



economics

Note to:

Society of Local Government Managers

**FORECASTS OF PRICE LEVEL CHANGE
ADJUSTORS – 2009 UPDATE**

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Forecasts of Price Level Change Adjustors – 2009

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1 Introduction

These notes have been prepared for the Society of Local Government Managers (SOLGM).

This document contains provisional updates of forecasts for price level change adjustors for local authorities (LAs) to use in their budget processes consistent with their Long-term Council Community Plans (LTCCP). It incorporates the latest actual data to June 2009 and forecasts the adjustors to June 2019.

Our earlier reports (2005, 2006, 2007 and 2008) outlined the approach and methodology, and discussed alternative adjustors and reasons why the particular adjustors were chosen for forecasting.

The forecasts provide a medium-term view of the likely movement of these adjustors, rather than movement over the next year or two. There will always be unexpected reasons why individual costs might rise faster or slower in a particular year. However, this does not necessarily mean that the medium-term forecast will, or should be, adjusted. Likewise there will always be regional differences in the rate of change for a particular adjustor. These adjustors are forecast at the national level and councils may need to consider if there is information to show that a difference might be expected at the regional level.

BERL has forecast one adjustor for each of the following nine categories for the period to 2019:

1. roading and transports costs
2. property, reserves and parks costs
3. water - clean and dirty - including pipeline costs
4. staff costs
5. energy costs
6. other – adjustor for local government costs.
7. pipeline costs (a sub-component of water costs)
8. earthmoving costs (a sub-component of property, reserves and parks costs)
9. private sector wage cost (a sub-component of categories 1,2,3, and 5).

1.1 Input or output adjustors, capital and expenditure items

The issue of applying adjustors to costs based on input type and/or to activities based on output groups was extensively discussed (see earlier reports). Previously, it was agreed that individual LAs should apply the adjustors as they determine appropriate in the light of guidelines provided by SOLGM in the *LTCCP Jigsaw* document and its successor *Piecing it Together*. LAs will also need to consider the most appropriate approach given their own accounting systems and processes.

In this context, the adjustors above do not clearly fall into input or output classes.

It may assist some LAs to view three (staff, energy, and other) of the adjustors as applicable to input costs. A further three (roading, property and water) adjustors have been constructed in order to be applicable to appropriate input categories, where these activities are contracted out by the LA. However, where these activities remain in-house, LAs can use these adjustors for the appropriate output group if they so wish.

The primary focus of the set of adjustors is on operating expenditure. The adjustors may be used on capital expenditure items as the indices include a combined forecast of operating and capital costs. However, because of this mixture in the composition of these indices, they may understate (or overstate) the change in the prices of capital expenditure items.

Therefore, BERL has also separately forecast the last three adjustors (pipelines, earthmoving and wages) for LAs requiring a more precise adjustor for capital items. These can be applied, as appropriate, to costs based on inputs.

1.2 General price inflation

For comparative purposes, the average level of price inflation over the forecast period is expected to remain consistent with the current Policy Targets Agreement between the Minister of Finance and the Governor of the Reserve Bank. The relevant phrase in this agreement, which target inflation as measured by the Consumer Price Index (CPI), states:

“... the policy target shall be to keep future CPI inflation outcomes between 1 per cent and 3 per cent on average over the medium term.”

2 BERL's assessment of the economy

This section outlines the underlying assumptions used in the updated forecasts and our assessment of the New Zealand economy.

2.1 Variables used in forecasting

A set of core economic variables were used to generate the estimated equations. To generate forecasts for each of the adjustors, these estimated equations required forecasts of the core economic variables.

Table 1 lists the path of the economic variables used in the generation of the forecasts for the adjustors. These economic forecasts are BERL's assessment of the likely medium-term path of the New Zealand economy.

