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Report to:

Go Wairarapa/Wellington Regional Strategy

ECONOMIC PROJECTIONS FOR WAIRARAPA AND THE GREATER WELLINGTON REGION

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Economic Projections for Wairarapa and the Greater Wellington Region

1 Executive summary

This report has been prepared for Go Wairarapa and the Wellington Regional Strategy. It presents a medium term projection of the economic prospects for the Wairarapa and other areas of the Region, which in this report is described as the Wellington Urban area.

The projection can be regarded as a status quo or *business as usual* projection of the Wellington Region and its constituent areas, and can be used as a benchmark to measure the Region's progress over the medium term. Developments, initiatives, or programs that are successful in further harnessing the Region's economic resources and economic potential would make the outlook would be even more positive than that presented here.

The commodity-based economy of the Wairarapa is relatively subdued in this scenario as a result of modest employment prospects in the primary sector. The muted outlook for forestry adds to the subdued projection for the Wairarapa. However, the broader prospects for Wairarapa's primary industries are founded on on-going productivity improvements, which enables output and value added (GDP) to continue to increase. On the positive side, tourism assists the Wairarapa to continue being a growing and attractive area. Furthermore, other population-driven industries (health, education, construction, etc) are areas where potential growth could well be stronger.

The Wellington Urban area has the advantage of a stronger population growth profile as well as a broader range of industries, particularly in the service sector. Business and government/social services will remain the principal sectors driving growth in employment and value added (GDP) for the Wellington Urban area.

The projections show that FTE employment in the Wellington Region is expected to increase on average by 1.6%pa between 2004 and 2016. The Wellington Urban area is projected to record the same rate of employment growth. But the Wairarapa will be more subdued with an average increase of 1.1%pa. This equates to an additional 40,550 FTEs for the Region, with the Wairarapa accounting for 1,880 of this total.

The Wellington Region is projected to record an increase of 3.0%pa in value added (or GDP) between 2004 and 2016. Both the Wairarapa and the Wellington Urban area will record similar levels of GDP growth. Growth in the Wairarapa will be driven by productivity gains in agriculture and manufacturing. Growth in the Wellington Urban area will be more balanced, with strong growth in both employment and productivity levels.

2 Introduction

This report has been prepared for Go Wairarapa and the Wellington Regional Strategy. It represents a medium term projection of the economic prospects for the Wairarapa region, the Wellington Urban area[1], and the total Wellington Region. The forecasts are based on 2004 baseline information and sets the scene for the 2004-2016 period.

The projection was developed using an economy-wide multi-sector model of New Zealand[2]. In essence, the forecast takes the multi-sector model's projections of employment growth by industry on a national basis and applies these rates of growth to industry employment levels on a local (Wairarapa region and Wellington Urban area) basis.

The projection described below could be considered as mildly optimistic in terms of future opportunities. However, when viewed in light of New Zealand's recent economic performance we argue that the projections are a fair representation of a probable outcome over the medium term.

The projection can be regarded as a status quo or *business as usual* projection of the economic prospects for the Wellington Region and its constituent areas, and can be used as a benchmark to measure the region's progress over the medium term. Where developments, initiatives, or programs that are successful in further harnessing the Region's economic resources and economic potential would make the outlook would be even more positive than that presented here.

Section 3 of this report provides an over view of the medium-term projections. Section 4 discusses the method and context for the projections. Section 5 provides more detail on the employment growth projections. Section 6 provides more detail on the value added (GDP) growth projections. Section 7 looks at the pattern of growth within the Wellington Region.

[1] All references to the Wellington Urban area refer to the five Territorial Local Authorities (TLAs) of Kapiti Coast, Porirua City, Upper Hutt City, Lower Hutt City, and Wellington City.

[2] Refer to appendix section 10 for further details regarding BERL's multi-sector model.

3 The big picture

This section provides an overview of the medium-term projections from 2004 to 2016 with the focus being on ‘big picture’ differences between the constituent areas of the Wellington Region. The projections for total New Zealand over this period have also been included as a point of reference.

Table 1 shows a summary of the projections the Wairarapa, the Wellington Urban area, the Wellington Region and total New Zealand. The population projections are from Statistics New Zealand’s ‘medium growth’ sub-national population projections.

Table 1 Summary of projections from 2004 to 2016

Growth, %pa	Wairarapa	Wellington Urban	Wellington Region	Total New Zealand
Resident population	0.4	1.0	0.9	1.3
FTE employment	1.1	1.6	1.6	1.4
Productivity	1.8	1.4	1.4	1.5
Value Added (GDP)	2.9	3.0	3.0	3.0

The Region’s resident population is projected to increase by 0.9%pa, compared to the national average of 1.3%pa. Population growth in the Wellington Urban area is expected to be slightly higher, but still below the national average. The Wairarapa is expected to record a moderate increase of 0.4%pa and, as a consequence, its share of the Region’s total population will continue to decline over time.

Full-Time Equivalent (FTE) employment in the Region is projected to increase on average by about 1.6%pa, which is above the national average. Employment growth in the Wellington Urban area is projected to be at a similar level to the Region, while the Wairarapa is projected to record an increase of about 1.1%pa. The weaker profile for employment growth in the Wairarapa reflects a combination of factors including slower growth in its population base/labour force and the broad composition of local industry demand for employees.

Value Added (or GDP) in the Region is projected to increase on average by 3.0%pa in line with the national projection. The Region’s constituent areas are also projected to record GDP growth rates in the order of 3.0%pa. However, the composition of projected GDP growth in the Wairarapa and the Wellington Urban area will exhibit some important differences.

- GDP growth in the Wairarapa will be driven by improvements in productivity gains (averaging 1.8%pa) in the primary and manufacturing sectors, rather than employment growth (averaging 1.1%pa).

- GDP growth in the Wellington Urban area will be more balanced with moderate productivity gains (averaging 1.4%pa) being matched with stronger employment growth (averaging 1.4%pa).

These differences reflect the urban/rural nature of the two areas. For example, the Wellington Urban area is projected to record stronger population growth and thus to experience stronger demand for local services, as well as an expansion in local labour supply enabling.

In contrast, the industrial composition of the Wairarapa is skewed more towards the primary and manufacturing sectors. These sectors are projected to record stronger productivity gains, which enables GDP in the Wairarapa to expand at a similar rate despite weaker increases in population/labour supply, and employment demand.

Table 2 provides a summary of the employment projections for the Wellington Region and its constituent areas. The projections for total New Zealand are included as a point of reference.

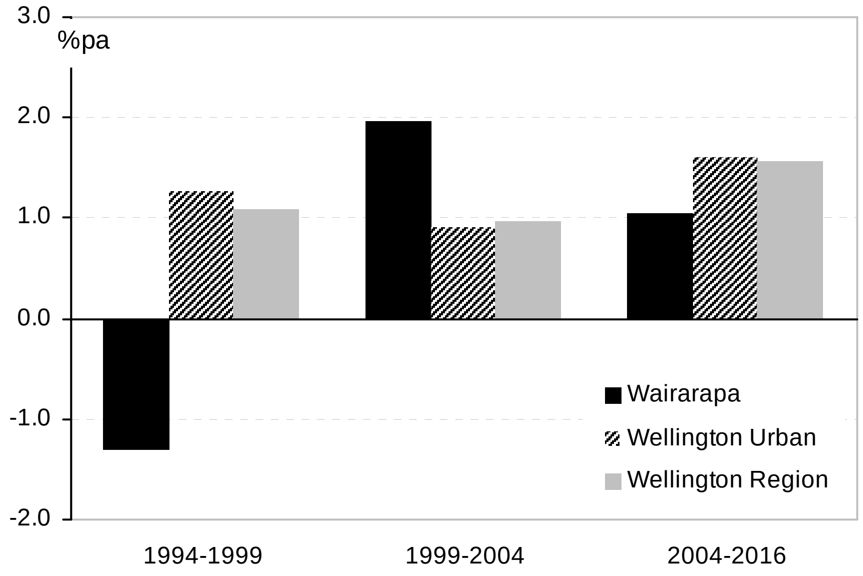
Table 2 Summary of employment (FTE) projections

