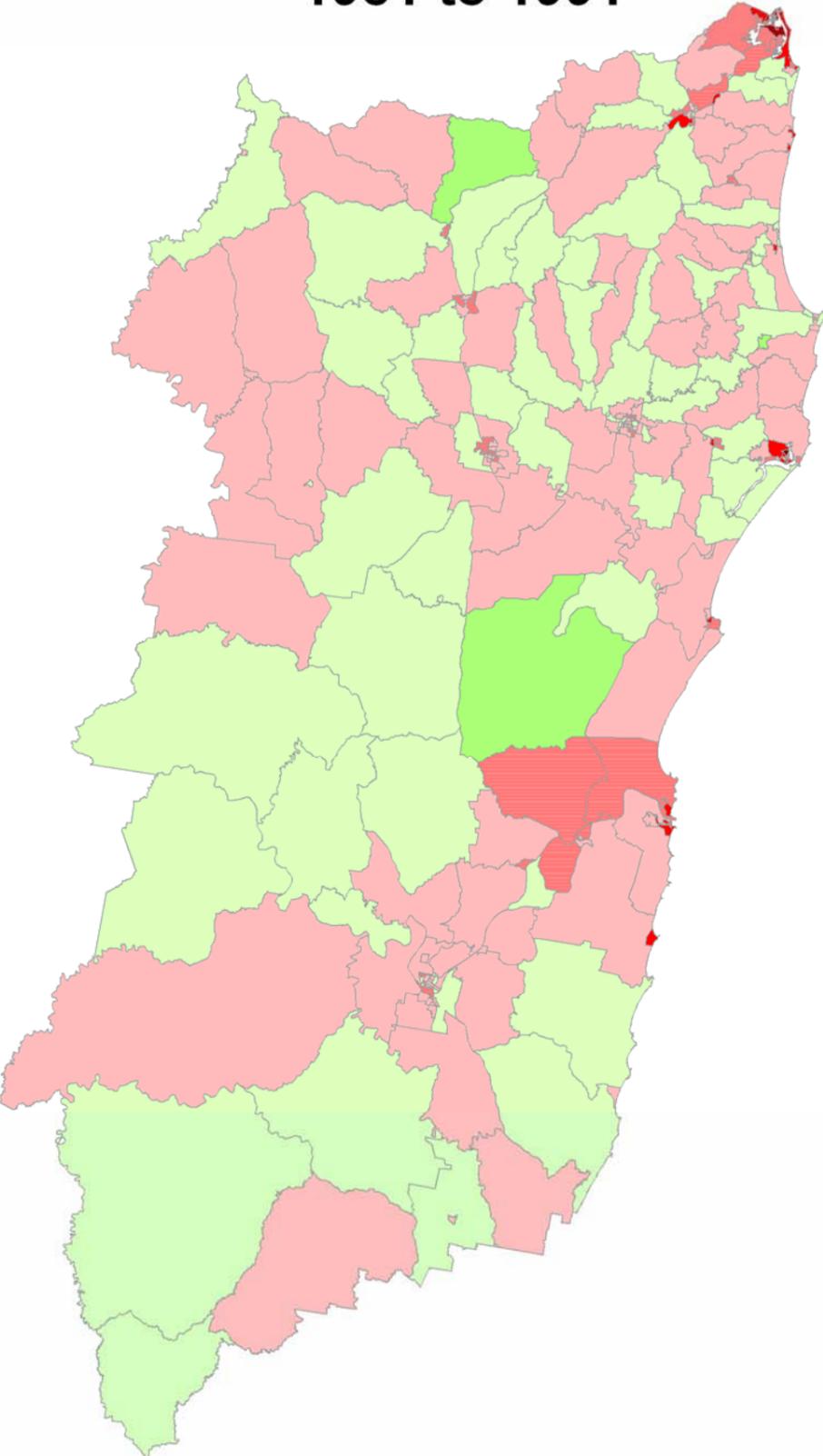
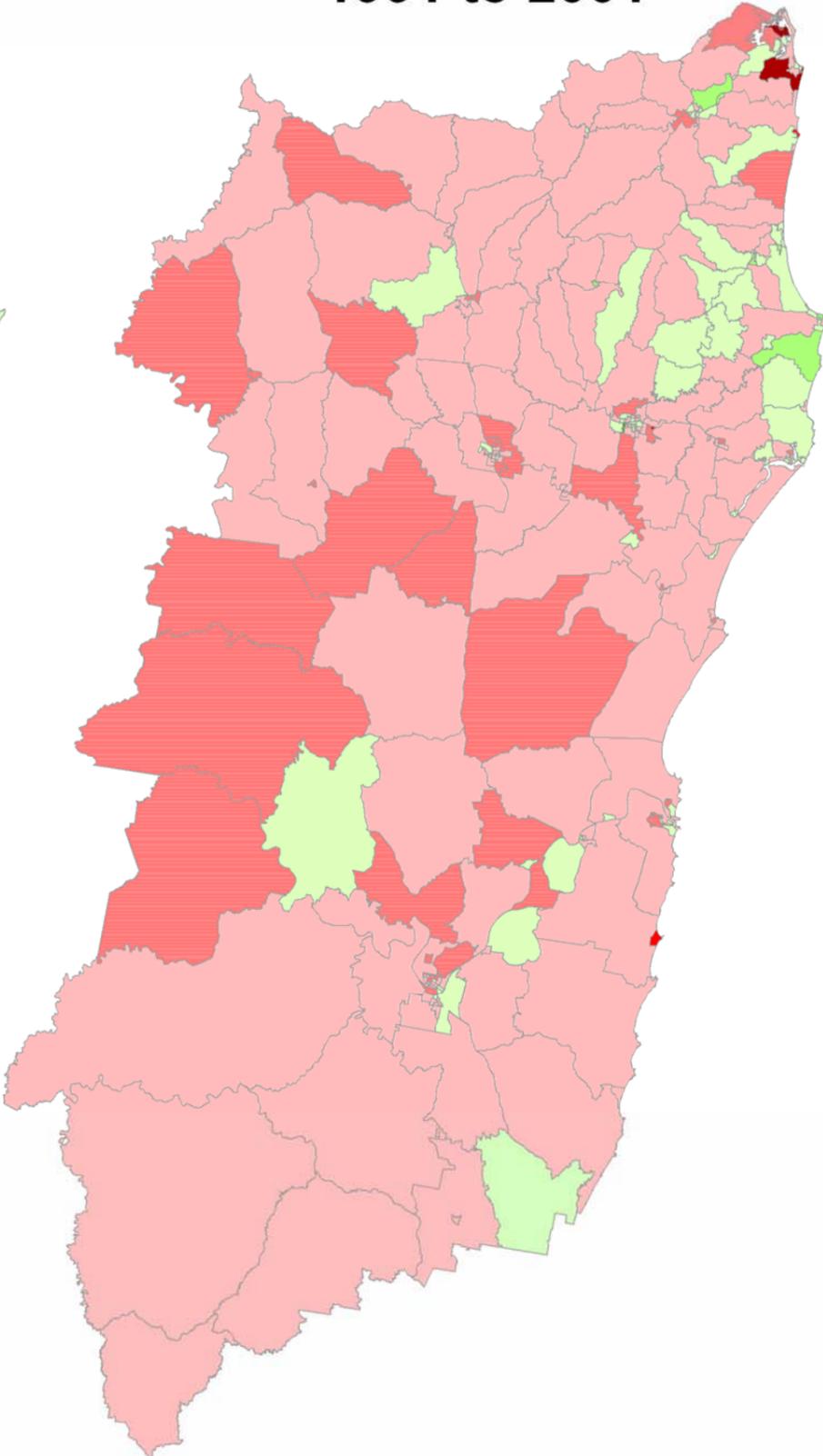


FIGURE 3.5. Change in the Proportion of the Population Aged 65 Plus (Retirees)

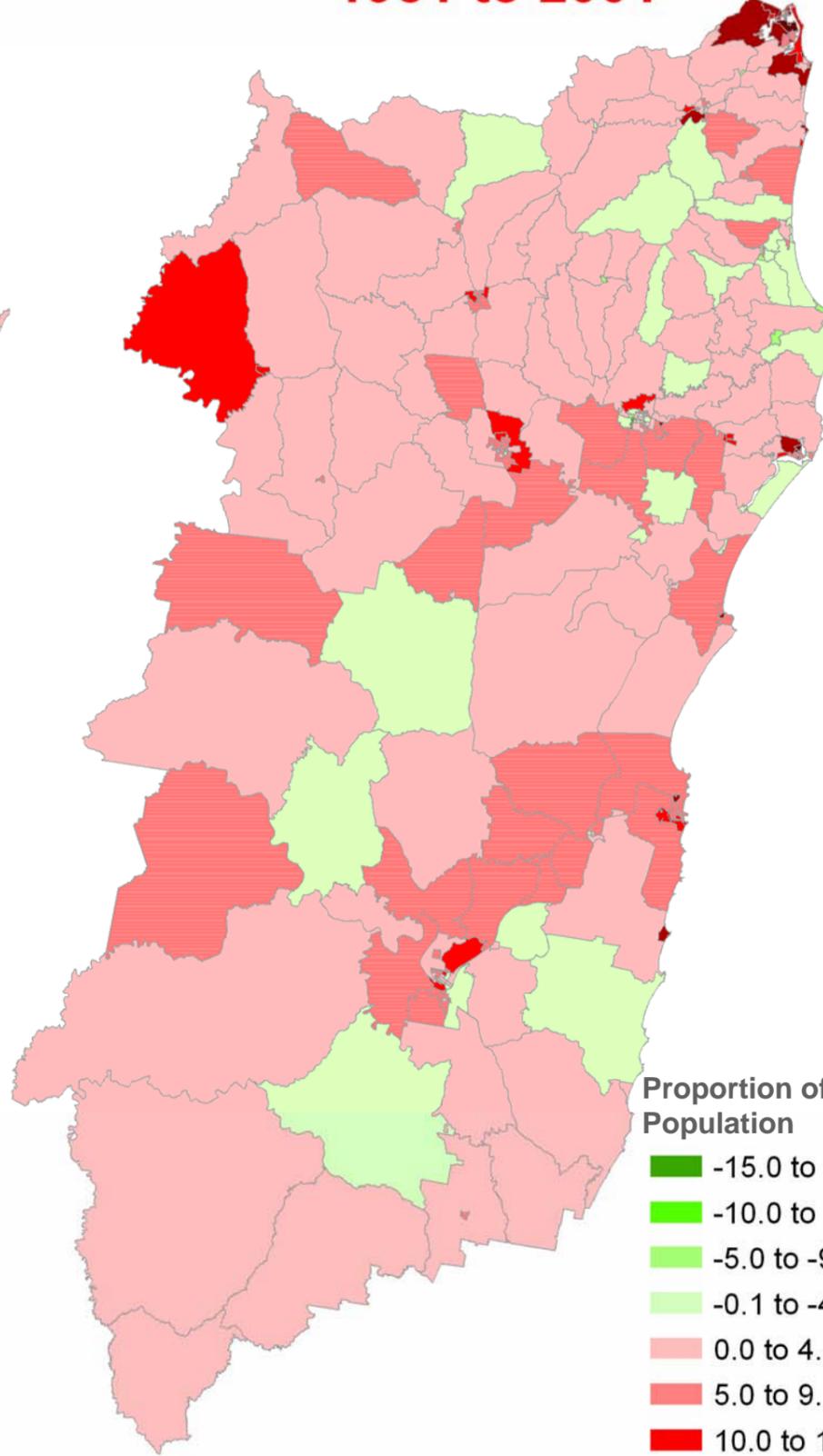
1981 to 1991



1991 to 2001



1981 to 2001



4.0 Changes to Industry and the Economic Base of the Region

4.1 Change in income levels across the region

The examination of changes to income levels across the region can provide an indicator of economic change across the region. Figure 4.1 shows the spatial change in the proportion of working aged people earning more than \$26,000 per annum. Those earning less than \$26,000 p.a could be described as low income earners. Overall, the region has become wealthier with an increased proportion of the working aged population earning more than \$26,000 p.a. Areas with larger increases occurred west of Byron Bay and Ballina as far inland as Casino and Kyogle and in rural areas surrounding Grafton and Maclean. All other areas experienced slight increases in the proportion of the working aged population earning more than \$26,000 p.a.

