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By

ON AUSTRALIA'S BALANCE OF TRADE

THE IMPACT OF A RANGE OF ECONOMIC POLICIES

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Abstract
1. INTRODUCTION

Peter D. Hill and Tony Scoedt

ON AUSTRALIA'S BALANCE OF TRADE

THE IMPORT OF A RANGE OF ECONOMIC POLICIES

REFERENCES
varies greatly depending on the assumptions made regarding such things as: the growth of the domestic economy; the outlook for commodity prices; and the time frame for stabilisation.

Dixon and Parmenter (1987) assume that annual real GDP growth will be about 3 to 3.5 per cent and that international commodity prices would continue to fall until the end of 1990. Taking into account the dynamics of debt accumulation and the increased burden of debt that a real devaluation contributes, Dixon and Parmenter project that an annual average improvement in the balance of trade over the period end-1984 to end-1990 of between 0.75 and 1.5 per cent of GDP would be required to stabilise Australia's net debt position by 1990. To quote Dixon and Parmenter,

"A substantial surplus in 1990 will be required just to pay the interest bill on a net foreign debt, which by that time is likely to be in excess of 40% of GDP."^3

By contrast, the EPAC document assumes a different outlook for the economy and commodity prices. However, to quote Whitelaw, the principal author of the EPAC paper,

"[t]he key point to emerge from this analysis was that, given the high levels of real interest rates in world capital markets, debt stabilisation would require Australia to run a surplus on its trade account (rather than the substantial deficit of the mid-1980s)."^4

15. Note that this result is not listed in Table 1. In the other simulations reported here the percentage change in the CPI is a good proxy for the percentage change in the prices received by producers.

16. Note that aggregate employment calculated using wage-bill weights, the relevant measure for use in equation (5), actually declined by 0.22 per cent.

17. See Higgs (1986, Appendix A.2) for the derivation of equation (6).

18. Note that the ORANI model accounts for the effects on the price of the farm gate of transportation costs and subsequent changes in world agricultural prices induced by changes in Australian exports.

19. Note that \( k_5 = 1.11 \) and \( k_6 = 2.97 \).

20. Note that \( k_6 = 1.65 \).

21. Note that \( k_7 = 3.00 \).

22. While labour costs vary across industries in ORANI, the percentage change in the hourly wage rate is assumed to be the same across industries, hence the lack of an industry-specific subscript on \( w \).

23. The derivation of equation (9) can be found in Higgs (1986, Appendix A.4).

24. That is, an alternative to valuing the real wage rate as a cost to employers is to increase the real marginal product of labour at a given level of capital input.
The way to evaluate the relative importance of the above

Arguments for the balance of trade to affect the relative importance of the above
can be summarized as follows:

1. The relative importance of the balance of trade depends on the size of the exchange rate. The larger the exchange rate, the more important the balance of trade. This is because a larger exchange rate means that a larger proportion of the country's income is earned from exports, which in turn means that a larger proportion of the country's imports is financed by exports.

2. The relative importance of the balance of trade depends on the size of the government's fiscal policy. A larger fiscal policy means that a larger proportion of the country's income is earned from government spending, which in turn means that a larger proportion of the country's imports is financed by government spending.

3. The relative importance of the balance of trade depends on the size of the country's monetary policy. A larger monetary policy means that a larger proportion of the country's income is earned from money creation, which in turn means that a larger proportion of the country's imports is financed by money creation.

4. The relative importance of the balance of trade depends on the size of the country's international trade. A larger international trade means that a larger proportion of the country's income is earned from international trade, which in turn means that a larger proportion of the country's imports is financed by international trade.

5. The relative importance of the balance of trade depends on the size of the country's savings. A larger savings means that a larger proportion of the country's income is earned from savings, which in turn means that a larger proportion of the country's imports is financed by savings.

6. The relative importance of the balance of trade depends on the size of the country's investments. A larger investments means that a larger proportion of the country's income is earned from investments, which in turn means that a larger proportion of the country's imports is financed by investments.

7. The relative importance of the balance of trade depends on the size of the country's exports. A larger exports means that a larger proportion of the country's income is earned from exports, which in turn means that a larger proportion of the country's imports is financed by exports.

8. The relative importance of the balance of trade depends on the size of the country's imports. A larger imports means that a larger proportion of the country's income is earned from imports, which in turn means that a larger proportion of the country's imports is financed by imports.

9. The relative importance of the balance of trade depends on the size of the country's foreign exchange. A larger foreign exchange means that a larger proportion of the country's income is earned from foreign exchange, which in turn means that a larger proportion of the country's imports is financed by foreign exchange.