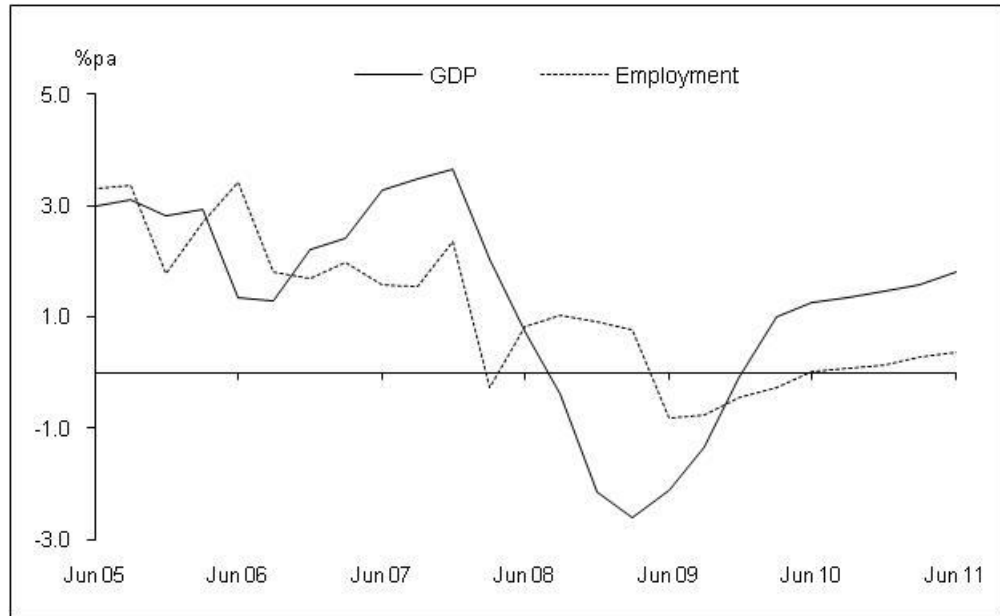
The forecasts from June 2010 to June 2012 come directly from BERL's latest quarterly forecasts. The forecasts over the medium term are consistent with projections from BERL's CGE¹ model of the New Zealand economy.

Table 1 Forecast of economic driver variables: % per annum change

Year ending	Nominal GDP	Real GDP	Non-hsg invtmt	Employment
Jun 08	5.8	2.5	4.2	1.1
Jun 09	0.5	-1.8	-3.8	0.5
<i>Jun 10</i>	<i>2.8</i>	<i>0.2</i>	<i>-15.1</i>	<i>-0.4</i>
<i>Jun 11</i>	<i>4.6</i>	<i>1.5</i>	<i>-2.1</i>	<i>0.2</i>
<i>Jun 12</i>	<i>4.9</i>	<i>2.2</i>	<i>2.2</i>	<i>0.4</i>
<i>Jun 13</i>	<i>4.9</i>	<i>2.4</i>	<i>2.5</i>	<i>0.7</i>
<i>Jun 14</i>	<i>5.0</i>	<i>2.5</i>	<i>2.8</i>	<i>0.9</i>
<i>Jun 15</i>	<i>5.0</i>	<i>2.6</i>	<i>3.0</i>	<i>1.1</i>
<i>Jun 16</i>	<i>5.0</i>	<i>2.7</i>	<i>3.3</i>	<i>1.4</i>
<i>Jun 17</i>	<i>5.0</i>	<i>2.8</i>	<i>3.6</i>	<i>1.6</i>
<i>Jun 18</i>	<i>5.1</i>	<i>2.9</i>	<i>3.9</i>	<i>1.8</i>
<i>Jun 19</i>	<i>5.1</i>	<i>3.0</i>	<i>4.1</i>	<i>2.1</i>

¹ Computable general equilibrium

Figure 1 Annual GDP and employment growth



2.2 BERL's assessment

This section outlines BERL's assessment of the short and medium term prospects for the New Zealand economy, and is taken from the September 2009 edition of the *BERL Forecasts* report, updated with the most recent data.

With global stock markets recovering lost ground, New Zealand house prices and house sales numbers turning up, the prospect of stable interest rates for another six months or so, rising net migration, and Australia, Germany and France recording positive GDP growth, many are suggesting the recession is past. From a technical sense, these suggestions are correct in that quarterly growth in New Zealand's GDP will have returned to positive this quarter.

Without doubt, the immediate short-term outlook is more positive than it was earlier this year. With unemployment no longer set to reach double-digits (although, we point out, we were not amongst those suggesting such a blowout) and resurgent business confidence the climate of 'fear' has abated. Furthermore, the export contribution from forestry (logs to China), meat (receipts if not volumes), and kiwifruit and wine (ongoing industry growth) have added to the feeling that the worst may have passed.

Nevertheless, monthly indicators suggest that activity is still well below year-earlier levels across many sectors. While the rate of decline may have eased, new residential building

consents are still more than 20 percent below those of a year ago. Similarly, the slight pick-up in retail sales turnover, with the latest three months being 2.6 percent up on year-earlier, suggests sales volumes remain flat.

Looking ahead, our projection for GDP growth in the June 2010 year is 0.2 percent, with the first positive growth occurring in the March 2010 quarter. Thereafter, we expect GDP growth to creep towards the 0.5 percent per quarter mark and so register close to 2 percent per annum for the June 2012 year.