Comparison between the periods 1981 to 1991 and 1991 to 2001 reveals different trends during these periods. The period 1981 to 1991 generally experienced overall increases in the proportion of the working aged population earning more than \$26,000 p.a across the whole region. Whereas, the period 1991 to 2001 generally experienced a decline in the proportion of the working aged population earning more than \$26,000 p.a. Exceptions include increased earnings west of Byron Bay and Ballina as far inland as Casino and Kyogle and in rural areas surrounding Grafton and Maclean. All other areas experienced scattered declines.

4.2 Change in unemployment rates

The Northern Rivers has a reputation as an area of persistently high unemployment. As Hugo and Bell (1998) argue, though, at least part of this entrenched unemployment is attributable to the in-migration of welfare recipients from more expensive housing markets (and less idyllic surroundings) in the capital cities. This, coupled with the lack of large employers in the region, and the adventitious character of tourism flows, helps explain such employment data.

Figure 4.2 shows the change in the proportion of the population unemployed across the region. In general, the period 1981 to 2001 saw an increase across the region in the proportion of the population unemployed. Areas experiencing higher increases tend to be located in the north eastern and south eastern corners of the region, particularly around Tweed Heads, Brunswick Heads, Nimbin, Byron Bay, Ballina, Lismore, Yamba, Grafton and Wooli. The remaining more remote rural locations generally experienced both slight declines and increases in the proportion of the population unemployed.

Between 1981 to 1991, all large cities and towns experienced high increases in the proportion of the population that were unemployed. Some of the highest increases in the proportion of the population unemployed were evident around the popular coastal and lifestyle destinations of Tweed Heads, Brunswick Heads, Nimbin, Ballina, Yamba, Wooli and Nymbodia. Declines in the proportion of the population unemployed were scattered throughout the more remote rural locations within the region.

The period 1991 to 2001 generally saw declines in the proportion of the population unemployed across the region. Ballina, Byron Bay, Casino, Grafton

and Yamba all experienced greater declines than that experienced in Tweed Heads, Lismore and Kyogle. In general areas to the north east corner of the region and rural areas surrounding Grafton experienced increases in the proportion of the population unemployed. All other more remote rural areas tended to experience declines in the proportion of the population unemployed.

4.3 Changes in the number of persons employed in key industry sectors

Like many other 'sea change' localities, the Northern Rivers economic base, until relatively recently, was dominated by agriculture and forestry. In-migration since the 1970s, known as 'counter-urbanisation' has rapidly and dramatically changed the demographic and socio-economic composition of the townships and villages located in the Northern Rivers. The driving force behind the 'counter-urbanisation' movement and more recently 'sea change' movement have resulted from the large number of ex-city 'alternative lifestylers' seeking the idyllic coastal and rural settings offered by the Northern Rivers. Consequently, the economic base for the region has changed and this is evident in the examination of key industry sectors in the region.

Much of the agricultural and forestry industry has declined across the region as shown in Figure 4.3. Between 1981 to 2001, large declines in the number of persons employed in the agriculture industry are evident in the northern part of the region. The exception to this is the area between Byron Bay, Ballina and Lismore which has experienced high increases in the number of persons employed in the agricultural and forestry industry. This might be attributed to the introduction of intensive plantations (such as Macadamia nuts and Avocadoes) that require smaller agricultural holdings. Comparison between 1981 to 1991 and 1991 to 2001 suggests that there has generally been a constant decline in the numbers employed in this area between the two time periods.

The southern part of the region has generally experienced little decline and some increase (i.e. along the coastal fringe) in the number of persons employed in the agriculture industry. This may be attributed to lesser population pressures (i.e. pressure to convert agricultural land to residential uses) in the southern part of the region. It is interesting to note that comparison between 1981 to 1991 and 1991 to 2001 reveals a slight increase in the number of persons employed in agriculture in the southern part of the region (with the exception of the high decline west of Grafton).

The construction industry has tended to dominate along the coastal fringe as shown in Figure 4.4. Between 1981 to 2001 increases in the number of persons employed in the construction industry have generally occurred along the coastal fringe adjacent to the fringes of the coastal towns and villages. This is consistent with trends identified in relation to residential dwelling increases across the region (see Figure 5.1). Some scattered increases are also evident throughout inland rural areas. Within all large cities and towns the number of persons employed in the construction industry have declined, however, there are increases around the fringes of many of these larger cities and towns. These trends for the periods 1981 to 1991 and 1991 to 2001 have remained relatively constant and similar overall for growth in the construction industry on the coastal fringe and large cities and towns, and declines across inland areas.

Between the period 1981 to 2001 those employed in the retail / wholesale industries (see Figure 4,5) show an increasing trend in the urban fringes of the larger cities and towns within the region. There has been a large increase in the number of persons employed in the retail / wholesale industries towards the north eastern corner of the region. This trend has been dominated by increases that occurred between the period 1991 to 2001. Increases are also evident in the south eastern corner of the region; dominated by increases that occurred between the period 1981 to 1991, with lesser increases occurring between 1991 to 2001. Within the larger cities and towns there has generally been a decline in the number of persons employed in the retail / wholesale industries. This has been consistent between the periods 1981 to 1991 and 1991 to 2001. Declines have also been evident in the north western corner of the region, particularly during the period 1991 to 2001.

Trends in the number of persons employed in the property / finance / business services industries (see Figure 4.6) reflects the increases and declines identified in the retail / wholesale industries. There has been however, a slightly greater increase in the number of persons employed in the property / finance / business services industries along the western section of the region.



FIGURE 4.1. Change in Proportion of the Working Aged Population Earning More than \$26,000 p.a