10. The relative importance of the balance of trade depends on the size of the country's monetary base. A larger monetary base means that a larger proportion of the country's income is earned from monetary base, which in turn means that a larger proportion of the country's imports is financed by monetary base.

11. The relative importance of the balance of trade depends on the size of the country's government. A larger government means that a larger proportion of the country's income is earned from government, which in turn means that a larger proportion of the country's imports is financed by government.

12. The relative importance of the balance of trade depends on the size of the country's international trade. A larger international trade means that a larger proportion of the country's income is earned from international trade, which in turn means that a larger proportion of the country's imports is financed by international trade.
Australian economy and test for what sort of changes in each would be required to generate an improvement in the balance of trade of, say, one billion dollars. The ORANI model (developed by Dixon, Parmenter, Sutton, and Vincent (1982)) is well suited to such analysis as it explicitly captures the above economic influences and their effects on the ability of Australian exporters to compete on world markets and the switching that occurs between imported and domestic sources of supply when there is a change in relative prices.

The rest of the paper is organized as follows. In section 2 the economic environment for the ORANI simulations is defined. The results are presented in section 3. First discussed are the short-run (two-year) effects on key macroeconomic variables. Then the effects on agricultural outputs and farm incomes are studied in detail. Finally, some concluding remarks are offered in section 4.

2. ECONOMIC ENVIRONMENT

Certain features of the macroeconomy are not projected endogenously by ORANI. For these, the user of the model must specify an environment before computing a solution. In other words, there are more variables than equations in the model; therefore the user must set values for some of the variables exogenously so that the number of unknown variables equals the number of equations.

The key features of the economic environment assumed for the ORANI simulations are as follows. It is assumed that induced changes in national income appear as changes in the balance of trade and not as changes in real aggregate absorption (i.e., in the real value of

increase world agricultural prices). However, this probability might be increased to, say, 20 per cent if Australia offered to reduce its own tariffs in a negotiating stance taken at multilateral trade negotiations (such as the current Uruguay Round).

Finally, although estimates vary of the extent of the trade improvement required to stabilise our overseas debt burden, all point to a large improvement. The policy approaches studied in this paper are neither exhaustive nor mutually exclusive. Given that the size of the improvement in the trade balance is so large, realistic strategies would combine several elements. The current emphasis on productivity and on costs of labour to employers, however, must be a central part of any such strategy.
In this section, we will discuss the results of an experiment that produced some interesting findings.

Results:

The results of the experiment were as follows. In one group, the exchange rate was fixed, and in another group, it was allowed to fluctuate. The fixed exchange rate group showed a steady increase in the value of the currency, whereas the fluctuating exchange rate group experienced significant fluctuations.

Discussion:

The results suggest that a fixed exchange rate can stabilize currency values, but it also leads to a lack of flexibility in the market. On the other hand, a fluctuating exchange rate allows for greater economic freedom, but it can also lead to instability.

Conclusion:

Our findings indicate that a fixed exchange rate might be more beneficial for long-term economic growth, while a fluctuating rate could be more suitable for short-term gains. Further research is needed to determine the optimal exchange rate policy.
generate a one billion Australian dollar (1985-86 prices) improvement in the balance of trade after about 2 years.

3.1 Macroeconomic Projections

The short-run effects of the above economic shocks on some key macroeconomic variables are given in Table 1. It can be seen from the table that to improve the balance of trade by one billion dollars (1985-86 prices) world agricultural prices would have to increase by 6.28 per cent. The increase in world agricultural prices stimulates our aggregate exports by 4.75 per cent. The expansion in the export sector and the higher agricultural prices cause an increase in the consumer price index (hereafter CPI). The increase in the CPI feeds into wages and then back into prices, etc. The end result is a 1.86 per cent increase in the CPI. As this increase in domestic costs is passed on to the import-competing sectors, there will be some switching from domestically produced goods to imported goods such that there is a small increase in aggregate imports of 1.23 per cent. Note also that although not shown in the table, the increase in world agricultural prices causes a slight decline in Australia's non-agricultural exports such as mineral products. The net effect is for an increase in real GDP and aggregate employment of about half a per cent.

It is possible to check for consistency between the foreign currency value export and import projections with the projection for the balance of trade measured in billions of Australian dollars at 1985-86 prices. The following equation is contained in the ORANI model:

\[ BT = SE - QM \]  

(1)

This industry's output to increase by 2.99 per cent; see Table 2, first column. Since wages are assumed to be maintained in real terms \( (w - \xi) \) the change in real NFR for the Pastoral Zone is equal to \( 2.99 \times 2.76 = 8.25 \) per cent.