We are noticeably less optimistic than either of the Reserve Bank's or Treasury's latest forecasts of a quick rebound to a 3 percent growth trajectory. In this context, we remain unconvinced by the 'green shoots' argument in that the nascent recovery in Europe is fragile and the US economy continues to languish with serious imbalances to address. While we won't see a repeat of the 'shocks' from abroad as we have had over the past year, the recurrence of additional isolated shocks cannot be discounted.

Our concern for the medium and, indeed, longer term is heightened by the picture for private sector investment. The collapse in the March 2009 quarter (down 9.2 percent) means real investment spending by businesses in the year to March was 5 percent below that of the previous year. The prospects for a quick U-turn here is also unlikely, as businesses look to replenish cash flow and bank lending remains constrained.

And while short-term productivity numbers are set to look good, given reduced labour inputs, the prospects of longer-term sustainable productivity growth are not bright if business investment continues under pressure.

Therein lies our concerns as to the composition of economic activity. Consequently, our forecasts are tending towards yet another domestic spending base for the re-establishment of growth.

Despite the 'technical' end of the recession, a belated impact on employment numbers and numerous other labour market indicators is now being felt. While jobless numbers rose through last year, it wasn't until the June quarter that employment growth turned negative coupled with an easing in rising participation rates.

We expect various labour market indicators to continue to lag behind those of overall economic activity. Businesses have not shed staff as quickly as in earlier recessions. Consequently, the return to positive growth as measured by GDP numbers this year will not be reflected in growth in employment numbers until later next year. But with such growth being muted, at best, unemployment numbers are set to remain high for some time.

Assisted by a slight reduction in participation rates, we are forecasting unemployment to peak at just over 7.3 percent in mid-2011. While well below some forecasts promulgated by others earlier this year, this is still a sobering number, representing over 170,000 officially unemployed. This represents a lengthy period of relatively high unemployment. So, while the recession may be technically over, the damage to economic performance and social conditions will continue well into the medium term.

2.3 Inflation outlook

Prices have continued to ease throughout 2009 and, after falling below the target range, the CPI is likely to escalate back up and stay within the target range over the next year. Confidence is returning and there is still some tightness in supply. While the RBNZ has a lot of room to tighten with the OCR at 2.5%, it has committed to not raising the OCR until the end of 2010. Therefore, prices could potentially rise unchecked through 2010, assuming the recovery is in full swing.

We expect inflation (as measured in the CPI) to fall to 1.1% in the September 2009 quarter, before returning to the 2% range from December 2009.

3 Forecast for adjustors

Table 2 lists the forecast indices for each of the adjustors for the period from the year ended June 2010 to the year ended June 2019. The figures in grey are based on actual data up to the June quarter 2009.

Table 2 Adjustors: Index Jun 2009 = 1000

Year ending	Road	Property	Water	Energy	Staff	Other
Jun 08	960	957	978	1026	969	957
Jun 09	1000	1000	1000	1000	1000	1000
Jun 10	1025	1035	1030	1029	1022	1029
Jun 11	1058	1062	1060	1066	1045	1068
Jun 12	1094	1087	1096	1100	1069	1103
Jun 13	1116	1112	1126	1132	1093	1149
Jun 14	1145	1137	1158	1165	1118	1188
Jun 15	1174	1163	1190	1196	1143	1225
Jun 16	1206	1189	1224	1228	1168	1261
Jun 17	1241	1216	1260	1261	1195	1294
Jun 18	1280	1243	1297	1295	1222	1326
Jun 19	1322	1272	1336	1330	1249	1356

Table 3 lists the annual percentage change for each of the adjustors.

Table 3 Adjustors: % per annum change

Year ending	Road	Property	Water	Energy	Staff	Other
Jun 08	3.8	3.6	9.0	14.4	4.3	6.4
Jun 09	4.2	4.5	2.3	-2.5	3.2	4.5
Jun 10	2.5	3.5	3.0	2.9	2.2	2.9
Jun 11	3.2	2.6	2.9	3.6	2.3	3.9
Jun 12	3.4	2.3	3.4	3.2	2.3	3.3
Jun 13	2.1	2.3	2.8	2.9	2.3	4.2
Jun 14	2.6	2.3	2.8	2.9	2.3	3.4
Jun 15	2.5	2.3	2.8	2.7	2.3	3.1
Jun 16	2.7	2.3	2.8	2.6	2.3	2.9
Jun 17	2.9	2.3	2.9	2.7	2.3	2.7
Jun 18	3.1	2.3	3.0	2.7	2.3	2.4
Jun 19	3.3	2.3	3.0	2.7	2.3	2.2

Table 4 lists the total (or cumulative) percentage change from the year ended June 2009 for each of the adjustors. This table can be used to calculate the increase of future year expenses based on 2009 costs.