1981 to 1991

1991 to 2001

1981 to 2001

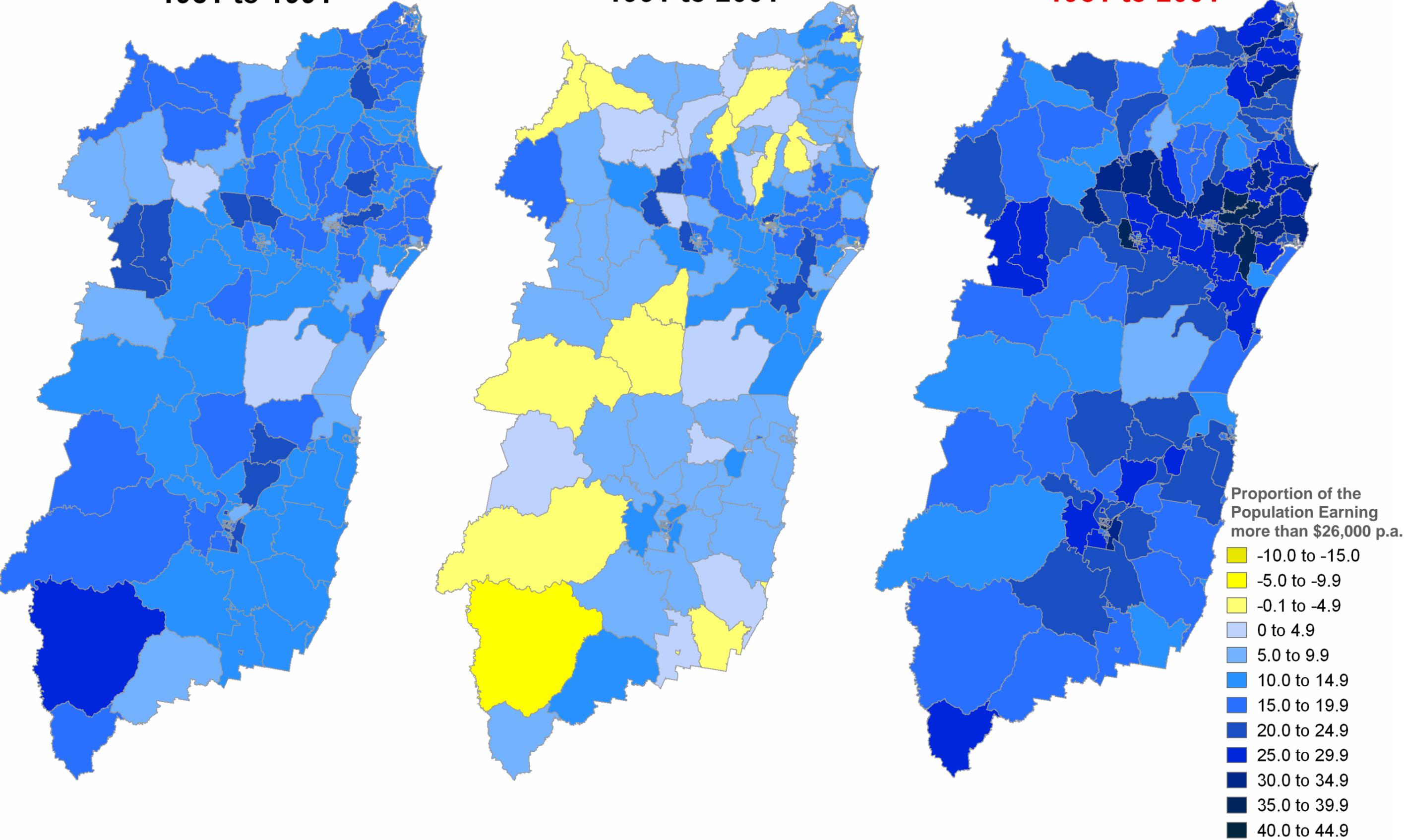


FIGURE 4.2. Change in the Proportion of the Population Unemployment

1981 to 1991

1991 to 2001

1981 to 2001

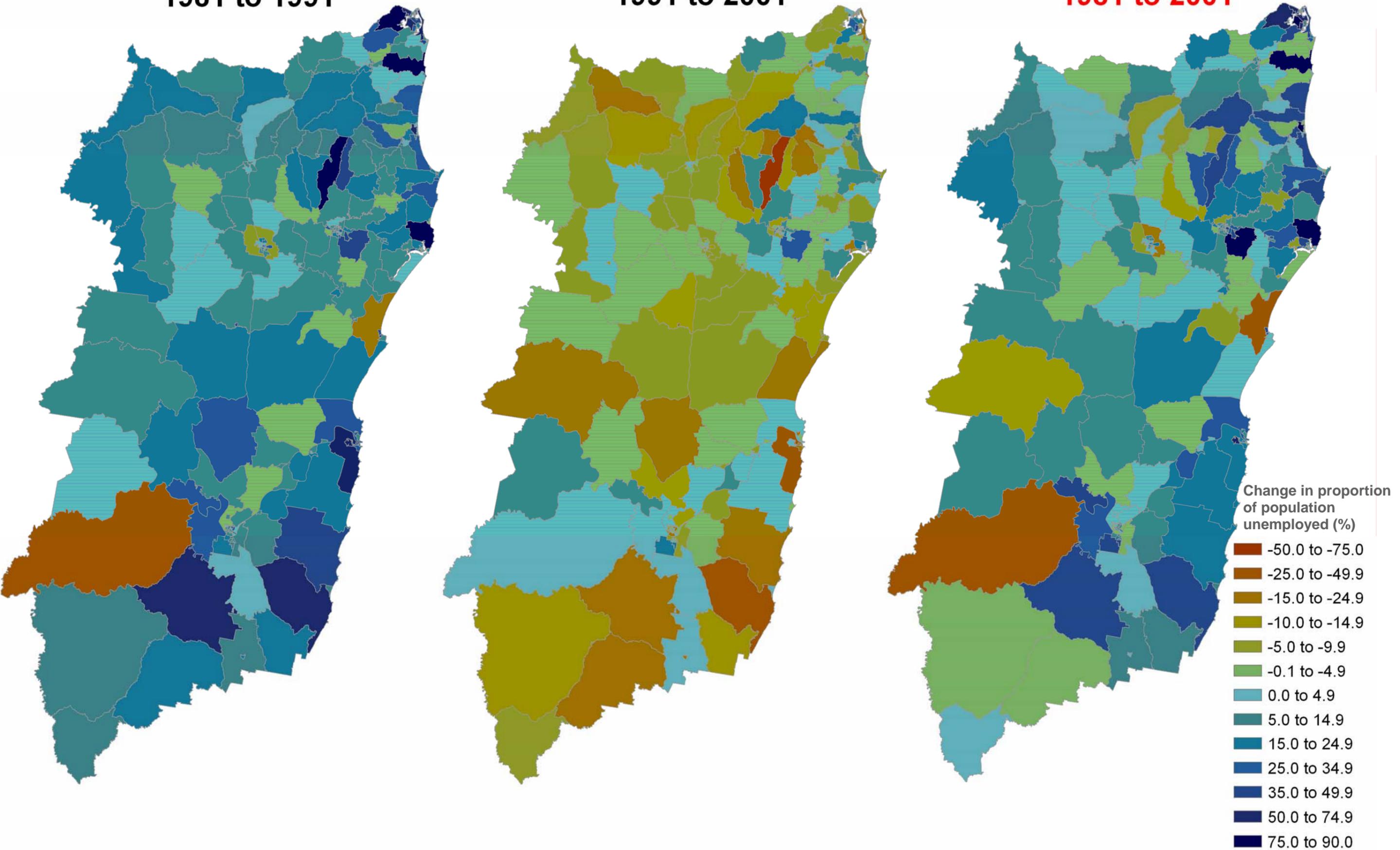
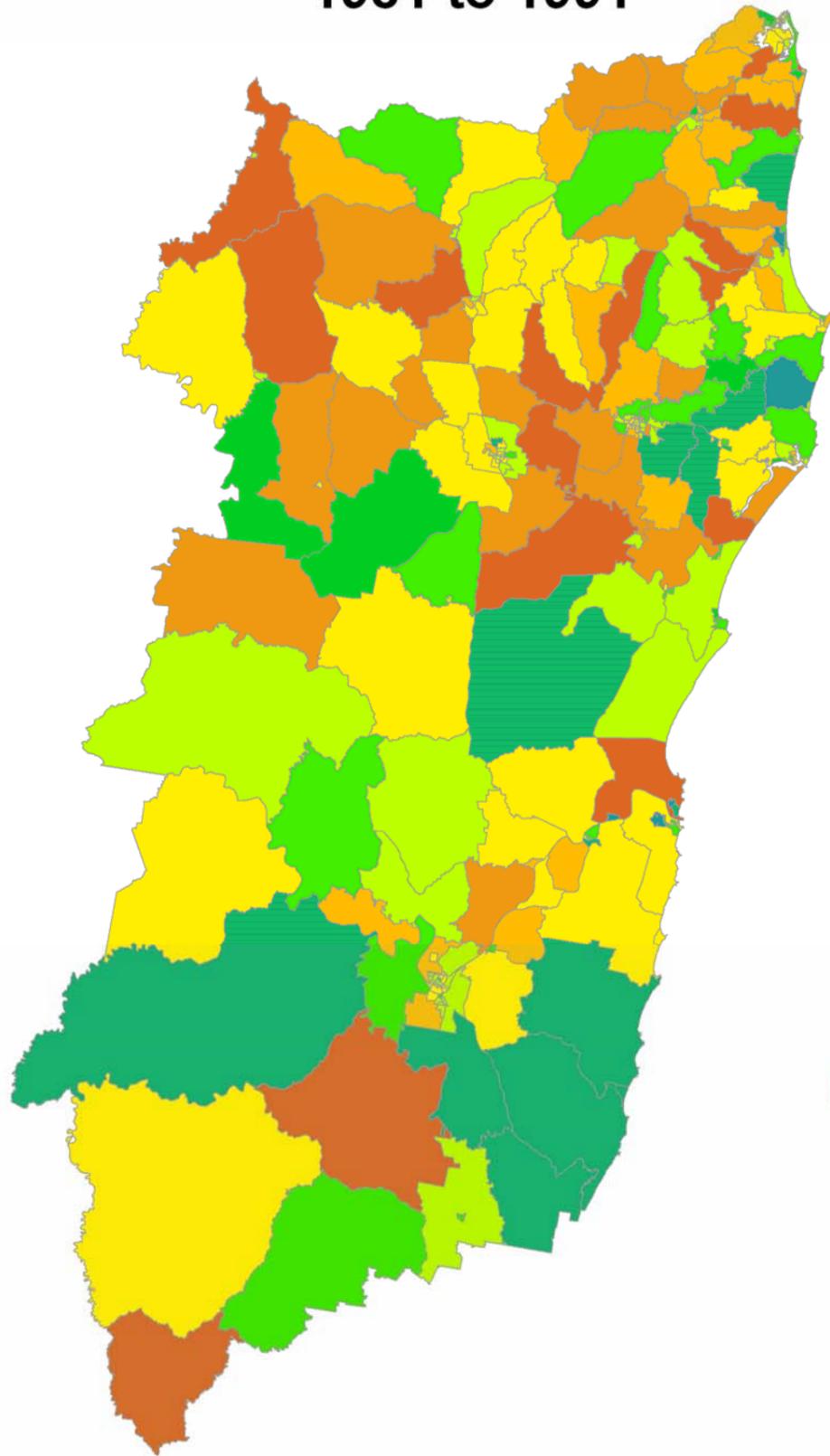
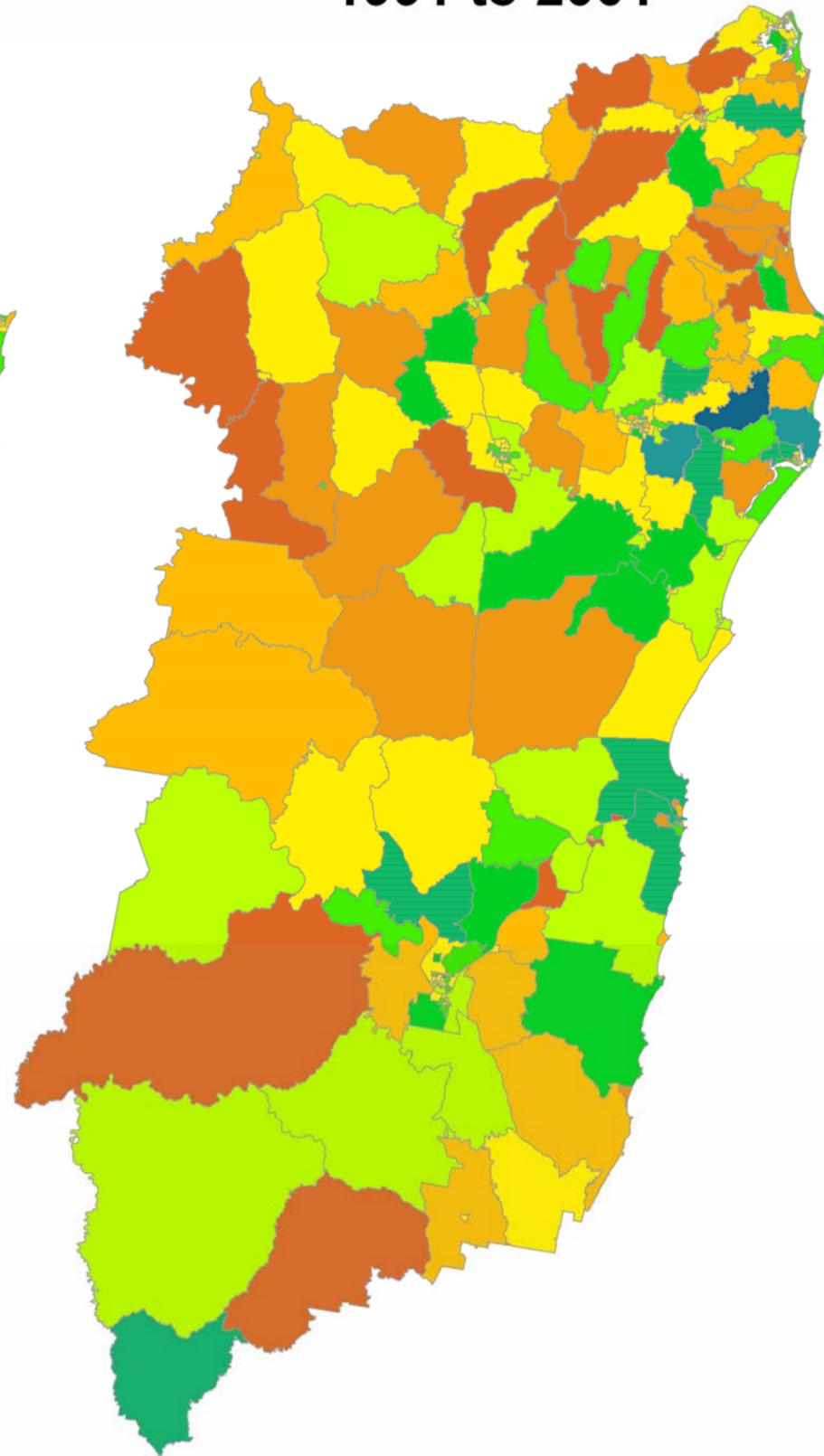


FIGURE 4.3. Change in the Number of Persons Employed in the Agriculture / Forestry Industry