Given equation (9) it is not surprising that similar to the industry output responses, real NFR would be increased most by the tariff cut, followed by the increases in world agricultural prices, the cut in real wages, and the cut in real absorption in that order.

On average, the change in the tax mix has an unfavourable effect on pre-tax real NFR. This can be explained as follows. The pre-tax nominal wage rate is projected to fall by 2.86 per cent, as compared with the 3.04 per cent increase in the CPI; see Table 1, fourth column. Thus the term \( (w - \xi) \) in equation (10) is equal to \(-2.89 - 3.04 = -5.93 \) per cent. This represents the change in the farmer's pre-tax purchasing power due to the fall in the return to farm labour. However this is substantially offset by the positive effects on industry outputs induced by the change in the tax mix (i.e., by the \( z_{i:j} \) terms in equation (9)). Finally, note that the effects of the compensating tax cuts on post-tax real NFR have not been estimated here.

4. CONCLUSIONS

This paper has highlighted a number of different approaches towards moderating Australia's current account deficit. The first conclusion we make is that while a cut in real absorption will improve the balance of trade, it has less desirable implications for growth and employment than the other changes. That is, a cut in the real hourly
In real life, the proportionate change in real terms reflects the total percentage change from one period to another, taking into account the effects of inflation. For example, if the price of a good increases by 10% and then decreases by 5%, the overall change in real terms is not the simple arithmetic of these two percentages. The correct way to calculate the overall change is through a proportionate change model, which takes into account the interactions between the two percentage changes.

### Calculation of Proportionate Change

The formula for calculating the proportionate change is:

\[ x \pm \Delta x = y \pm \Delta y \]

Where:
- \( x \) and \( y \) are the original and new values, respectively.
- \( \Delta x \) and \( \Delta y \) are the percentage changes.

### Example

Suppose the price of a good increases by 10% and then decreases by 5%.

1. **Step 1:** Calculate the new price after the first increase.
   - Original price: \( x \)
   - Percentage increase: 10%
   - New price: \( x + 0.10x = 1.10x \)

2. **Step 2:** Calculate the new price after the second decrease.
   - New price after increase: \( 1.10x \)
   - Percentage decrease: 5%
   - New price: \( 1.10x - 0.05(1.10x) = 1.10x - 0.055x = 0.945x \)

3. **Step 3:** Calculate the overall percentage change.
   - Original price: \( x \)
   - New price: \( 0.945x \)
   - Percentage change: \( \frac{0.945x - x}{x} = 0.055 \times 100\% = -5.5\% \)

Therefore, the overall percentage change from the original price to the final price is -5.5%, indicating a net decrease in real terms.
where BT is the balance of trade measured in Australian dollars; e is the exchange rate, say A$/US; and E and M are the foreign currency value, say in US$, of exports and imports, respectively. Equation (1) can also be written:

\[\Delta BT = (\phi + e) 0E/100 - (\phi + m) 0M/100 \]  

(2)

where \(\Delta BT\) is the Australian dollar change in the balance of trade; \(\phi\) is the percentage change in the exchange rate; and \(e\) and \(m\) are the percentage changes in the foreign currency values of exports and imports, respectively. Recall from above that in the economic environment assumed here the nominal exchange rate is the numeraire, thus \(\phi = 0\). Furthermore, if we express the coefficients in equation (2) in terms of millions of Australian dollars at 1985-86 prices we obtain:

\[\Delta BT = 284.52 \phi - 275.86 \]  

(3)

If we then substitute the projected percentage changes in the foreign currency value of exports (i.e., \(e = 4.75\)) and imports (i.e., \(m = 1.23\)) into equation (3), we find that the balance of trade improves by one billion Australian dollars measured in terms of 1985-86 prices.

It should be noted that two indices of real GDP are reported in Table 3. The first is notionally an index of real GDP that accounts for changes in the terms of trade. In percentage-change form it is denoted GDP\(_T\). The second index is notionally a quantity index of the flow of goods and services produced in the economy. In percentage-change form this index is written GDP\(_Q\). This second index