	FTEs		Growth in FTEs		
	2004	2016	Total	Annual	%pa
Wairarapa	14,022	15,901	1,879	157	1.1
Wellington Urban	183,056	221,726	38,670	3,222	1.6
Wellington Region	197,078	237,627	40,549	3,379	1.6
Total New Zealand	1,690,949	2,001,407	310,458	25,872	1.4

Employment in the Region is projected to increase by a total of 40,500 FTEs between 2004 and 2016, or 3,380 FTEs per annum. Most of this increase will be within the Wellington Urban area. The level of employment in the Wairarapa is projected to increase by a total of 1,880 FTEs, or 160 FTEs per annum.

Figure 1 shows the historical profile of FTE employment growth between 1994-1999 and 1999-2004. It also shows the projected profile of FTE employment growth over the forecast horizon from 2004 to 2016.

Figure 1 Historical and projected employment growth



The figure shows that there has been two distinct periods of employment growth for the Wairarapa. Employment in the Wairarapa recorded a sharp decline in the 1994 to 1999 period, but then recorded a strong expansion through to 2004. The latter period can be regarded in part as a recovery stage for the Wairarapa. Future growth (from 2004 to 2016) is unlikely to match this pace of expansion. In contrast, employment growth for the Wellington Urban area (and the Region) has been much less cyclical over the two periods between 1994 and 2004.

Table 3 provides a summary of the projections for value added (GDP) growth over the 2004 to 2016 period.

Table 3 Summary of Value Added (GDP) projections

	GDP (1996$m)		Growth in GDP		
	2004	2016	Total	Annual	%pa
Wairarapa	869	1,225	356	30	2.9
Wellington Urban	13,838	19,758	5,921	493	3.0
Wellington Region	14,707	20,983	6,277	523	3.0
Total New Zealand	119,206	169,407	50,200	4,183	3.0

The level of GDP in the Region is projected to increase in total by $6.3 billion or by about $525 million per annum. This growth projection sees total GDP in the Region increase to above $20 billion in 2016. The Wellington Urban area accounts for the bulk of this expansion with GDP growth averaging about $495 million per annum.

4 Economic prospects

This section discusses the broader context for the economic projections presented in section 3 above. We outline some of the underlying assumptions that drive the projected economic outcome and discuss key elements particularly relevant to the Wairarapa and Wellington picture.

4.1 The foundations

The employment projections used for this report are determined using BERL's general equilibrium model. Similar projections over a variety of periods have been undertaken for organisations including Career Services and Dunedin City Council. The model is also used in BERL's quarterly forecasts.

The change in employment is based upon the total increase in labour required to meet the output demanded. The labour requirement is adjusted for labour and capital productivity. The change in industry demand is determined by the demand for goods and services that the industry produces.

Key elements driving the model projections include assumptions as to the rate of expansion of world demand for the various goods and services produced by NZ industry. This determines what is produced, which accounts for variances in growth in different industries. In addition, assumptions as to labour and capital productivity growth for each industry are imposed on the model. The assumptions are based upon historical trends. Such productivity growth has an influence in determining the degree to which individual NZ industries can improve their export (or import-competing) performance. In turn, the rate of productivity improvement influences whether NZ export industries can grow faster or slower than the expansion in world demand.

Government expenditure is also based upon historical trends as well as assumptions as to the Government's projected role in the economy. Private household consumption expenditure is linked to income growth (in turn, derived predominantly from employment and wage projections). The pattern of spending within the consumer basket is dependent on the changes in the relative prices of goods and services.

4.2 Key assumptions

The key assumptions used in the projection are listed below.

a) New Zealand's population is expected to grow moderately to reach 4.56m in 2016. This growth represents an average expansion of just below 1.0% per annum. This is consistent with Statistics NZ's projection assuming medium fertility and mortality rates, and net annual migration of 10,000.

b) Labour force participation rates are assumed to continue rising gradually to be just over 68% in 2016. Taking into account the changing age composition of the NZ population, this results in the labour force growing an average 1.4% per annum. This represents a net increase in labour supply of 381,000 over the 12-year 2004 to 2016 period.

c) Productivity growth is imposed at the disaggregated industry level according to recent historical averages. The agriculture, horticulture and communications industries are assumed to continue experiencing the highest rates of productivity improvement. In aggregate across all industries, these assumptions result in labour productivity improving an average 1.5% per annum over the period, with capital productivity averaging a 0.3% per annum gain.

d) World prices are assumed to grow an average of approximately 2% per annum. These prices are imposed at the disaggregated goods and services, and it is assumed that primary commodity prices (eg dairy, meat) increase at slower than this average. This implies that NZ's terms of trade gradually decline from their recent historical high.

e) Global economic growth continues in the 2% to 2.5% per annum range. World demand for tourism is higher than the average at around 3% per annum. World demand for agricultural commodities grows noticeably slower than the average.

As noted in section 3, these assumptions lead to national GDP growth averaging 3.0%pa over the 2004 to 2016 period.

The key constraining influence in this projection is labour supply. While labour supply is not fully exhausted, this projection does assume an on-going increase in labour force participation rates as well as a sustained period of net migration inflow.

Some would argue that these assumptions are contentious. However, we would argue these assumptions are realistic in light of the current environment. More flexible working arrangements and new technology should continue to improve the attractiveness of part-time and working from home options. In addition, New Zealand continues to be attractive to prospective new migrants and low unemployment rates will add to this attractiveness.

Amongst the export categories, we see the long-term trend away from commodities towards services continuing. Expansion in tourism activity continues to lead the way. On the other hand, primary commodity exports (eg dairy, meat, logs, and fish) expand at only a moderate pace over the projection period.

As to domestic demand, investment expenditure grows at a slightly faster rate than overall GDP. This reflects continued expenditure on infrastructure upgrading and renewal as well as the purchase of new machinery and capital equipment across industry.

4.3 Prospects for Wellington

In summary, this means development of the greater Wellington Region will continue in a climate of a growing New Zealand economy.

The labour market will remain tight over the period, in the sense that unemployment will be relatively low and skilled labour, in particular, will continue to be relatively scarce. Population growth alone is unlikely to fully satisfy labour demand requirements in the economy. Therefore, key sources for labour toward 2016 will be a return to the workforce of those currently *not in the labour force* (eg. those 'at home' or retired), older people remaining in the workforce for longer (perhaps in a part-time capacity) as well as migrants (including returning kiwis).

The demand for labour will be highest in the service and tourism sectors. The health, education, and government sectors along with finance & business services will all be competing to attract skilled labour.

In the 'goods' or manufacturing sectors, the key driver industry will be the fabricated metals and machinery sector. Included in this category are establishments producing ETMs (elaborately transformed manufactures).

The prospects for primary industries are founded on on-going productivity growth. This growth enables output and export volumes to continue increasing, although employment expansion is minimal in these industries.

4.3.1 Summary

The projected picture suggests that the various influences on the Wairarapa and the Wellington Urban area will continue to highlight each of their distinctive contributions.

The commodity-based economy of the Wairarapa will be relatively subdued in this business-as-usual scenario, essentially as a result of modest employment prospects in the primary sector. The muted outlook for forestry adds to the subdued projection for the Wairarapa.