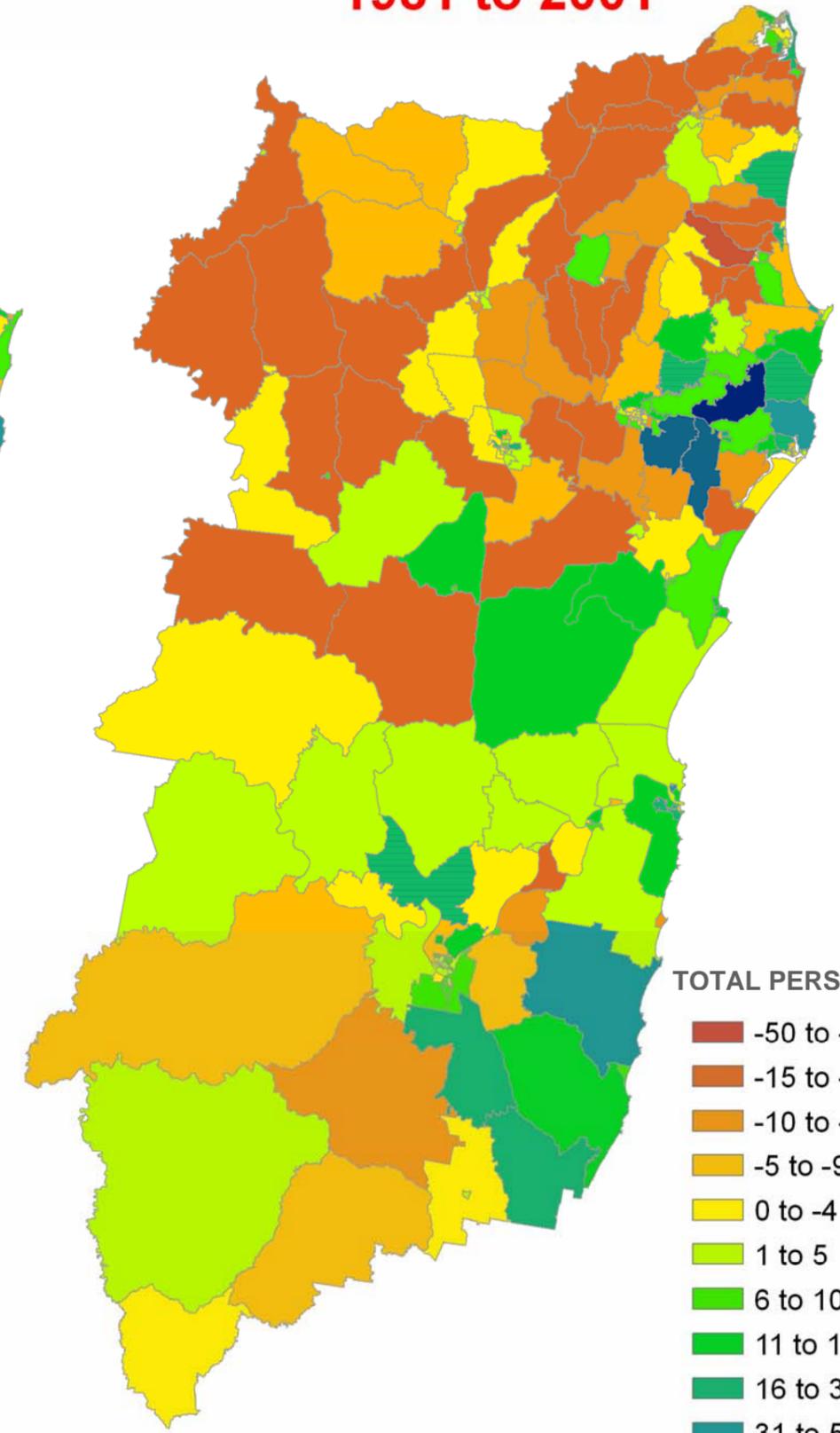
1981 to 1991



1991 to 2001



1981 to 2001

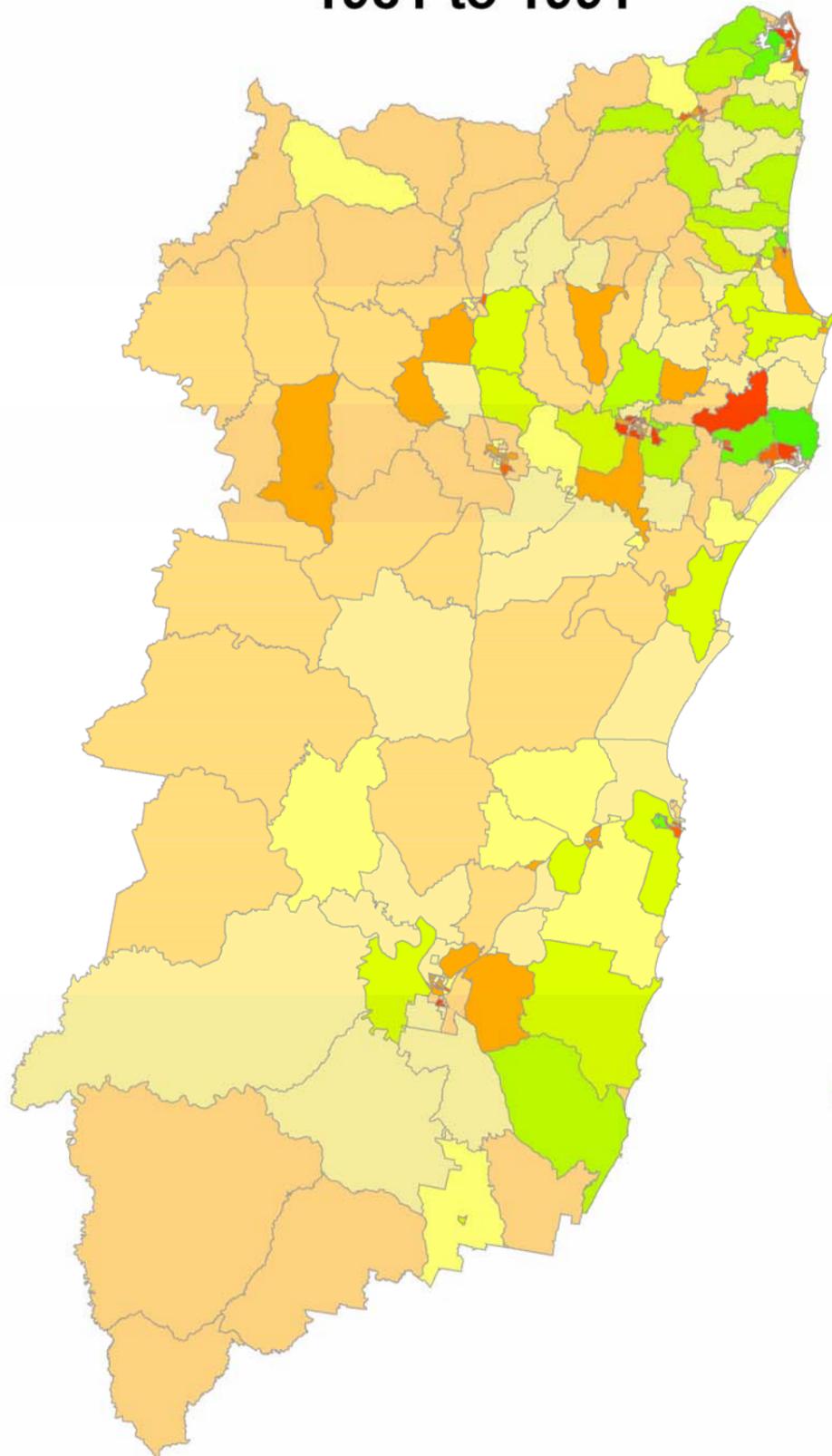


TOTAL PERSONS

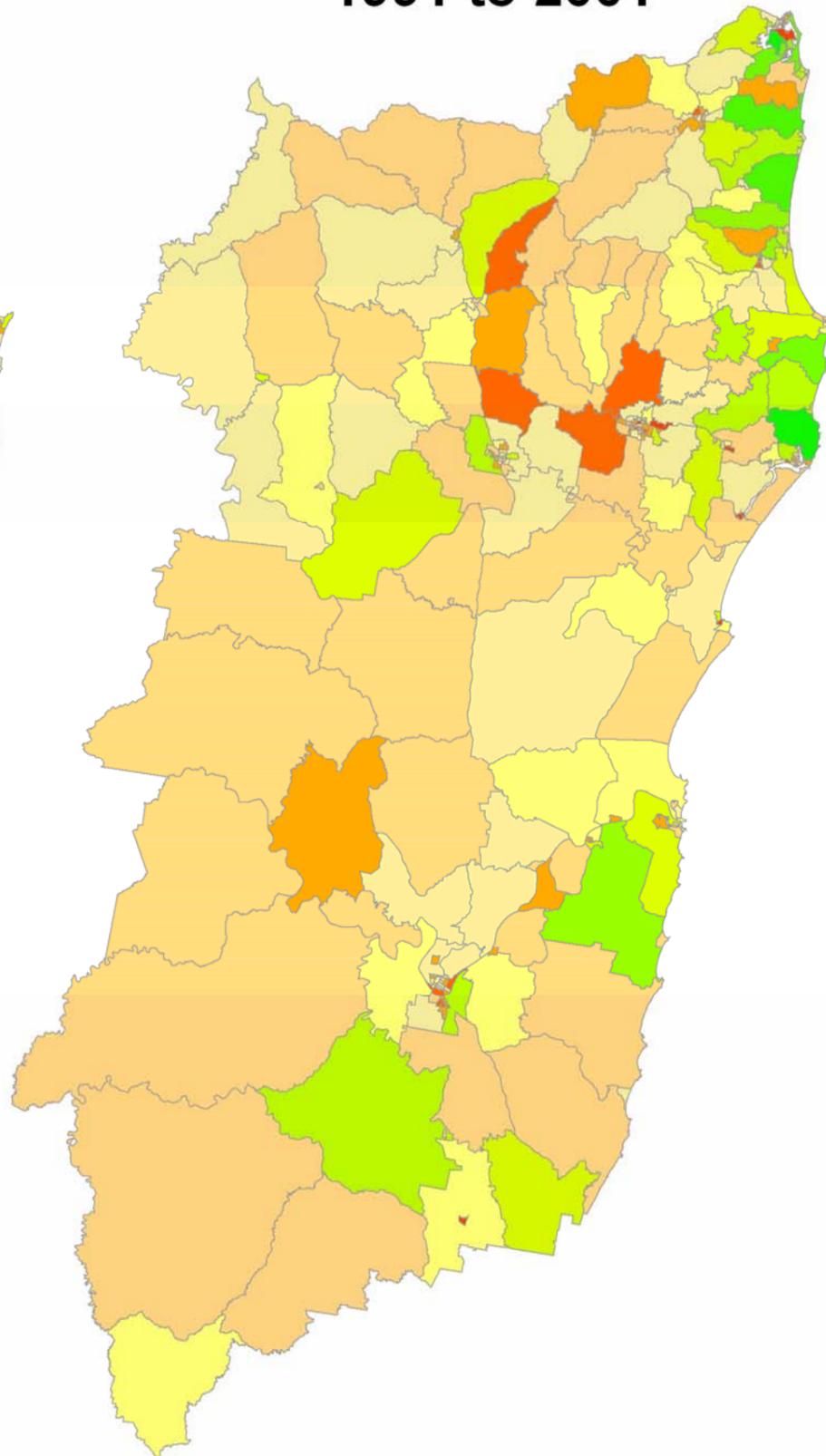
- 50 to -75
- 15 to -49
- 10 to -14
- 5 to -9
- 0 to -4
- 1 to 5
- 6 to 10
- 11 to 15
- 16 to 30
- 31 to 50
- 51 to 75
- 76 to 100

FIGURE 4.4. Change in the Number of Persons Employed in the Construction Industry