Table 4 Adjustors: total % change from June 2009

Year ending	Road	Property	Water	Energy	Staff	Other
<i>Jun 10</i>	2.5	3.5	3.0	2.9	2.2	2.9
<i>Jun 11</i>	5.8	6.2	6.0	6.6	4.5	6.8
<i>Jun 12</i>	9.4	8.7	9.6	10.0	6.9	10.3
<i>Jun 13</i>	11.6	11.2	12.6	13.2	9.3	14.9
<i>Jun 14</i>	14.5	13.7	15.8	16.5	11.8	18.8
<i>Jun 15</i>	17.4	16.3	19.0	19.6	14.3	22.5
<i>Jun 16</i>	20.6	18.9	22.4	22.8	16.8	26.1
<i>Jun 17</i>	24.1	21.6	26.0	26.1	19.5	29.4
<i>Jun 18</i>	28.0	24.3	29.7	29.5	22.2	32.6
<i>Jun 19</i>	32.2	27.2	33.6	33.0	24.9	35.6

3.1 Additional adjustors

Forecasts for the additional adjustors are summarised in the following three tables (Table 5 to Table 7).

Table 5 Additional adjustors: Index Jun 2009 = 1000

Earth	Pipes	Wages
962	965	938
944	908	969
1000	1000	1000
1035	1031	1026
1064	1063	1050
1094	1100	1074
1122	1123	1098
1150	1155	1123
1175	1190	1148
1204	1229	1174
1235	1272	1200
1271	1319	1227
1309	1371	1255

Table 6 Additional adjustors: % per annum change

Earth	Pipes	Wage
4.0	3.6	3.4
5.9	10.2	3.2
3.5	3.1	2.6
2.8	3.1	2.3
2.9	3.5	2.2
2.6	2.1	2.2
2.5	2.9	2.2
2.2	3.1	2.2
2.4	3.3	2.2
2.6	3.5	2.2
2.8	3.7	2.2
3.1	3.9	2.2

Table 7 Additional adjustors: total % change from June 2009

Earth	Pipes	Wage
3.5	3.1	2.6
6.4	6.3	5.0
9.4	10.0	7.4
12.2	12.3	9.8
15.0	15.5	12.3
17.5	19.0	14.8
20.4	22.9	17.4
23.5	27.2	20.0
27.1	31.9	22.7
30.9	37.1	25.5

4 Changes since our last forecast

This section looks at the changes that have occurred since our last forecast in 2008. We discuss three main categories of changes: new data; updated economic forecasts; and renewed formulas.

4.1 New data

Since our last forecast in 2008, Statistics New Zealand has released new data. This new data covers all of the indices tracked in this report from June 2008 to June 2009.

It should be stressed that this data covers the immediate short-term situation. This new data should NOT be used to shift the proper focus of the cost adjustors – which is the medium to longer-term horizon.

Table 8 compares the actual movements in the indices tracked to June 2009 with the previously forecast movement.

**Table 8 Actual data versus previous forecasts
for the year end 30 June 2009**

Adjustor	Actuals	Previous forecast	Difference
Road	1042	1050	1%
Property	1045	1023	-2%
Water	1023	1080	6%
Energy	975	1090	12%
Staff	1032	1026	-1%
Other	1045	1060	1%
Earth	1059	1040	-2%
Pipes	1102	1039	-6%
Wages	1032	1026	-1%

Source: BERL.

The table shows that the forecast was relatively close to the actual result for the majority of the adjustors. It confirms that there is no systemic problem with our forecasts process or methods. In particular the forecasts for Property, Road, Staff, Other and Private sector labour adjustors were almost the same as the actual movement over the last year. Energy costs, however, have been particularly volatile over recent periods and this forecast was in error by 12 percent. While not ideal, we must caution that this category is likely to remain difficult to forecast in the context of unstable global influences as well as weather factors effecting NZ electricity generation.

4.2 Updated economic forecasts

Since our previous forecast there have been some changes in the New Zealand economic situation. Those changes, where relevant and/or appropriate, have been incorporated into our forecast of the likely future path of the New Zealand economy.

The table below summarises the current, compared to previous, economic outlook underpinning the cost adjustor forecasts.