On the positive side, tourism (both domestic and international) assists the Wairarapa in remaining a growing and attractive region. Furthermore, other *population-driven* industries (eg. health, education and construction) are areas where potential growth could well multiply as a result of appropriately focussed regional development initiatives. These particularly relate to the outlook for the region (as well as wider lower North Island) infrastructure investment and skills training requirements.

For the Wellington Urban area business services remains one of the principal sectors driving the outlook. The government services sector also continues to be a prime contributor to employment growth. Further, in line with the national outlook, the tourism sector is set to increase its contribution to the Wellington economy in both GDP and employment terms.

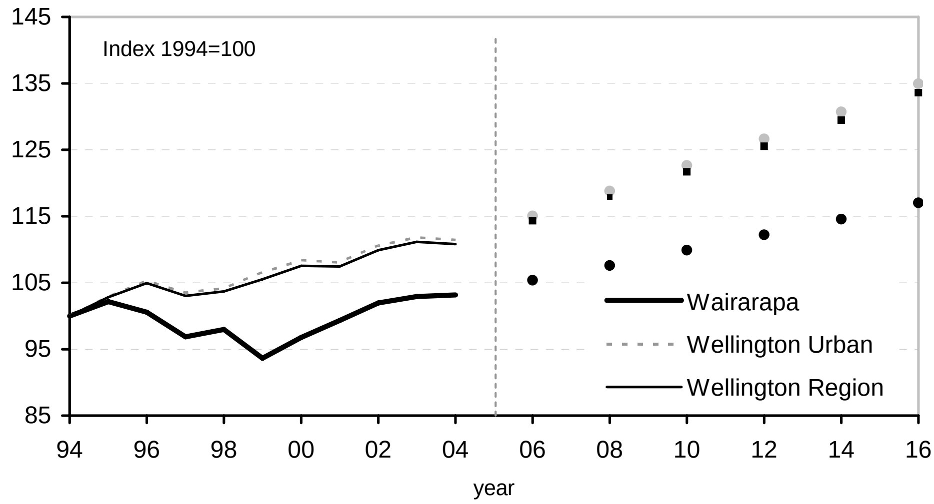
This projection is based on a standard *business-as-usual* assumption. Pro-active regional development initiatives (especially any focussing on the central issues of infrastructure investment and workforce skills requirements) have a potential to change each region's relative outcome. It is worth noting that those regions that successfully address these issues will tend to prosper relative to the business-as-usual scenario.

5 Employment growth

This section provides more detail on the employment projections with a focus on the pattern of industry growth within each area.

Figure 2 shows an index of actual and projected employment growth between 1994 and 2016. Despite a fall in FTE employment between 1995 and 1999, the Wairarapa managed to close the gap between 1999 and 2004.

Figure 2 Index of employment (FTE) growth



The projections show that FTE employment growth in the Wairarapa is expected to continue through to 2016 but will not be as strong as the employment growth in the Wellington Urban area.

5.1 The Wairarapa

This section looks at the projected employment growth in the Wairarapa between 2004 and 2016. Table 4 shows the 'top 15' industries that are projected to add the most FTEs to the Wairarapa over this period (note that detailed industry projections are provided in Appendix I).

The Top 15 industries are projected to add a total of 1,857 FTEs over the projection period, and are expected to account for most (close to 100%) of the total increase in employment. The other industries record little employment growth, with agriculture in particular recording a long-term decline in employment.

Table 4 Wairarapa employment: industry contributions

Top 15 Industry Contributions	FTEs 2004	FTEs 2016	change 2004 to 2016 number	change 2004 to 2016 % pa
Business Services	896	1,146	250	2.1
Education	799	1,032	233	2.2
Health Services	687	864	177	1.9
Accommodation, Cafes and Restaurants	734	897	163	1.7
Personal and Household Good Retailing	715	856	141	1.5
Wood and Paper Product Manufacturing	583	719	136	1.8
Food Retailing	646	773	127	1.5
Community Services	472	594	122	1.9
Motor Vehicle Retailing and Services	491	588	97	1.5
Government Administration	316	399	83	2.0
Construction Trade Services	605	686	81	1.1
Road Transport	295	367	72	1.8
Machinery and Equipment Manufacturing	244	309	66	2.0
General Construction	457	519	61	1.1
Textile, Clothing, Footwear & Leather Mfg	158	207	48	2.3
Total of the Top Fifteen	**8,099**	**9,956**	**1,857**	**1.7**
Remaining Industries	*5,923*	*5,946*	*22*	*0.0*
Total Wairarapa	**14,022**	**15,901**	**1,879**	**1.1**

The projections indicate that employment growth in the Wairarapa will be dominated by the business services, education, health and accommodation, cafes & restaurants industries. This pattern of employment growth reflects on-going demand from domestic and international tourism, as well as moderate increases in the Wairarapa's resident population.

Generally speaking, the Wairarapa's Top 15 is dominated by 'service' rather than 'production' industries. However, wood product manufacturing, construction, and machinery & equipment manufacturing are projected to record respectable increases in FTE employment through to 2016. These industries, together with the base resident population, will support the growth in business services in the area.

5.2 The Wellington Urban area

This section looks at the projected employment growth in the Wellington Urban area between 2004 and 2016. Table 5 shows the top 15 industries that are projected to add the most FTEs over this period. These Top 15 industries are projected to add 31,235 FTEs over the projection period, and are expected to account for about 80% of total employment growth.

Table 5 Wellington Urban employment: industry contributions

Top 15 Industry Contributions	FTEs 2004	FTEs 2016	change 2004 to 2016 number	change 2004 to 2016 % pa
Business Services	31,295	40,022	8,727	2.1
Government Administration	15,929	20,125	4,196	2.0
Education	12,341	15,938	3,597	2.2
Health Services	11,016	13,853	2,837	1.9
Accommodation, Cafes and Restaurants	8,056	9,842	1,785	1.7
Personal and Household Good Retailing	8,115	9,712	1,597	1.5
Food Retailing	6,557	7,848	1,291	1.5
Other Services	5,969	7,134	1,165	1.5
Community Services	4,449	5,595	1,146	1.9
Finance	6,005	7,065	1,060	1.4
Construction Trade Services	7,638	8,664	1,027	1.1
Motor Vehicle Retailing and Services	3,923	4,694	772	1.5
Personal and Household Good Wholesaling	3,635	4,350	715	1.5
Road Transport	2,739	3,405	666	1.8
Machinery and Equipment Manufacturing	2,413	3,066	653	2.0
Total of the Top Fifteen	**130,079**	**161,313**	**31,235**	**1.8**
Remaining Industries	*52,977*	*60,413*	*7,435*	*1.1*
TOTAL WELLINGTON URBAN	**183,056**	**221,726**	**38,670**	**1.6**

The projections indicate that employment growth in the Wellington Urban area will be heavily influenced by growth in the business and social service sectors, including government administration services in Wellington City.

The Wellington Urban area's Top 15 also includes industries that are typically driven by tourism and base population or household demand, such as accommodation, cafes & restaurants, and retailing.

Generally speaking, employment growth in the Wellington Urban area is dominated by the social services (including central government functions) as well as industries meeting the consumption and recreational requirements of the resident population.

Employment growth in the Wellington Urban area is also projected to be dispersed across a broader range of industries than in the Wairarapa, where employment growth is expected to be highly concentrated.

5.3 Wellington Region

This section looks at the projected employment growth in the Wellington Region between 2004 and 2016. Table 6 shows the top 15 industries that are projected to add the most FTEs over the period and their contribution to the total growth.