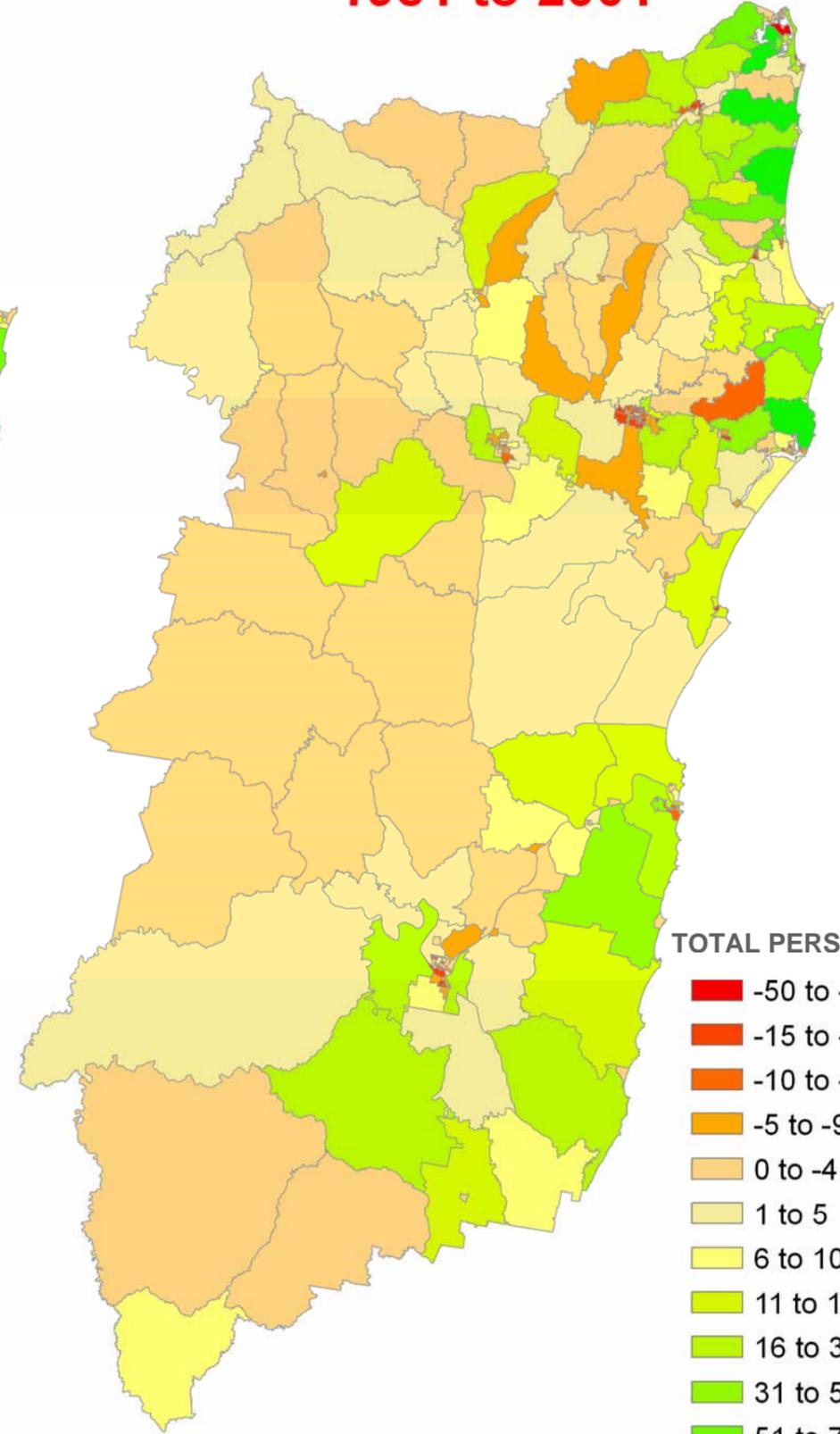
1981 to 1991



1991 to 2001



1981 to 2001

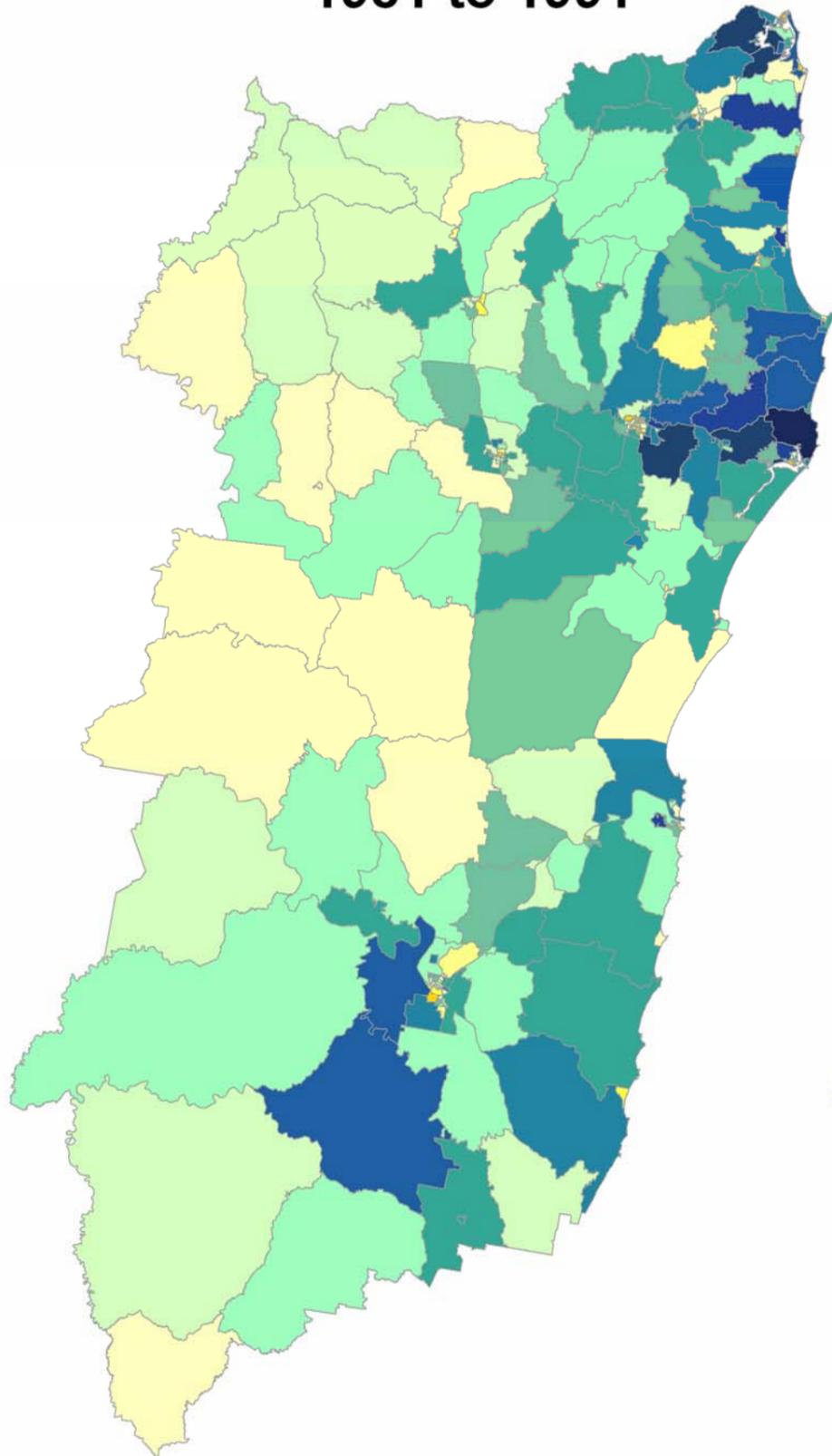


TOTAL PERSONS

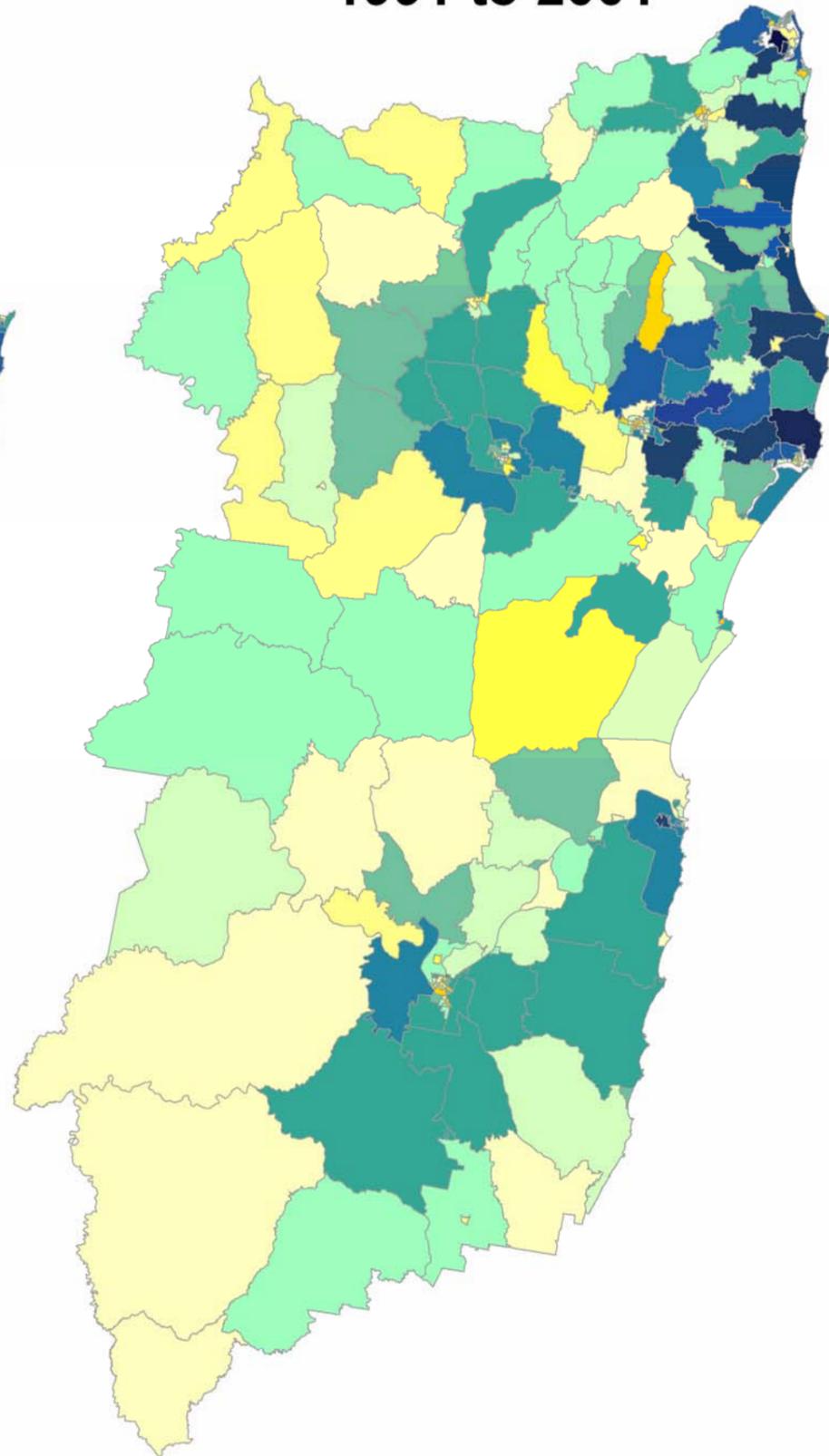
- -50 to -75
- -15 to -49
- -10 to -14
- -5 to -9
- 0 to -4
- 1 to 5
- 6 to 10
- 11 to 15
- 16 to 30
- 31 to 50
- 51 to 75
- 76 to 100
- 101 to 250

FIGURE 4.5. Change in the Number of Persons Employed in Retail / Wholesale Industries