Table 9 Current versus previous forecast of New Zealand Economy

Year ending	<i>Current forecast</i>	<i>Previous forecast</i>	<i>Current forecast</i>	<i>Previous forecast</i>	<i>Current forecast</i>	<i>Previous forecast</i>
	Nominal GDP	Nominal GDP	Real GDP	Real GDP	Employment	Employment
Jun-09	0.50	2.51	-1.81	-0.40	0.47	0.47
Jun-10	2.80	4.64	0.20	1.94	-0.37	0.72
Jun-11	4.56	4.52	1.54	2.63	0.21	1.60
Jun-12	4.91	4.59	2.24	2.67	0.44	1.66
Jun-13	4.94	4.66	2.35	2.70	0.68	1.72
Jun-14	4.97	4.74	2.46	2.73	0.91	1.78
Jun-15	4.99	4.81	2.57	2.77	1.14	1.83
Jun-16	5.02	4.88	2.68	2.80	1.37	1.89
Jun-17	5.05	4.95	2.78	2.83	1.60	1.95
Jun-18	5.07	5.03	2.89	2.87	1.83	2.01
Jun-19	5.10	5.10	3.00	2.90	2.07	2.07

Source: BERL.

The main differences in the current economic forecasts are of weaker GDP and employment growth in the short-term, although over the longer-term GDP and employment growth are expected to recover from the economic downturn.

4.1 Renewed formulas

As part of the update of our forecasts we have reviewed the formulas and relationships used to calculate the forecast of the adjustors. The new data to June 2009 has given us some more observations to help refine our relationships. This information is shown in the historical validation section of the report.

5 Construction of the indicators

This section outlines how the price level indicators were constructed. It repeats the same section in previous reports.

As part of our initial pieces of work, BERL evaluated a number of LA annual plans to determine the major cost categories. This was done for three major groups of LAs: regional councils; city councils; and district councils. At the completion of this work a report was prepared that outlined the major cost categories for each of the types of councils and a suggested set of indices that could be used to approximate the movement in the costs. After discussion with SOLGM and the Office of the Auditor-General (OAG) it was decided to use six price level indicators for all LAs and an estimate of future interest rates. While this approach may not fit every LA, it balanced the need for robust and meaningful information with the need for an approach that was simple enough to use.

Based on the six adjustors that were agreed, BERL compiled a set of composite indices for each adjustor. Table 10 shows the indices that were used as the basis of the forecasts for each adjustor.

Table 10 Indices used for each adjustor

Indices used	SNZ Identifier	Description
Roading/Transport		
PPI inputs - Road transport	PPIQ.SNI01	Public transport, roading
CGI - Transport ways (other construction)	CEPQ.S2CA	
Total Salary and Wage Rates - Private Sector	LCIQ.SE43Z9	
Property, reserves and parks		
PPI inputs - Cultural and recreation services	PPIQ.SNP	Maintenance of public buildings and assets (e.g. sports grounds, parks, arts, recreation)
CGI - Earthmoving and site work	CEPQ.S2CD	
Total Salary and Wage Rates - Private Sector	LCIQ.SE43Z9	
Water		
PPI inputs - Electricity generation and supply	PPIQ.SND01	Drinking water supply and stormwater
CGI - Pipelines	CEPQ.S2CB	
Total Salary and Wage Rates - Private Sector	LCIQ.SE43Z9	
Energy		
PPI outputs - Electricity generation and supply	PPIQ.SUD01	Electricity generation, supply
Total Salary and Wage Rates - Private Sector	LCIQ.SE43Z9	
Staff		
All salary and wage rates - Local govt sector	LCIQ.SE13Z9	Council operations
Other		
PPI inputs - Local government and civil defence*	PPIQ.SNM02	Local government administration services and civil defence
Pipelines		
CGI - Pipelines	CEPQ.S2CB	
Earthmoving		
CGI - Earthmoving and site work	CEPQ.S2CD	
Private sector salary and wage costs		
Total Salary and Wage Rates - Private Sector	LCIQ.SE43Z9	

PPI - Producer Price Index, CGI - Capital Goods Index, SNZ - Statistics New Zealand

* The official sub-industry group title of Local government administration services & civil defence has been abbreviated.

The roading, property and water costs in a number of LAs represent three of the larger cost categories. For a number of LAs these costs are contracted out to external suppliers. The indices for these costs had to account for the changes in the costs of the inputs plus the changes in the cost of upgrade and repairs and maintenance of physical assets. For this we have included a combination of the appropriate PPI input cost indices plus the appropriate CGI indices. Because neither of these indices included salary and wage costs, we also included an index to approximate the movement in salary and wage costs.