The results for the Wellington Region are a combination of those for the Wairarapa and the Wellington Urban area. However, the trends for the Wellington Region are similar to those of the Wellington Urban area due to the small proportion of regional employment (less than 10%) that is located in the Wairarapa.

Table 6 Wellington Region employment: industry contributions

	FTEs		change 2004 to 2016	
Top 15 Industry Contributions	2004	2016	number	% pa
Business Services	32,190	41,167	8,977	2.1
Government Administration	16,245	20,524	4,279	2.0
Education	13,140	16,969	3,830	2.2
Health Services	11,703	14,717	3,014	1.9
Accommodation, Cafes and Restaurants	8,791	10,739	1,948	1.7
Personal and Household Good Retailing	8,830	10,568	1,738	1.5
Food Retailing	7,203	8,621	1,418	1.5
Community Services	4,921	6,189	1,267	1.9
Other Services	6,161	7,364	1,203	1.5
Construction Trade Services	8,243	9,350	1,108	1.1
Finance	6,126	7,208	1,082	1.4
Motor Vehicle Retailing and Services	4,413	5,282	869	1.5
Personal and Household Good Wholesaling	3,752	4,491	738	1.5
Road Transport	3,034	3,773	738	1.8
Machinery and Equipment Manufacturing	2,657	3,376	719	2.0
Total of the Top Fifteen	**137,411**	**170,338**	**32,928**	**1.8**
Remaining Industries	*59,667*	*67,289*	*7,621*	*1.0*
TOTAL WELLINGTON REGION	**197,078**	**237,627**	**40,549**	**1.6**

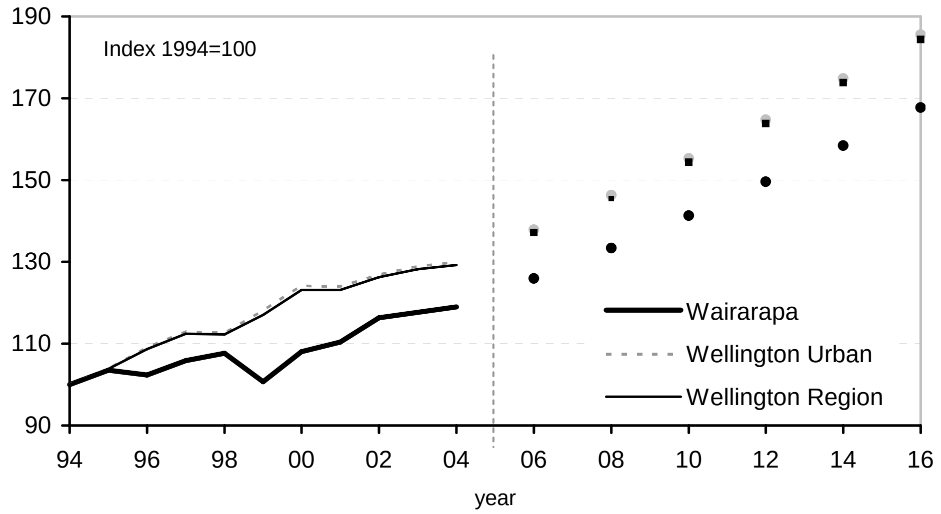
The Wellington Region accounted for 11.3% of New Zealand's total employment in 2004. This is a decline relative to 1994 when the Wellington Region accounted for 12.9% of total employment. The Region's contribution to total national employment is projected to return to about 13% near the end of the forecast period.

6 Value Added (GDP) growth

This section provides more detail in relation to the projections of Value Added (or GDP) with a focus on the pattern of industry growth within each area. Note detailed industry projections of GDP for each area are provided in Appendix I.

Figure 3 shows an index of value added (GDP) for each of the three Wellington areas between 1994 and 2016. The gap between the Wairarapa and the Wellington Urban area has been closed since 1999 due to strong GDP growth in the Wairarapa and a flattening in the growth profile for the Wellington Urban area.

Figure 3 Index of Value Added (GDP) growth



The projections indicate that both the Wairarapa and the Wellington Urban areas will record (on average) strong increases in GDP over the period from 2004 to 2016. The Wairarapa is expected to keep up with growth in the Wellington Urban area over the projection period, despite less robust increases in employment.

6.1 The Wairarapa

This section looks at the projected GDP growth in the Wairarapa between 2004 and 2016. Table 7 shows the 'Top 8' industries that are projected to add the most GDP over the period. These industries are projected to add $184 million in GDP over the projection period and are expected to account for about 50% of total GDP growth.

Table 7 Wairarapa GDP: industry contributions

Top 8 Industry Contributions	GDP (1996$m) 2004	2016	change 2004 to 2016 1996$m	% pa
Agriculture	127	164	37	2.2
Property Services	93	126	33	*2.5*
Forestry and Logging	48	76	28	*3.9*
Wood and Paper Product Manufacturing	54	80	26	*3.4*
Business Services	43	62	19	*3.1*
Health Services	40	56	16	*2.9*
Government Administration	30	43	12	*2.9*
Education	31	43	12	*2.8*
Total of the Top Eight	**466**	***650***	**184**	***2.8***
Reamining Industries	*403*	*575*	*172*	*3.0*
Total Wairarapa	**869**	**1,225**	**356**	***2.9***

Agriculture is projected to make the largest contribution of about $37 million to GDP growth for the Wairarapa. This is in contrast to the employment projections, which show agricultural FTEs declining over this period. The strong growth in agricultural GDP is due to on-going productivity gains in the agricultural sector as well as its relative size in terms of the structure of the Wairarapa economy.

The forestry & logging and wood & paper product manufacturing industries also make the Wairarapa's Top 8 list. This is due to a combination of employment growth and productivity gains. The combined forestry and processing sector is projected to record an expansion of $55-60 million between 2004 and 2016.

The remaining Top 8 industries are from the service sectors, and include those that rank high in terms of projected employment growth (eg business services, health and education). Generally speaking, the profile for GDP growth is more 'balanced' than the profile of employment growth in the Wairarapa with both the local production and services sectors making strong contributions to GDP growth.

6.2 The Wellington Urban area

This section looks at the projected GDP growth in the Wellington Urban area between 2004 and 2016. Table 8 shows the Top 8 industries that are expected to add the most GDP. These industries are projected to add about $3.6 billion in GDP over the projection period and account for about 60% of total GDP growth.

Table 8 Wellington Urban GDP: industry contributions

Top 8 Industry Contributions	GDP (1996$m) 2004	2016	change 2004 to 2016 1996$m	% pa
Business Services	1,512	2,175	662	3.1
Communication Services	1,270	1,900	630	*3.4*
Government Administration	1,523	2,148	625	*2.9*
Property Services	1,400	1,892	491	*2.5*
Finance	1,179	1,669	490	*2.9*
Health Services	641	901	260	*2.9*
Electricity and Gas Supply	441	645	204	*3.2*
Education	476	659	184	*2.8*
Total of the Top Eight	**8,443**	***11,989***	**3,546**	***3.0***
Reamining Industries	*5,394*	*7,769*	*2,375*	*3.1*
TOTAL WELLINGTON URBAN	**13,838**	**19,758**	**5,921**	***3.0***

The GDP projections for the Wellington Urban area are similar to the employment projections with business services recording the largest growth. Communications also makes the area's Top 8 list due to being a high 'value added' sector.

The retail industries have not made the Top 8 list (despite the projection for strong employment growth in these industries) due to these industries tending to be low in terms of 'value added' compared to the agriculture, manufacturing, and business service sectors. However, as shown in the detailed tables contained in Appendix I, these industries are expanding in terms of GDP.