1981 to 1991



1991 to 2001



1981 to 2001

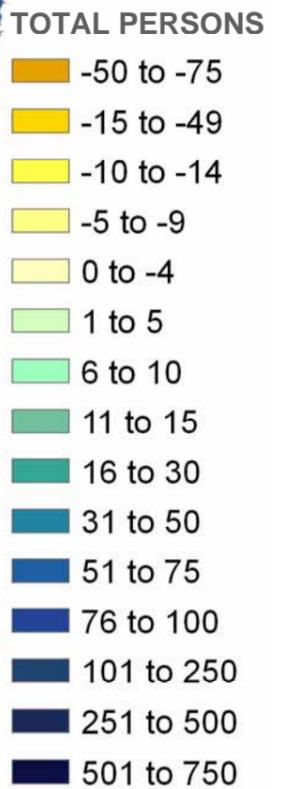
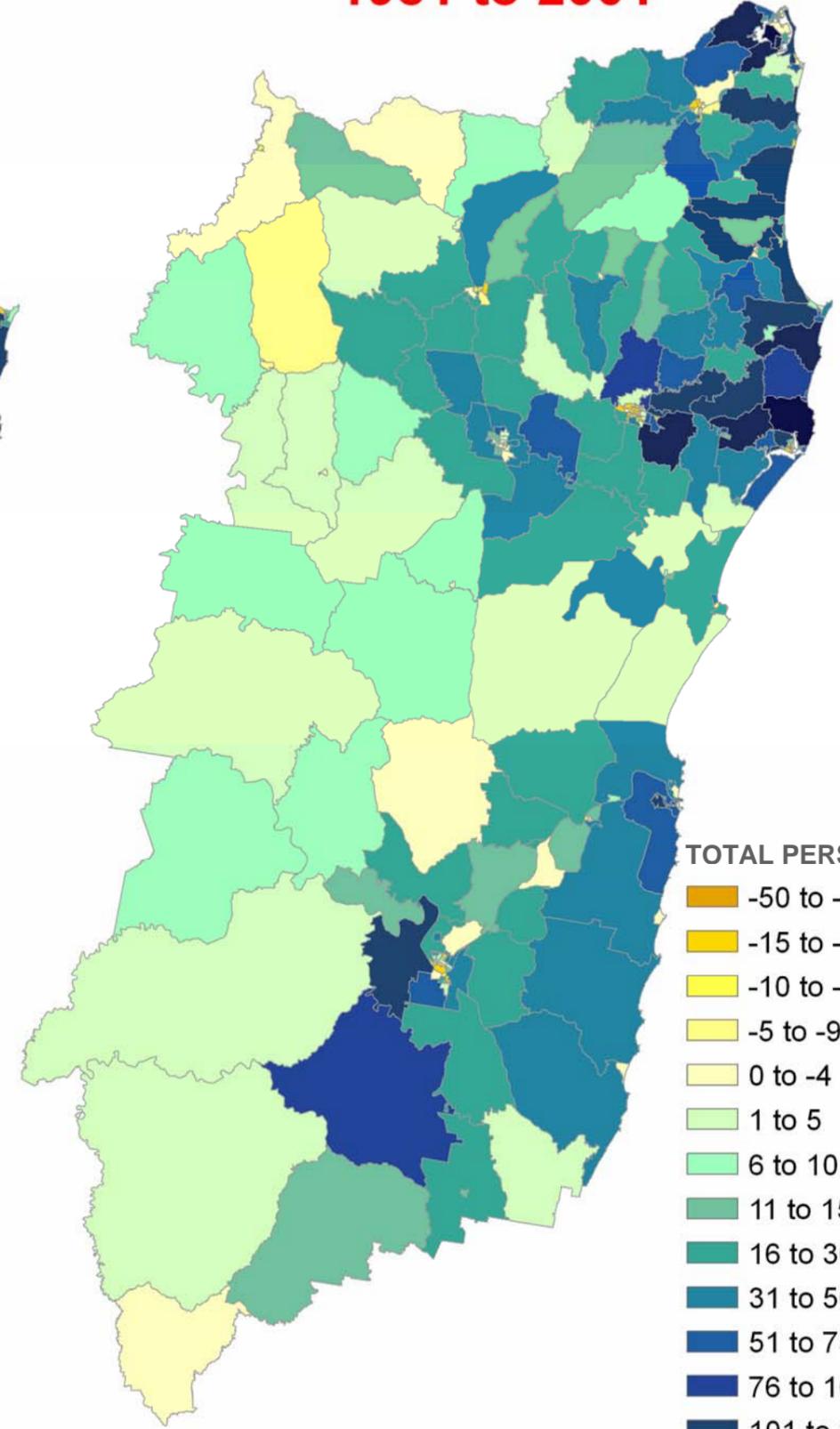
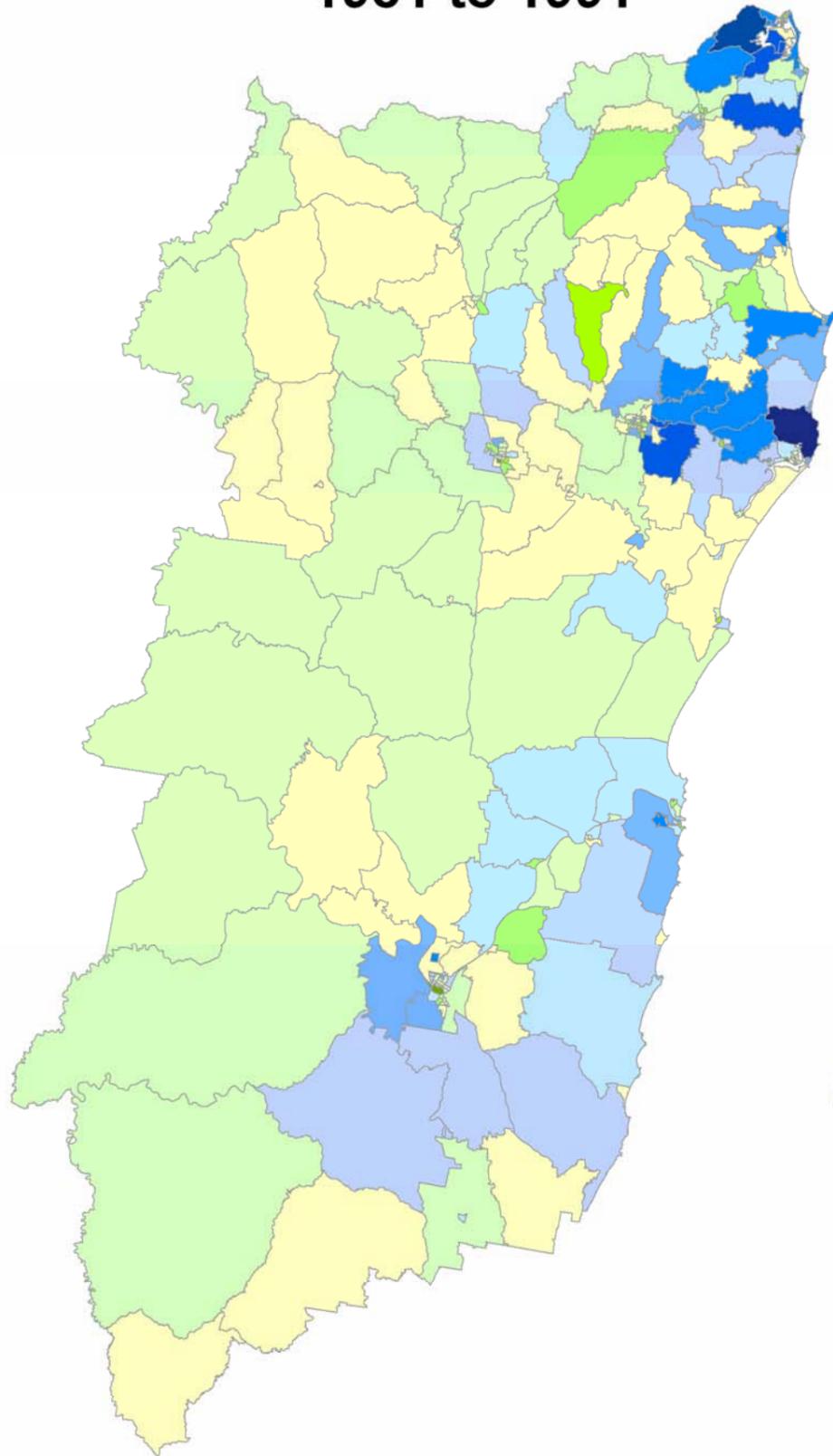
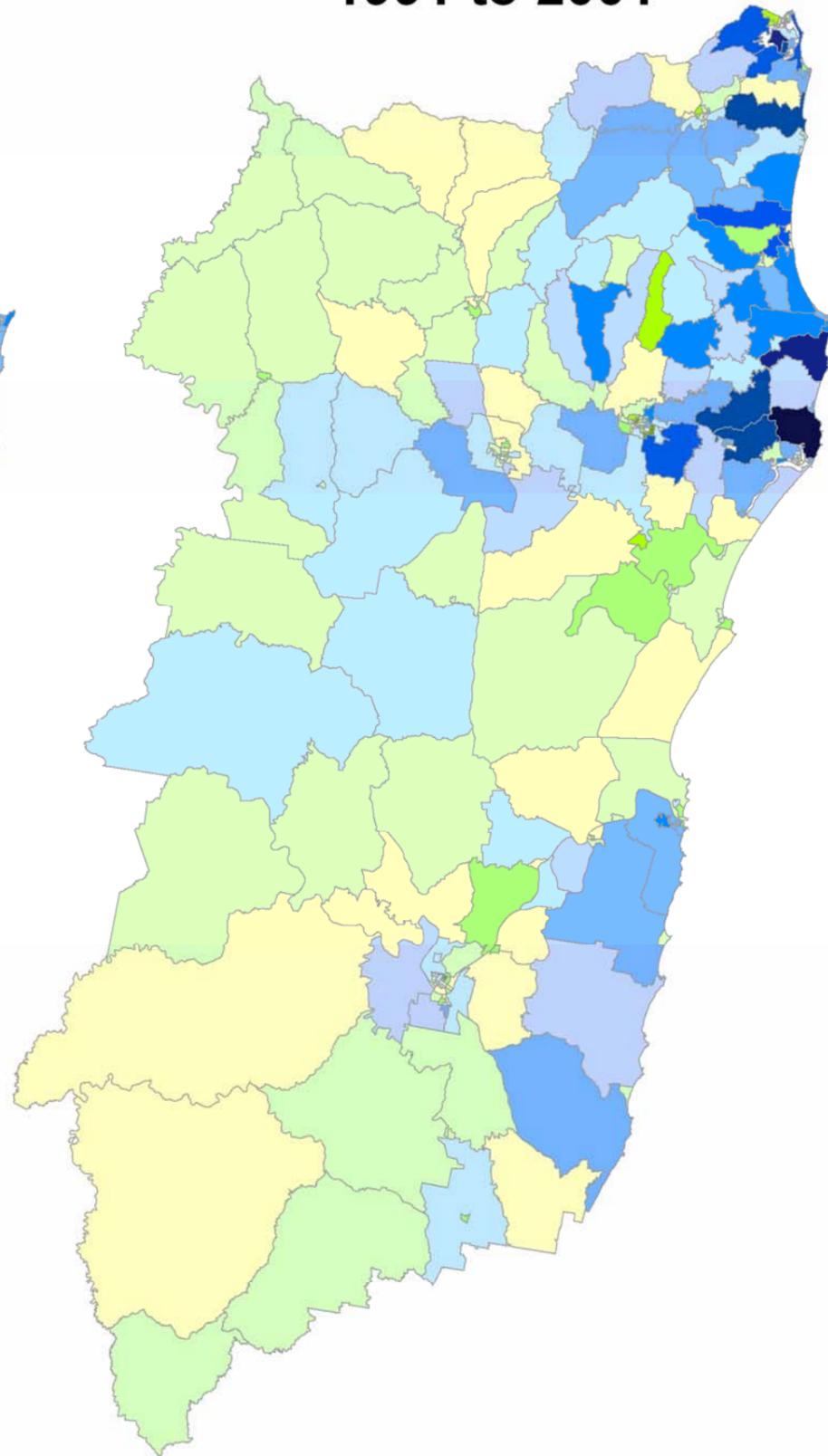