Energy costs were included because they are an item that is usually easily identified by LAs. Our composite indices include the appropriate PPI input indices and an index to approximate the movement in salary and wage costs.

The staff adjustor relates to internal salary and wage costs of LAs. We have used the appropriate labour cost index (LCI) for local government as the basis for forecasting the movement in these costs.

Other costs refer to all other input costs for LAs. We have used the PPI input indices for Local Government costs to forecast the movement in these costs.

6 Historical validation

Figure 2 to Figure 7 illustrate the performance of our estimated equations, for each of the adjustors, when compared to the actual data over the period June 1999 to June 2009. The estimation process is used to develop and then confirm a robust equation that can be used to generate forecasts. The confirmation process tests the fit of the estimated equation with the actual path of the adjustor over a period of time. In each of the figures below, the solid line (labelled *predicted*) indicates the estimated path of the adjustor as calculated by our estimated equation. The dashed line (labelled *actual*) indicates the actual path of the adjustor as derived from the relevant official Statistics New Zealand data series.

Figure 2 Roothing adjustor

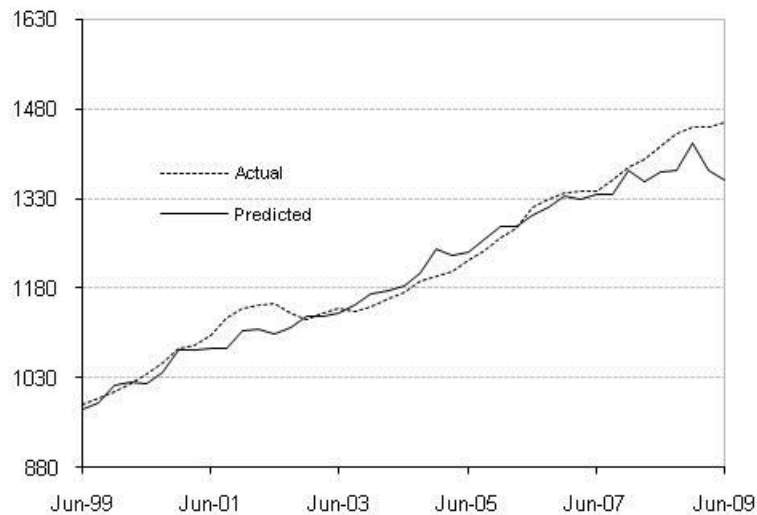


Figure 3 Property adjustor

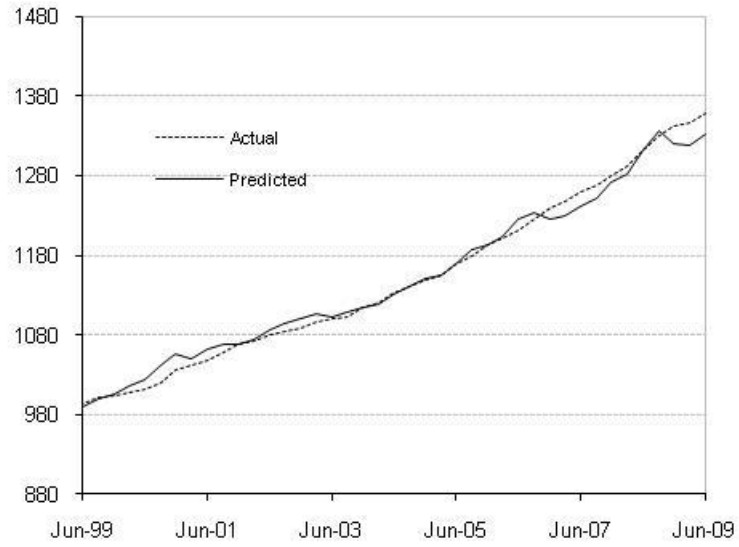


Figure 4 Staff adjustor

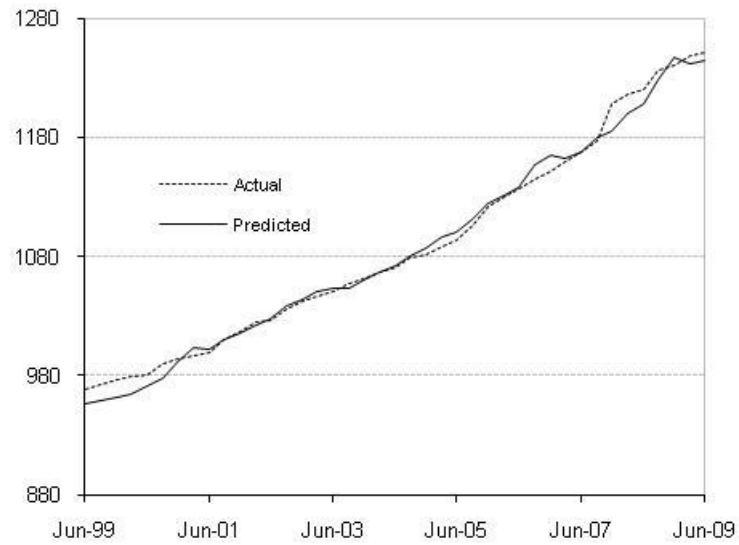


Figure 5 Water adjustor

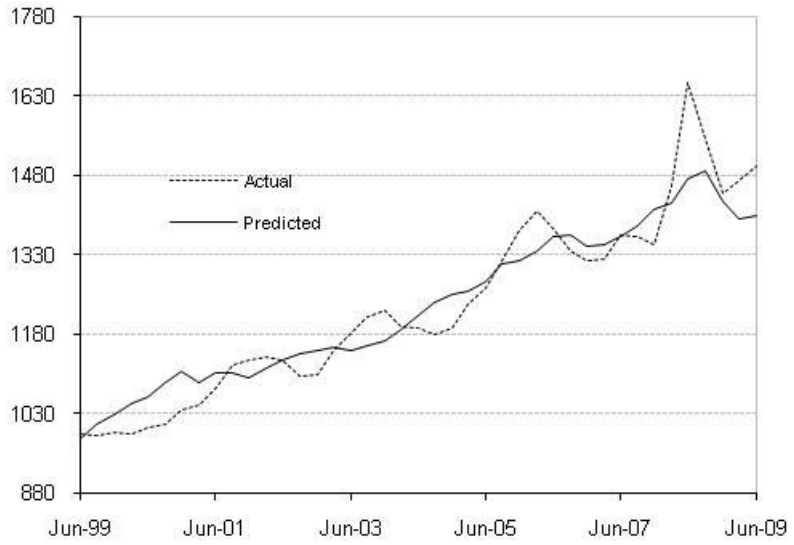


Figure 6 Energy adjustor

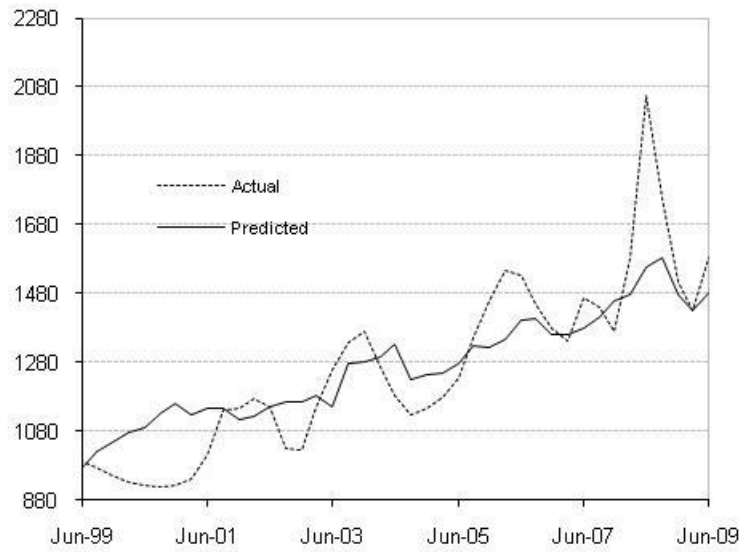


Figure 7 Other adjustor

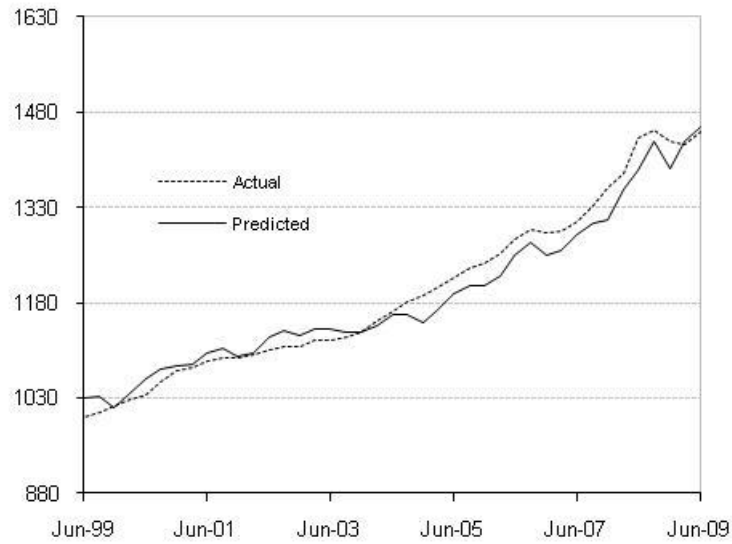


Figure 8 Earth adjustor

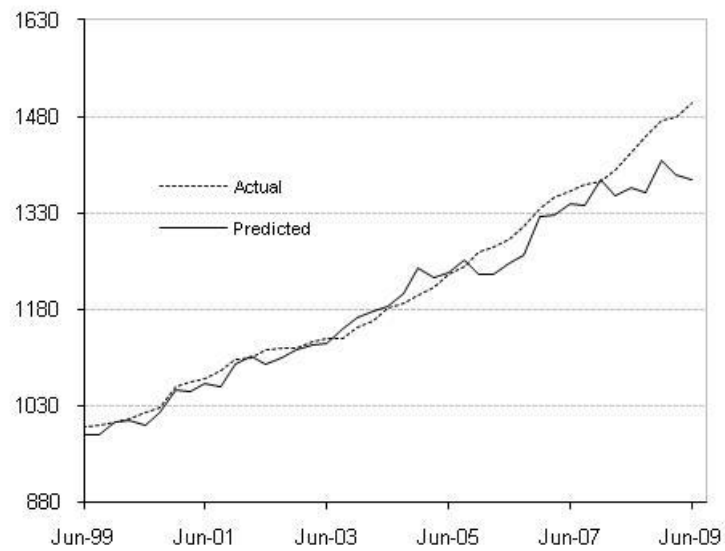


Figure 9 Pipes adjustor

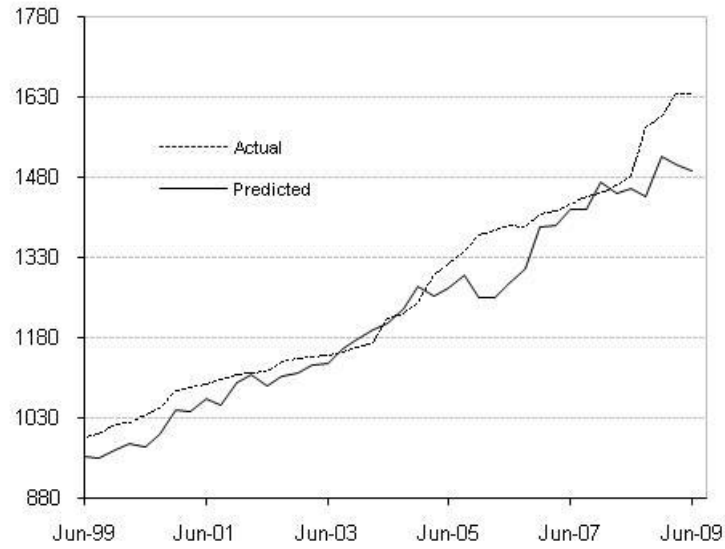
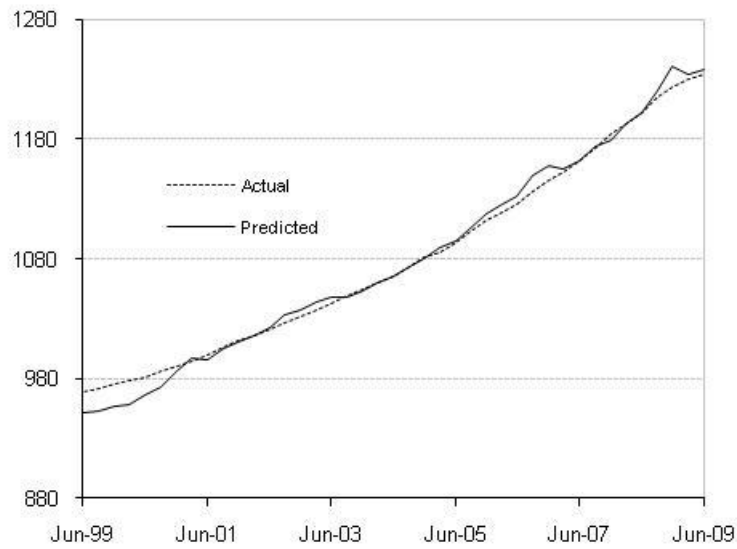


Figure 10 Wages adjustor



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