Overall, GDP growth in the Wellington Urban area will be driven by growth in the business service sector (communication services, property services, finance, etc) with support from the social service sector including central government administration.

6.3 Wellington Region

This section summarises the projections for GDP growth in the Wellington Region between 2004 and 2016. The results for the Region are a combination of the results from the Wairarapa and the Wellington Urban area with the latter being the dominant area in terms of key influences and trends.

Table 9 shows the Top 8 industries that are projected to add the most GDP to the Wellington Region over the forecast period. These Top 8 industries tend to be in the service sectors, reflecting the size of the Urban area relative to the Wairarapa.

Table 9 Wellington Region GDP: industry contributions

Top 8 Industry Contributions	GDP (1996$m) 2004	GDP (1996$m) 2016	change 2004 to 2016 1996$m	change 2004 to 2016 % pa
Business Services	1,556	2,237	681	3.1
Communication Services	1,288	1,926	639	*3.4*
Government Administration	1,554	2,191	637	*2.9*
Property Services	1,494	2,018	524	*2.5*
Finance	1,203	1,703	500	*2.9*
Health Services	681	957	276	*2.9*
Electricity and Gas Supply	455	665	210	*3.2*
Education	506	702	196	*2.8*
Total of the Top Eight	**8,736**	***12,399***	**3,663**	***3.0***
Reamining Industries	*5,971*	*8,584*	*2,614*	*3.1*
TOTAL WELLINGTON REGION	**14,707**	**20,983**	**6,277**	***3.0***

The Top 8 industries are projected to add $3.6 billion in value added (GDP) to the Region's economy over the projection period, and to account for about 58% of the Region's total GDP growth.

The Wellington Region accounted for 12.5% of New Zealand's total Value Added (GDP) in 2004. This is a decline relative to 1994 when the Region accounted for 13.5% of total national GDP. The Region's contribution to national GDP is projected to remain at about 12.5% over the forecast period from 2004 to 2016.

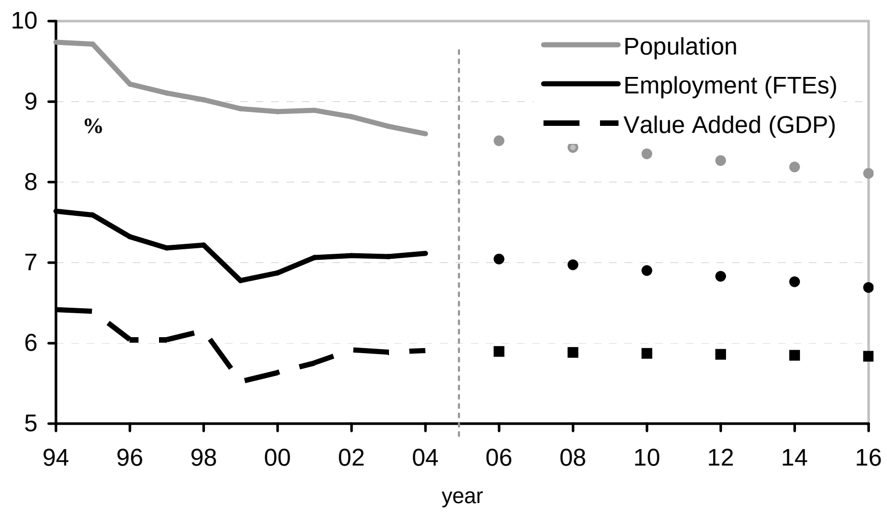
7 Contributions to growth

In this section we make some very broad observations about the pattern of growth within the Wellington Region. These observations should be considered within the wider strategic context that:

- different areas within the Region tend to perform different functions, and these functions are often highly complementary; and
- developments, initiatives or programs can enhance these complementarities with leverage or flow-on benefits to the whole Region.

Figure 4 shows the Wairarapa as a proportion of the Wellington Region for three indicators; population, employment and value added.

Figure 4 Wairarapa as a proportion of the Wellington region



The Wairarapa's share of the Region's economy has generally been declining over time, although the period from 1999-2004 has seen the Wairarapa maintain its share of employment and value added due to strong growth. Note that the long-term decline in these indicators does not mean that the Wairarapa has been shrinking but rather that growth in the Wellington Urban area has been relatively stronger.

The projections indicate that the Wairarapa share of the Wellington Region's total population base will continue to decline over the projection period to be about 8.1% of the Region in 2016 (compared to about 9.7% in 1994). The Wairarapa's share of total Regional employment also exhibits a long-term decline although this is not as dramatic as the population projections.

In contrast, the Wairarapa's share of GDP in the Region is expected to be maintained at about 5.9% over the projection period.

These trends are not restricted to the Wellington Region with rural based economies like the Wairarapa having recorded slower employment growth over the last decade as employment in key rural industries such as agriculture has declined. Strong gains in productivity have meant that GDP has continued to expand in these industries. In contrast, urban areas across New Zealand have recorded strong employment growth in business, personal and household services. Some of these industries also have high rates of productivity growth.

Table 10 shows the projected level of GDP *growth* within the Wellington Region between 2004 and 2016. For instance, the level of GDP in the Wairarapa is projected to increase in total by $356 million. The table also shows the percent contribution to GDP growth in the Region from the Wairarapa and the Wellington Urban area.

Table 10 Contributions to projected growth in Value Added (GDP)

Growth, 2004-2016	1996$m			% contribution	
	Wairarapa	Wellington Urban	Wellington Region	Wairarapa	Wellington Urban
Primary Production	74	73	148	50.2	49.8
Manufacturing and Building	82	707	789	10.4	89.6
Retail and Distribution	66	1,062	1,128	5.8	94.2
Business Services	80	2,691	2,770	2.9	97.1
Recreation Services	9	231	240	3.7	96.3
Social Services	45	1,156	1,201	3.8	96.2
TOTAL ALL SECTORS	**356**	**5,921**	**6,277**	**5.7**	**94.3**

The Wairarapa is projected to account for about 5.7% of total GDP growth in the Wellington Region between 2004 and 2016. However, the Wairarapa's contribution to specific sectors within the Region is quite different.

The Wairarapa is projected to account for 50% of growth in the Region's primary production sector and 10% of growth in the Region's manufacturing and building sector. This highlights the importance of the Wairarapa in terms of production in the Region including to 'downstream' industries such as transport and storage.

The Wairarapa is projected to account for a relatively low proportion of GDP growth in the Region's business, recreation and social service sectors. This is consistent with the population projections.