FIGURE 4.6. Change in the Number of Persons Employed in Property / Finance / Business Services Industries

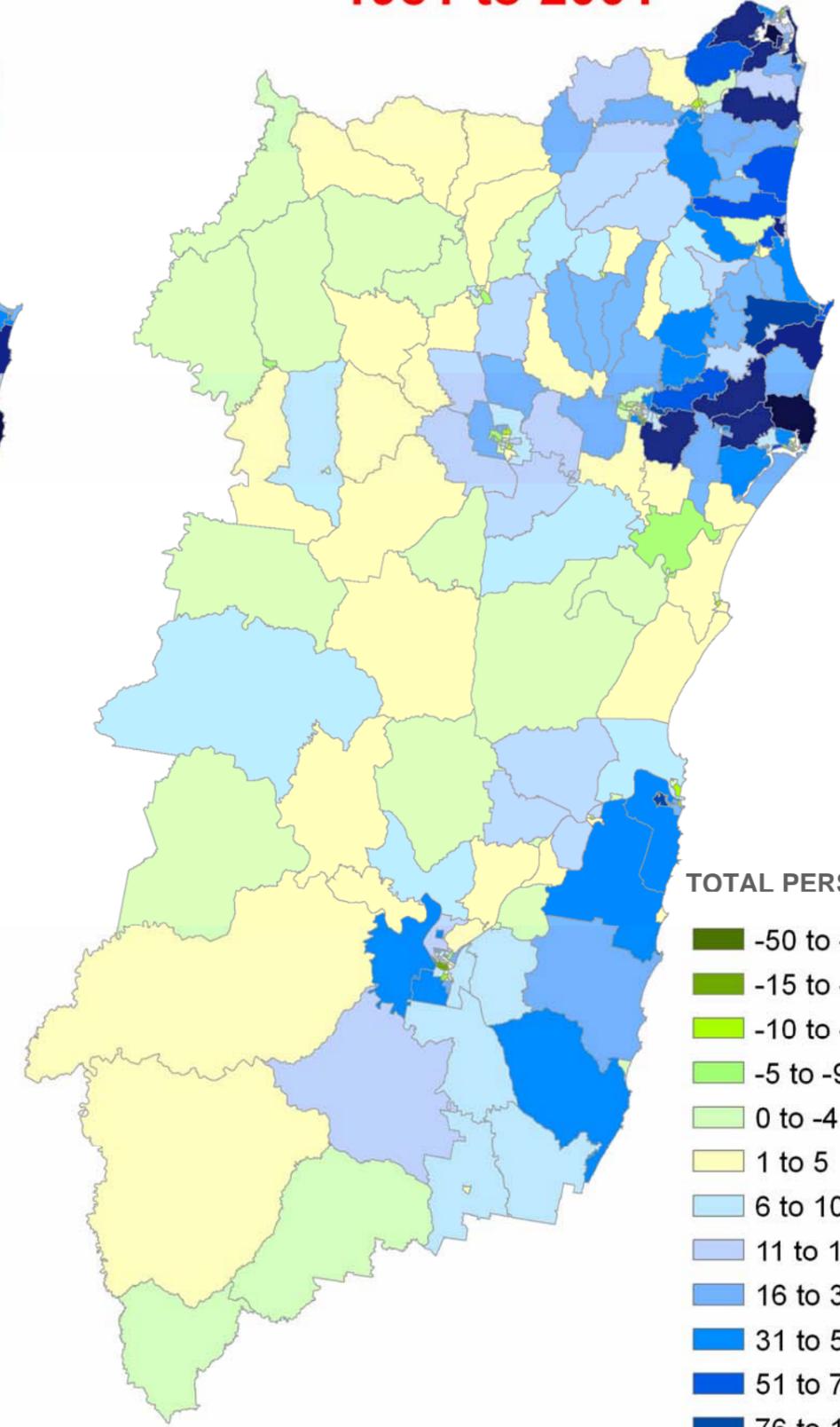
1981 to 1991



1991 to 2001



1981 to 2001



TOTAL PERSONS

- 50 to -75
- 15 to -49
- 10 to -14
- 5 to -9
- 0 to -4
- 1 to 5
- 6 to 10
- 11 to 15
- 16 to 30
- 31 to 50
- 51 to 75
- 76 to 100
- 101 to 250
- 251 to 500

5.0 Change in Development Patterns within the Region

The change in the number of residential dwellings across the region can provide an indication of development patterns across the region. These patterns can aid in the interpretation of land use / land cover change analysis by providing an indication of dwelling density changes of areas identified as urban/ residential in a land use / land cover change analysis.

Figure 5.1 shows the change in number of residential dwellings across the region. Between 1981 to 2001 the region generally experienced increases in the number of dwellings around the urban fringes and the hinterlands of the larger cities and towns. This trend tends to dominate in areas along main road corridors between the region's larger cities and towns. Slight declines and increases were scattered throughout the urban areas of the larger cities and towns.

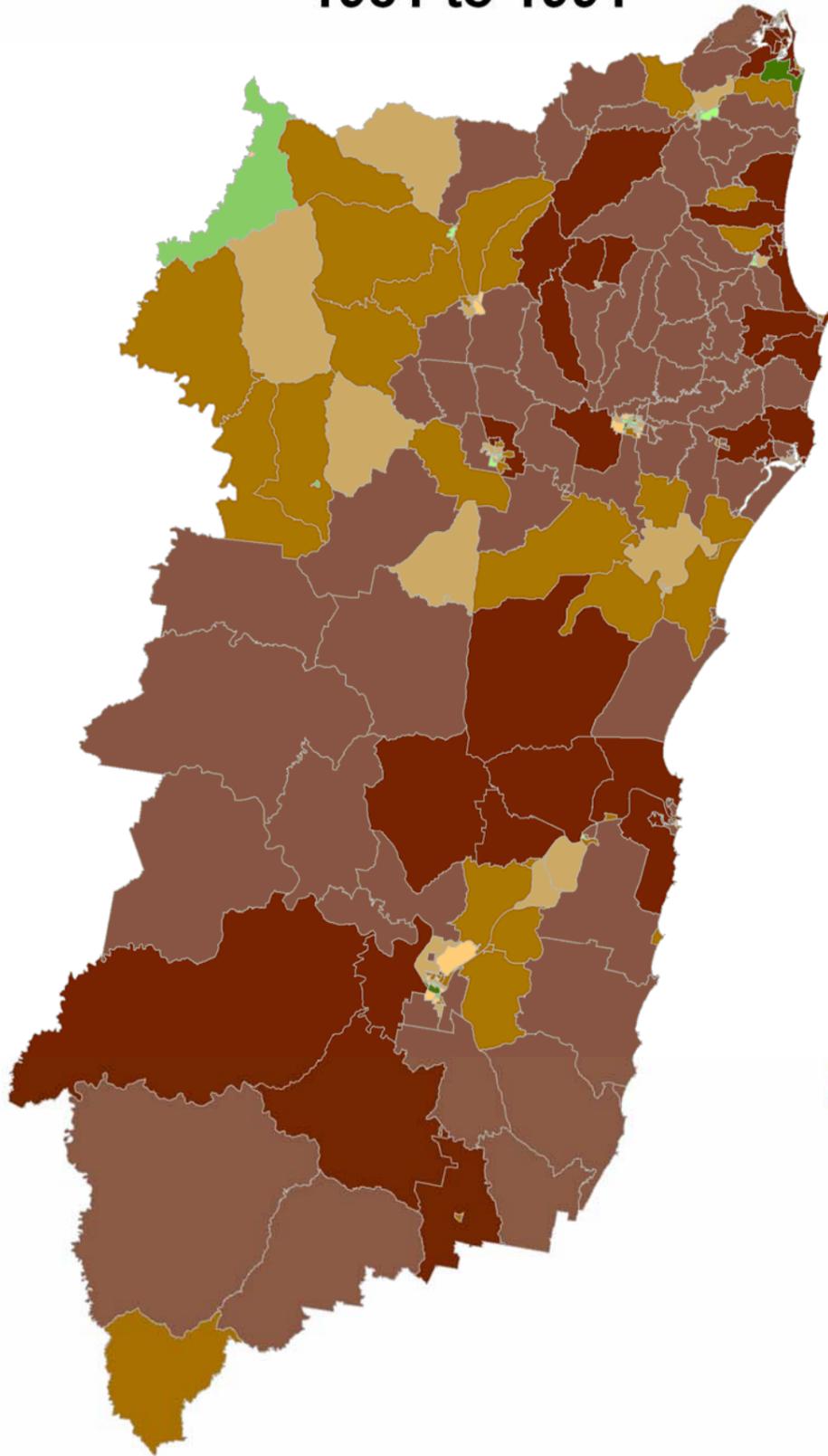
The period 1981 to 1991 experienced more residential development across the region. Larger increases in dwellings occurred along the coast between Tweed Heads and Ballina, north west of Nimbin, west of Yamba, and south west of Grafton. Slight increases and declines were evident in the larger cities and towns and scattered across the north western corner of the region.

The period 1991 to 2001 shows less residential development across the region than the earlier period 1981 to 1991. However, larger increases in dwelling numbers were still evident in areas north of Byron Bay through to Tweed Heads. Declines in dwelling numbers tend to be scattered throughout more remote rural locations within the region.

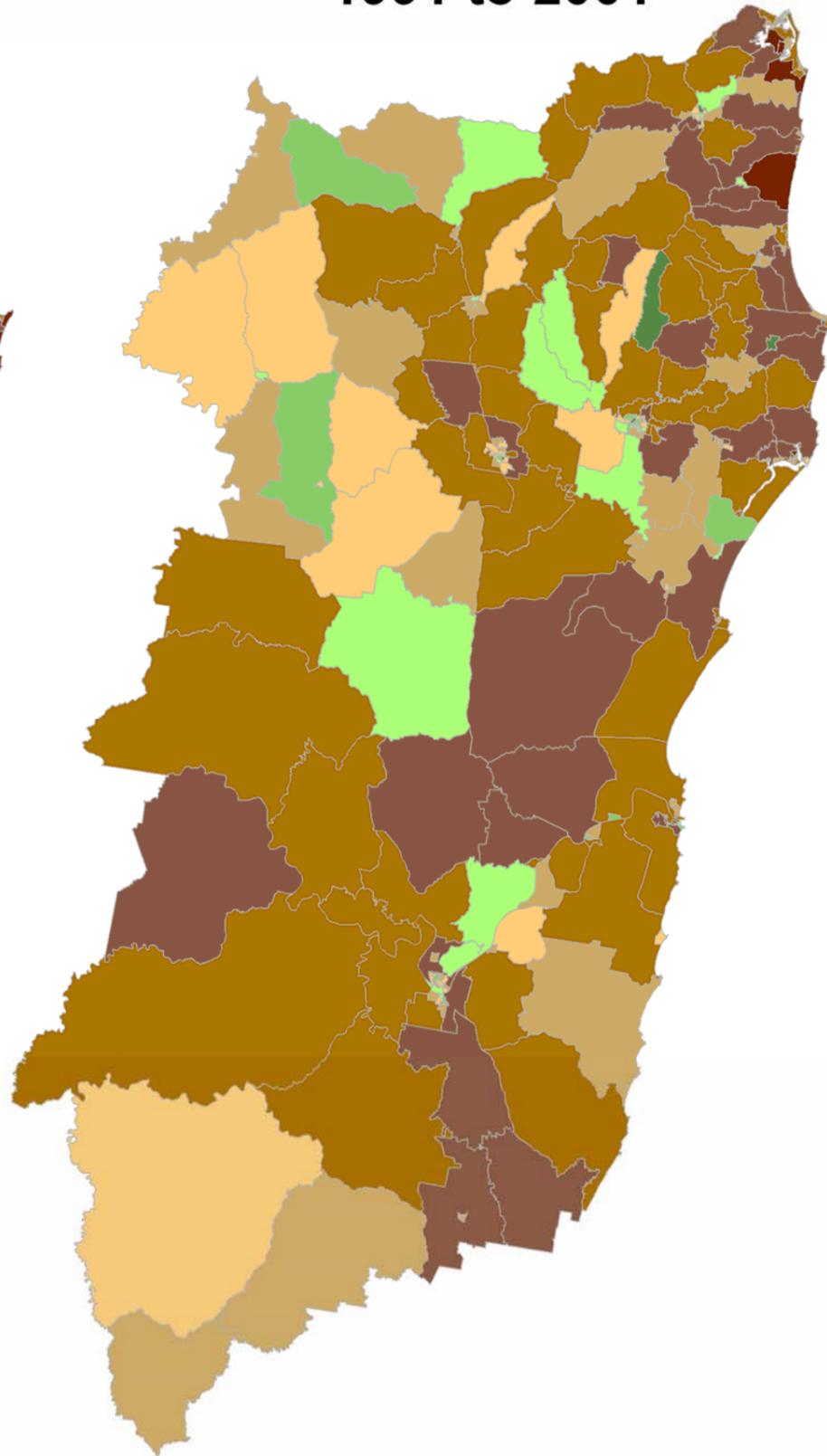


FIGURE 5.1. Change in the Number of Residential Dwellings

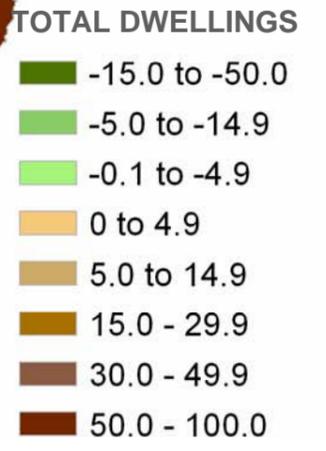
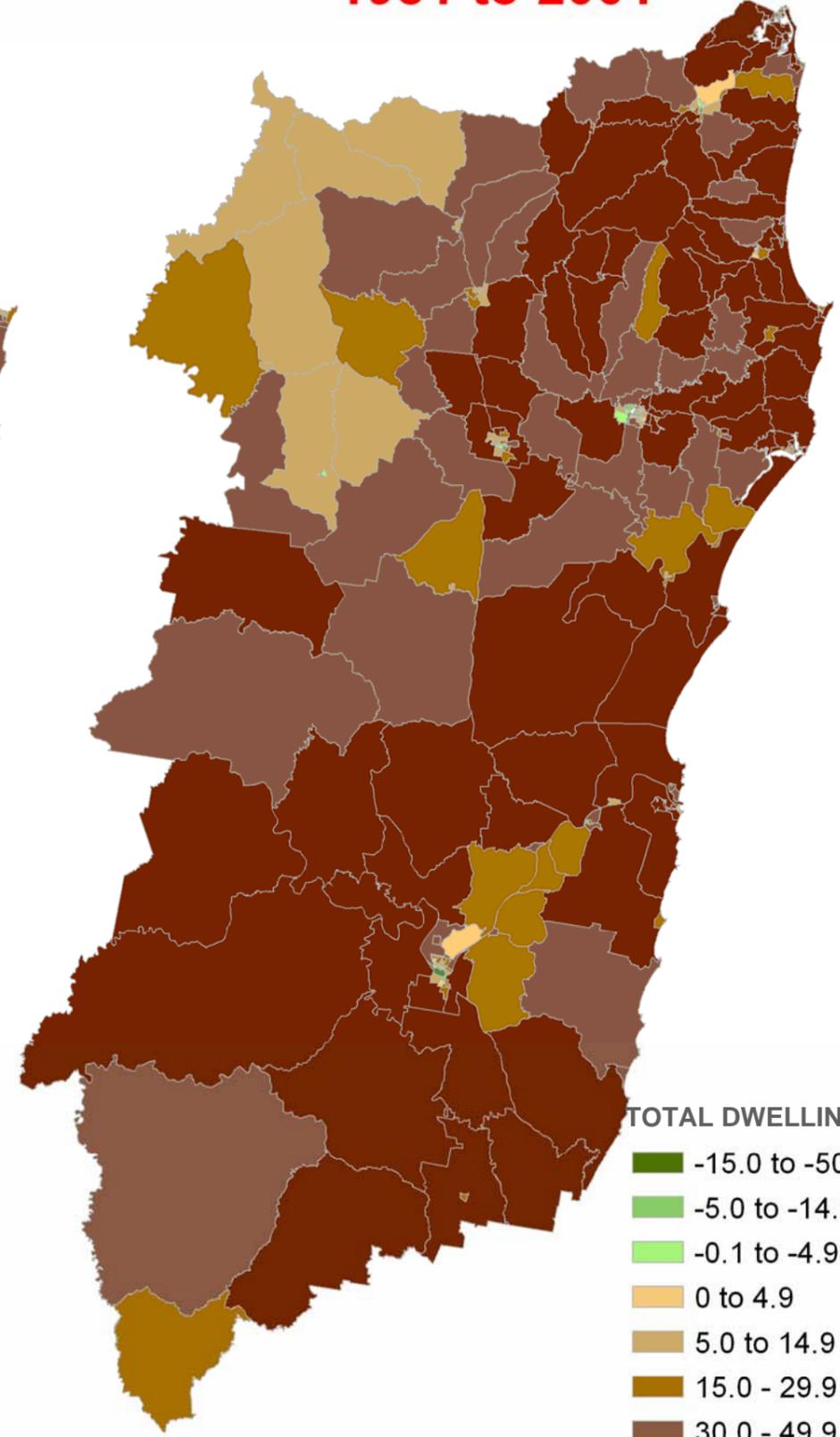
1981 to 1991



1991 to 2001



1981 to 2001



6.0 Summary of Findings

The Northern Rivers region has been undergoing considerable, but complex social and economic change over the last few decades. The rapid increase in the region's population, together with changing land use is impacting on the Northern Rivers' natural environment, natural resources and on major infrastructure requirements of the region. This report summarises the findings of a socio-economic change analysis of the region. Mapping change in key indicators demonstrates the dramatic socio-economic changes that have occurred in various parts of the region, and across the region as a whole.

The region has undergone dramatic change in different places over the past 25 years. Overall, the demographic characteristics of the region have changed markedly. The region's population has more than doubled over the last three decades; however, variations in population across the region have occurred. Overall, declines in population have been experienced within the region's larger towns and cities and predominantly along the west fringe of the region. Whereas, population growth has been concentrated along the coastal fringe and along the fringes of the region's larger towns and cities. Population growth has not occurred at a constant rate. Higher growth rates occurred across the region between 1981 to 1991 and lower growth rates between 1991 to 2001.

In-migration across the region has varied with people more likely to move to the north eastern and south eastern coastal fringe of the region. This pattern has been a relatively constant throughout the period 1981 to 2001.

The region has aged between 1981 and 2001. There has generally been a decline in the proportion of children across the region, with the exception of a few slight increases, predominantly scattered across inland rural areas and on the urban fringe of some of the larger inland cities and towns. There has been increases in the proportion of retirees in all larger cities and towns, with the exception of Byron Bay and Mullumbimby. Other increases in the proportion of retirees were evident in the hinterlands and rural areas between larger cities and towns. Higher increases in the proportion of working aged have occurred in the hinterlands and rural areas surrounding Byron Bay, Mullumbimby, Nimbin and Coraki, and in the south western corner of the region around Nymbodia.

The industry and economic base of the region has also changed markedly over the past 25 years. Overall, the region has become wealthier with an increased proportion of the working aged population earning more than \$26,000 p.a. Areas with greater increases occurred west of Byron Bay and Ballina as far inland as Casino and Kyogle and in rural areas surrounding Grafton and Maclean. All other areas only experienced slight increases in the proportion of the working aged population earning more than \$26,000 p.a.

Unemployment has increased along with population. The period 1981 to 2001, generally saw an increase in the proportion of the population unemployed across the region. Areas experiencing higher increases of unemployment tend to be located in the north eastern and south eastern corners of the region. The period 1981 to 1991 saw all large cities and towns, particularly popular coastal and lifestyle destinations, experienced high increases in the proportion of the population that were unemployed. Between 1991 to 2001 there was a general decline in the proportion of the population unemployed across the region.

Like many other 'sea change' localities, the Northern Rivers economic base, until relatively recently, was dominated by agriculture and forestry. However, the current economic base for the region has change dramatically. Consequently, the northern part of the region has experienced high declines in the number of persons employed in the agriculture and forestry. The exception to this is the area between Byron Bay, Ballina and Lismore which has experienced high increases in the number of persons employed in the agriculture and forestry. On the other hand, the southern part of the region has generally experienced patchy declines and some increases (i.e. along the coastal fringe) in the number of persons employed in the agriculture and forestry.

The construction industry has tended to dominate along the coastal fringe, particularly adjacent to the fringes of the coastal towns and villages. This trend has been consistent throughout the period 1981 to 2001 and reflects population trends.

Between 1981 and 2001 those employed in the retail / wholesale industries have tend to increase in the urban fringes of the larger cities and towns within the region. There has been a large increase in the number of persons employed in the retail / wholesale industries towards the north eastern corner of the region. This particular trend has been dominated by increases that occurred between 1991 and 2001. Increases are also evident in the south eastern corner of the region. However, this trend has been dominated by increases that occurred between 1981 and 1991.

Trends in the number of persons employed in the property / finance / business services industries reflects the trends identified in the retail / wholesale industries. The only exception is that there has been a slightly greater increase in the number of persons employed in the property / finance / business services industries along the western section of the region.

Development of residential dwellings has also increased across the region. Between 1981 and 2001 the region generally experienced increases in the number of dwellings around the urban fringes and the hinterlands of the larger cities and towns. This trend tends to dominate in areas along main road corridors between the regions larger cities and towns. The period 1981 to 1991 general experienced more residential development across the region than the later period 1991 to 2001. Higher levels of increase were predominantly scattered along the coastal fringe between Tweed Heads and Byron Bay.

These socio-economic changes have been mapped at the Australian Bureau of Statistics Census Collector District level. The next step in the larger project is to examine how this has manifest 'on the ground' through a land use / land cover change analysis based on satellite imagery of the region over the same period.

7.0 References

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