8 Appendix I - Detailed data tables

Table 11 Wairarapa Employment (FTEs) by Industry

	FTEs		change 2004 to 2016	
	2004	2016	number	% pa
Agriculture	2,444	2,130	-314	-1.1
Services to Agriculture; Hunting and Trapping	542	477	-65	-1.1
Forestry and Logging	302	323	21	0.6
Commercial Fishing	77	82	6	0.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	0	0	0	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	32	37	6	1.4
Services to Mining	0	0	0	0.0
Primary	***3,396***	***3,049***	***-347***	***-0.9***
Food, Beverage and Tobacco	345	378	33	0.8
Textile, Clothing, Footwear & Leather Mfg	158	207	48	2.3
Wood and Paper Product Manufacturing	583	719	136	1.8
Printing, Publishing and Recorded Media	260	301	41	1.2
Petroleum, Coal, Chemical & Assoc Prod Mfg	21	25	4	1.4
Non-Metallic Mineral Product Manufacturing	41	50	9	1.7
Metal Product Manufacturing	106	132	26	1.9
Machinery and Equipment Manufacturing	244	309	66	2.0
Other Manufacturing	120	148	28	1.8
General Construction	457	519	61	1.1
Construction Trade Services	605	686	81	1.1
Manufacturing and Building	***2,939***	***3,473***	***534***	***1.4***
Basic Material Wholesaling	223	267	44	1.5
Machinery and Motor Vehicle Wholesaling	104	125	21	1.5
Personal and Household Good Wholesaling	117	140	23	1.5
Food Retailing	646	773	127	1.5
Personal and Household Good Retailing	715	856	141	1.5
Motor Vehicle Retailing and Services	491	588	97	1.5
Accommodation, Cafes and Restaurants	734	897	163	1.7
Road Transport	295	367	72	1.8
Rail Transport	6	7	1	1.7
Water Transport	0	0	0	0.0
Air and Space Transport	14	19	4	2.2
Other Transport	0	0	0	0.0
Services to Transport	18	23	5	2.2
Storage	0	0	0	0.0
Retail and Distribution	***3,365***	***4,062***	***698***	***1.6***
Electricity and Gas Supply	33	34	1	0.3
Water Supply, Sewerage and Drainage Services	12	11	0	-0.2
Communication Services	77	78	1	0.1
Finance	122	143	21	1.4
Insurance	9	10	2	1.4
Services to Finance and Insurance	62	73	11	1.4
Property Services	245	239	-6	-0.2
Business Services	896	1,146	250	2.1
Business Services	***1,455***	***1,735***	***280***	***1.5***
Motion Picture, Radio and Television Services	33	37	4	0.9
Libraries, Museums and the Arts	69	77	8	0.9
Sport and Recreation	86	96	10	0.9
Personal Services	211	252	41	1.5
Other Services	192	230	38	1.5
Private Households Employing Staff	0	0	0	0.0
Recreation Services	***592***	***692***	***100***	***1.3***
Government Administration	316	399	83	2.0
Defence	0	0	0	0.0
Education	799	1,032	233	2.2
Health Services	687	864	177	1.9
Community Services	472	594	122	1.9
Social Services	***2,274***	***2,889***	***615***	***2.0***
TOTAL WAIRARAPA	**14,022**	**15,901**	**1,879**	**1.1**

Table 12 Wairarapa Value Added (GDP) by Industry

	GDP (1996$m)		change 2004 to 2016	
	2004	2016	1996$m	% pa
Agriculture	127	164	37	2.2
Services to Agriculture; Hunting and Trapping	13	18	5	2.6
Forestry and Logging	48	76	28	3.9
Commercial Fishing	4	6	2	2.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	0	0	0	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	4	6	2	3.3
Services to Mining	0	0	0	0.0
Primary	***197***	***271***	***74***	***2.7***
Food, Beverage and Tobacco	31	41	10	2.3
Textile, Clothing, Footwear & Leather Mfg	8	11	3	3.2
Wood and Paper Product Manufacturing	54	80	26	3.4
Printing, Publishing and Recorded Media	14	21	6	3.1
Petroleum, Coal, Chemical & Assoc Prod Mfg	2	3	1	3.4
Non-Metallic Mineral Product Manufacturing	5	7	2	3.3
Metal Product Manufacturing	8	12	4	3.2
Machinery and Equipment Manufacturing	15	23	8	3.6
Other Manufacturing	5	7	2	3.2
General Construction	23	32	9	2.9
Construction Trade Services	24	34	10	2.9
Manufacturing and Building	***188***	***270***	***82***	***3.1***
Basic Material Wholesaling	20	29	9	3.1
Machinery and Motor Vehicle Wholesaling	10	14	4	3.1
Personal and Household Good Wholesaling	11	16	5	3.1
Food Retailing	23	33	10	3.1
Personal and Household Good Retailing	27	38	12	3.1
Motor Vehicle Retailing and Services	19	28	8	3.1
Accommodation, Cafes and Restaurants	18	25	7	2.7
Road Transport	18	26	8	3.2
Rail Transport	2	2	1	3.3
Water Transport	0	0	0	0.0
Air and Space Transport	2	3	1	4.0
Other Transport	0	0	0	0.0
Services to Transport	2	3	1	4.0
Storage	0	0	0	0.0
Retail and Distribution	***151***	***217***	***66***	***3.1***
Electricity and Gas Supply	14	20	6	3.2
Water Supply, Sewerage and Drainage Services	1	2	0	2.5
Communication Services	18	27	9	3.4
Finance	24	34	10	2.9
Insurance	1	2	1	2.9
Services to Finance and Insurance	4	6	2	2.9
Property Services	93	126	33	2.5
Business Services	43	62	19	3.1
Business Services	***199***	***279***	***80***	***2.8***
Motion Picture, Radio and Television Services	3	5	1	3.0
Libraries, Museums and the Arts	2	3	1	3.0
Sport and Recreation	5	7	2	3.0
Personal Services	7	10	3	3.0
Other Services	3	5	1	3.0
Private Households Employing Staff	0	0	0	0.0
Recreation Services	***21***	***30***	***9***	***3.0***
Government Administration	30	43	12	2.9
Defence	0	0	0	0.0
Education	31	43	12	2.8
Health Services	40	56	16	2.9
Community Services	12	17	5	2.9
Social Services	***113***	***158***	***45***	***2.9***
TOTAL WAIRARAPA	**869**	**1,225**	**356**	**2.9**

Table 13 Wellington Urban employment (FTEs) by Industry

	FTEs		change 2004 to 2016	
	2004	2016	number	% pa
Agriculture	1,142	995	-147	-1.1
Services to Agriculture; Hunting and Trapping	216	190	-26	-1.1
Forestry and Logging	157	167	11	0.6
Commercial Fishing	98	105	7	0.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	42	45	3	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	40	47	7	1.4
Services to Mining	23	27	4	0.0
Primary	***1,718***	***1,577***	***-141***	***-0.7***
Food, Beverage and Tobacco	2,056	2,251	194	0.8
Textile, Clothing, Footwear & Leather Mfg	1,233	1,611	378	2.3
Wood and Paper Product Manufacturing	1,079	1,331	252	1.8
Printing, Publishing and Recorded Media	2,748	3,180	433	1.2
Petroleum, Coal, Chemical & Assoc Prod Mfg	2,322	2,744	422	1.4
Non-Metallic Mineral Product Manufacturing	325	398	73	1.7
Metal Product Manufacturing	2,033	2,536	503	1.9
Machinery and Equipment Manufacturing	2,413	3,066	653	2.0
Other Manufacturing	1,105	1,361	256	1.8
General Construction	4,559	5,172	613	1.1
Construction Trade Services	7,638	8,664	1,027	1.1
Manufacturing and Building	***27,512***	***32,314***	***4,803***	***1.3***
Basic Material Wholesaling	2,469	2,955	486	1.5
Machinery and Motor Vehicle Wholesaling	3,121	3,735	614	1.5
Personal and Household Good Wholesaling	3,635	4,350	715	1.5
Food Retailing	6,557	7,848	1,291	1.5
Personal and Household Good Retailing	8,115	9,712	1,597	1.5
Motor Vehicle Retailing and Services	3,923	4,694	772	1.5
Accommodation, Cafes and Restaurants	8,056	9,842	1,785	1.7
Road Transport	2,739	3,405	666	1.8
Rail Transport	349	428	79	1.7
Water Transport	745	914	169	0.0
Air and Space Transport	545	706	161	2.2
Other Transport	29	38	9	0.0
Services to Transport	1,472	1,906	434	2.2
Storage	306	397	90	0.0
Retail and Distribution	***42,061***	***50,929***	***8,868***	***1.6***
Electricity and Gas Supply	1,063	1,103	41	0.3
Water Supply, Sewerage and Drainage Services	210	205	-5	-0.2
Communication Services	5,442	5,530	88	0.1
Finance	6,005	7,065	1,060	1.4
Insurance	1,922	2,261	339	1.4
Services to Finance and Insurance	2,403	2,828	424	1.4
Property Services	3,691	3,598	-93	-0.2
Business Services	31,295	40,022	8,727	2.1
Business Services	***52,030***	***62,612***	***10,582***	***1.6***
Motion Picture, Radio and Television Services	1,525	1,701	176	0.9
Libraries, Museums and the Arts	2,105	2,348	243	0.9
Sport and Recreation	2,107	2,350	243	0.9
Personal Services	2,573	3,075	502	1.5
Other Services	5,969	7,134	1,165	1.5
Private Households Employing Staff	7	8	1	0.0
Recreation Services	***14,286***	***16,616***	***2,330***	***1.3***
Government Administration	15,929	20,125	4,196	2.0
Defence	1,715	2,167	452	0.0
Education	12,341	15,938	3,597	2.2
Health Services	11,016	13,853	2,837	1.9
Community Services	4,449	5,595	1,146	1.9
Social Services	***45,450***	***57,677***	***12,228***	***2.0***
TOTAL WELLINGTON URBAN AREA	**183,056**	**221,726**	**38,670**	**1.6**

Table 14 Wellington Urban Value Added (GDP) by industry

	GDP (1996$m)		change 2004 to 2016	
	2004	2016	1996$m	% pa
Agriculture	59	77	17	2.2
Services to Agriculture; Hunting and Trapping	5	7	2	2.6
Forestry and Logging	25	40	15	3.9
Commercial Fishing	6	8	2	2.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	58	92	34	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	6	8	3	3.3
Services to Mining	2	3	1	0.0
Primary	***161***	***234***	***73***	***3.2***
Food, Beverage and Tobacco	185	243	57	2.3
Textile, Clothing, Footwear & Leather Mfg	60	87	27	3.2
Wood and Paper Product Manufacturing	99	148	49	3.4
Printing, Publishing and Recorded Media	152	219	68	3.1
Petroleum, Coal, Chemical & Assoc Prod Mfg	203	303	100	3.4
Non-Metallic Mineral Product Manufacturing	38	56	18	3.3
Metal Product Manufacturing	157	228	71	3.2
Machinery and Equipment Manufacturing	147	226	78	3.6
Other Manufacturing	45	66	21	3.2
General Construction	228	321	93	2.9
Construction Trade Services	305	431	125	2.9
Manufacturing and Building	***1,619***	***2,326***	***707***	***3.1***
Basic Material Wholesaling	226	325	99	3.1
Machinery and Motor Vehicle Wholesaling	296	425	129	3.1
Personal and Household Good Wholesaling	344	494	150	3.1
Food Retailing	234	336	102	3.1
Personal and Household Good Retailing	301	432	131	3.1
Motor Vehicle Retailing and Services	153	220	67	3.1
Accommodation, Cafes and Restaurants	200	275	76	2.7
Road Transport	163	238	75	3.2
Rail Transport	94	139	44	3.3
Water Transport	86	126	41	0.0
Air and Space Transport	63	102	39	4.0
Other Transport	0	1	0	0.0
Services to Transport	164	264	100	4.0
Storage	18	28	11	0.0
Retail and Distribution	***2,342***	***3,404***	***1,062***	***3.2***
Electricity and Gas Supply	441	645	204	3.2
Water Supply, Sewerage and Drainage Services	26	34	9	2.5
Communication Services	1,270	1,900	630	3.4
Finance	1,179	1,669	490	2.9
Insurance	331	469	138	2.9
Services to Finance and Insurance	162	229	67	2.9
Property Services	1,400	1,892	491	2.5
Business Services	1,512	2,175	662	3.1
Business Services	***6,321***	***9,012***	***2,691***	***3.0***
Motion Picture, Radio and Television Services	154	220	67	3.0
Libraries, Museums and the Arts	60	86	26	3.0
Sport and Recreation	125	180	54	3.0
Personal Services	85	120	35	3.0
Other Services	107	151	45	3.0
Private Households Employing Staff	11	15	4	0.0
Recreation Services	***541***	***772***	***231***	***3.0***
Government Administration	1,523	2,148	625	2.9
Defence	102	144	42	0.0
Education	476	659	184	2.8
Health Services	641	901	260	2.9
Community Services	112	157	45	2.9
Social Services	***2,854***	***4,010***	***1,156***	***2.9***
TOTAL WELLINGTON URBAN AREA	**13,838**	**19,758**	**5,921**	**3.0**

Table 15 Wellington Region Employment (FTEs) by Industry

	FTEs		change 2004 to 2016	
	2004	2016	number	% pa
Agriculture	3,586	3,125	-461	-1.1
Services to Agriculture; Hunting and Trapping	758	668	-91	-1.1
Forestry and Logging	459	490	31	0.6
Commercial Fishing	174	187	13	0.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	42	45	3	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	72	84	13	1.4
Services to Mining	23	27	4	0.0
Primary	***5,114***	***4,627***	***-488***	***-0.8***
Food, Beverage and Tobacco	2,401	2,628	227	0.8
Textile, Clothing, Footwear & Leather Mfg	1,392	1,818	426	2.3
Wood and Paper Product Manufacturing	1,662	2,050	388	1.8
Printing, Publishing and Recorded Media	3,008	3,481	474	1.2
Petroleum, Coal, Chemical & Assoc Prod Mfg	2,343	2,769	426	1.4
Non-Metallic Mineral Product Manufacturing	366	448	82	1.7
Metal Product Manufacturing	2,139	2,668	529	1.9
Machinery and Equipment Manufacturing	2,657	3,376	719	2.0
Other Manufacturing	1,225	1,508	284	1.8
General Construction	5,016	5,690	674	1.1
Construction Trade Services	8,243	9,350	1,108	1.1
Manufacturing and Building	***30,451***	***35,787***	***5,336***	***1.4***
Basic Material Wholesaling	2,692	3,221	530	1.5
Machinery and Motor Vehicle Wholesaling	3,225	3,860	635	1.5
Personal and Household Good Wholesaling	3,752	4,491	738	1.5
Food Retailing	7,203	8,621	1,418	1.5
Personal and Household Good Retailing	8,830	10,568	1,738	1.5
Motor Vehicle Retailing and Services	4,413	5,282	869	1.5
Accommodation, Cafes and Restaurants	8,791	10,739	1,948	1.7
Road Transport	3,034	3,773	738	1.8
Rail Transport	355	435	80	1.7
Water Transport	745	914	169	0.0
Air and Space Transport	560	725	165	2.2
Other Transport	29	38	9	0.0
Services to Transport	1,490	1,929	439	2.2
Storage	306	397	90	0.0
Retail and Distribution	***45,426***	***54,991***	***9,565***	***1.6***
Electricity and Gas Supply	1,096	1,137	42	0.3
Water Supply, Sewerage and Drainage Services	222	217	-5	-0.2
Communication Services	5,519	5,609	89	0.1
Finance	6,126	7,208	1,082	1.4
Insurance	1,930	2,271	341	1.4
Services to Finance and Insurance	2,465	2,901	435	1.4
Property Services	3,936	3,837	-99	-0.2
Business Services	32,190	41,167	8,977	2.1
Business Services	***53,485***	***64,347***	***10,862***	***1.6***
Motion Picture, Radio and Television Services	1,558	1,738	180	0.9
Libraries, Museums and the Arts	2,175	2,425	251	0.9
Sport and Recreation	2,193	2,446	253	0.9
Personal Services	2,784	3,327	543	1.5
Other Services	6,161	7,364	1,203	1.5
Private Households Employing Staff	7	8	1	0.0
Recreation Services	***14,878***	***17,309***	***2,431***	***1.3***
Government Administration	16,245	20,524	4,279	2.0
Defence	1,715	2,167	452	0.0
Education	13,140	16,969	3,830	2.2
Health Services	11,703	14,717	3,014	1.9
Community Services	4,921	6,189	1,267	1.9
Social Services	***47,724***	***60,566***	***12,842***	***2.0***
TOTAL WELLINGTON REGION	**197,078**	**237,627**	**40,549**	**1.6**

Table 16 Wellington Region Value Added (GDP) by Industry

	GDP (1996$m)		change 2004 to 2016	
	2004	2016	1996$m	% pa
Agriculture	186	241	55	2.2
Services to Agriculture; Hunting and Trapping	19	25	7	2.6
Forestry and Logging	73	116	43	3.9
Commercial Fishing	10	14	4	2.6
Coal Mining	0	0	0	0.0
Oil and Gas Exploration	58	92	34	0.0
Metal Ore Mining	0	0	0	0.0
Other Mining	10	15	5	3.3
Services to Mining	2	3	1	0.0
Primary	***358***	***506***	***148***	***2.9***
Food, Beverage and Tobacco	217	283	67	2.3
Textile, Clothing, Footwear & Leather Mfg	68	98	30	3.2
Wood and Paper Product Manufacturing	153	227	75	3.4
Printing, Publishing and Recorded Media	166	240	74	3.1
Petroleum, Coal, Chemical & Assoc Prod Mfg	205	306	101	3.4
Non-Metallic Mineral Product Manufacturing	43	63	20	3.3
Metal Product Manufacturing	165	240	75	3.2
Machinery and Equipment Manufacturing	162	248	86	3.6
Other Manufacturing	50	73	23	3.2
General Construction	250	353	103	2.9
Construction Trade Services	330	465	135	2.9
Manufacturing and Building	***1,807***	***2,596***	***789***	***3.1***
Basic Material Wholesaling	247	354	108	3.1
Machinery and Motor Vehicle Wholesaling	306	439	133	3.1
Personal and Household Good Wholesaling	355	510	155	3.1
Food Retailing	257	369	112	3.1
Personal and Household Good Retailing	328	471	143	3.1
Motor Vehicle Retailing and Services	172	247	75	3.1
Accommodation, Cafes and Restaurants	218	300	82	2.7
Road Transport	181	264	83	3.2
Rail Transport	96	141	45	3.3
Water Transport	86	126	41	0.0
Air and Space Transport	65	104	40	4.0
Other Transport	0	1	0	0.0
Services to Transport	166	267	101	4.0
Storage	18	28	11	0.0
Retail and Distribution	***2,493***	***3,621***	***1,128***	***3.2***
Electricity and Gas Supply	455	665	210	3.2
Water Supply, Sewerage and Drainage Services	27	36	9	2.5
Communication Services	1,288	1,926	639	3.4
Finance	1,203	1,703	500	2.9
Insurance	332	471	138	2.9
Services to Finance and Insurance	166	235	69	2.9
Property Services	1,494	2,018	524	2.5
Business Services	1,556	2,237	681	3.1
Business Services	***6,520***	***9,291***	***2,770***	***3.0***
Motion Picture, Radio and Television Services	157	225	68	3.0
Libraries, Museums and the Arts	62	89	27	3.0
Sport and Recreation	131	187	57	3.0
Personal Services	92	130	38	3.0
Other Services	110	156	46	3.0
Private Households Employing Staff	11	15	4	0.0
Recreation Services	***562***	***802***	***240***	***3.0***
Government Administration	1,554	2,191	637	2.9
Defence	102	144	42	0.0
Education	506	702	196	2.8
Health Services	681	957	276	2.9
Community Services	123	173	50	2.9
Social Services	***2,967***	***4,168***	***1,201***	***2.9***
TOTAL WELLINGTON REGION	**14,707**	**20,983**	**6,277**	**3.0**

9 Appendix II - Definitions

Wairarapa

All references to Wairarapa in this document refer to the area comprising the three Territorial Local Authorities (TLAs): Masterton District, Carterton District and South Wairarapa District.

Wellington Urban area

All references to the Wellington Urban area in this document refers to the area comprising of five Territorial Local Authorities (TLAs): Kapiti Coast District, Porirua City District, Upper Hutt City District, Lower Hutt City District, and Wellington City District.

Year

Unless otherwise stated all numbers refer to years ended March of the stated year.

Value Added (or GDP)

Value added measures the total value contributed by the activities of all businesses and organisations in the industry and/or region. In theory it is equal to the value of the output of business (ie sales or turnover) less its purchases from other businesses of goods and services used in production (the latter are sometimes termed *intermediate inputs*).

In practice *value added* is akin to the sum of wages, salaries, profits and operating surplus arising from all economic activity in the industry and/or region. The total value added for a region or an industry is equivalent to its contribution to *national GDP* (Gross Domestic Product).

The effect of price inflation is removed from the measure of *value added* so that growth over time provides a clear indication of the increase (or decrease) in economic activity. To preserve comparability with official published national GDP statistics, BERL's *value added* figures for TLAs and component industries are expressed in terms of constant-priced 1996 $s.

Employment (FTEs)

Employment is measured as the number of employed persons in terms of full-time equivalents (FTEs). That is, the number of persons employed is adjusted such that *two part-time* employed persons are counted as *one full-time* person.

10 Appendix III - BERL's multi-sector model

Economic models such as the BERL *Joanna* model[3] are essentially a series of equations that incorporate data representing major economic aggregates and their inter-relationships. Specifically, the *Joanna* model is a computable general equilibrium model modelling the relationships between 49 individual sectors and their responses to relative price changes associated with demand and supply shifts as well as the production technology available.

The modelling system captures, in a numerical manner, influences on the resource and other input requirements of industries, as well as the spending patterns of consumers. The equations are designed to estimate changes in major economic variables resulting from underlying trends (e.g. productivity growth), external influences (e.g. expansion in and the changing composition of world demand, as well as world prices) and Government policy (e.g. changes in expenditure).

The particular feature of the *Joanna* models that is relevant here is that equations to estimate demand and output are constructed to do so at industry level, and are based on input-output data that show the flows of production between industries. The estimates of output growth by industry, which the model generates, recognise that expansion or contraction in any one industry leads to a flow-on of demand to others. This allows answers to questions like "how much expansion in transport services would result from a, say, 5% increase in activity in the food processing sector?"

The methodology employed to generate model runs is based on inputs of estimates of key economic aggregates such as world commodity prices, expansion in world demand, the rate of technological or productivity advance and Government expenditure. These are derived to be consistent with the short-term and medium-term picture implicit in *BERL Forecasts* latest assessment of the underlying structure of the New Zealand economy. Where appropriate, published sources (e.g. other organisations' or government agencies' forecasts) are used as an external check. This then generates preliminary estimates of economic and industry trends, which are reviewed by BERL economists to ensure logical consistency. Where necessary adjustments are made and additional runs produced.

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3 The *Joanna* model was originally constructed and maintained by the Research Project on Economic Planning - a unit based within the Economics Department at Victoria University of Wellington. Since 1998, BERL has taken over the maintenance and development of this model.

It is important to recognise what models such as this can and cannot do. They are not intended to give totally reliable accurate forecasts, and no forecaster would say their results should be accepted at face value. However, their use does ensure internal consistency in forecasting and forces the user to make explicit judgements about different economic influences and their importance in the real world.