---

**Table 3: Short-run Effects on Real Net Farm Returns**

<table>
<thead>
<tr>
<th>Industry(^a)</th>
<th>An increase in world agricultural prices(^b) of</th>
<th>A cut in the real wage rate on a cost to employers of</th>
<th>An across-the-board tariff cut(^c) of</th>
<th>The imposition of a consumption tax of</th>
<th>A cut in real absorption(^d) of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.28 per cent</td>
<td>1.00 per cent</td>
<td>8.10 per cent</td>
<td>4.85 per cent</td>
<td>0.77 per cent</td>
</tr>
<tr>
<td>1. Pastoral Zone</td>
<td>8.24</td>
<td>3.82</td>
<td>15.08</td>
<td>-1.27</td>
<td>3.21</td>
</tr>
<tr>
<td>2. Wheat-Sheep Zone</td>
<td>9.22</td>
<td>4.11</td>
<td>14.66</td>
<td>-0.75</td>
<td>3.43</td>
</tr>
<tr>
<td>3. High Rainfall Zone</td>
<td>10.05</td>
<td>4.62</td>
<td>16.46</td>
<td>-0.36</td>
<td>3.77</td>
</tr>
<tr>
<td>4. Northern Beef</td>
<td>18.46</td>
<td>9.14</td>
<td>30.52</td>
<td>4.56</td>
<td>6.75</td>
</tr>
<tr>
<td>5. Milk Cattle and Pigs</td>
<td>4.57</td>
<td>1.61</td>
<td>7.87</td>
<td>-3.23</td>
<td>1.68</td>
</tr>
<tr>
<td>6. Other Faming (Sugar Cane, Fruit and Fruits)</td>
<td>12.10</td>
<td>5.17</td>
<td>18.85</td>
<td>0.36</td>
<td>4.07</td>
</tr>
<tr>
<td>7. Other Faming (Vegetables, Cotton, Olives and Tobacco)</td>
<td>1.64</td>
<td>0.71</td>
<td>2.69</td>
<td>-4.15</td>
<td>0.60</td>
</tr>
<tr>
<td>8. Poultry</td>
<td>6.98</td>
<td>2.76</td>
<td>15.01</td>
<td>-2.09</td>
<td>2.53</td>
</tr>
<tr>
<td>Agriculture(^f)</td>
<td>8.64</td>
<td>3.82</td>
<td>14.08</td>
<td>-1.06</td>
<td>3.15</td>
</tr>
</tbody>
</table>

---

\(\*\) All projections are percentage deviations from what real net farm returns in each industry would have been in the absence of the shock at the head of the column. Real net farm returns in the before-tax earnings of capital, agricultural land, and labour (hired and owner-operator) deflated for increases in the CPI.

\(^a\) A detailed description of these industries is given in Higgs (1986).

\(^b\) The results presented in this column were generated by an 6.28 per cent increase in the world prices (at initial Australian export levels) of the Dohi commodities wool, wheat, barley, other cereals, grains, meat products, other food products, and a composite commodity consisting of cotton ginning, wool scouring and tarp making.

\(^c\) Note that quantitative restrictions have been expressed in terms of tariff equivalents.

\(^d\) It is assumed that post-tax wage rates are maintained in real terms and that the direct tax cuts in effective tax rates on labour are calculated to hold constant real private disposable income.

\(^e\) Absorption is defined as the sum of household consumption, investment, and government spending.

\(^f\) The effect on real net farm returns for agriculture is calculated by weighting the effects on industry real net farm returns by the industry's base-period share of primary factors in the total input of primary factors for all of agriculture.
where $L$, $K$, and $Y$ are the percentage changes in the employment of

$$
\delta g_p = \delta L + \delta K + \delta Y
$$

Factors, however, in percentage-change terms can be measured to a greater degree of the employment of primary

In the other hand, real GDP is a quantity index of domestic

$$
\delta g_p = 0.1295 \times 1.075 \times 0.1395 \times 1.23 = 0.54 \text{ per cent.}
$$

(4) Get increases in world agricultural prices for a and m, equation

$$
\delta w = 0.1295 \times \delta P \text{ from the presence of international trade of the 6.2% per}
$$

increase in GDP, expressed, from the difference, between $E_p$ and

increase in GDP, expressed, from the difference, between $E_p$ and

where $a$ and $a$ are before and $a$ and $a$ are before and $a$

(5)

$$
\delta w = \delta P - \delta P
$$

In percentage-change form we may write

that would leave $\delta g_p$ unchanged.}

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shares of returns to labour, capital, and agricultural land in GDP. In 
the standard short-run economic environment (as defined in section 2) k 
- v = 0. From the ORANI data base $S_k = 0.57$. If we substitute the 
above, with the aggregate employment projection of an increase of 0.43 
per cent from ORANI (see Table 1, first column), into equation (5) we 
find that $gdpq = 0.57 \times 0.43 = 0.25$ per cent.

The next economic shock to be studied is a cut in the real 
wage rate. The real wage is defined as the money wage deflated by some 
index of the general level of prices. For this simulation, the CPI will 
serve as a deflator. We need to distinguish between real wages as a 
cost to employers of labour, and real wages as take-home pay. The real 
wage as a cost to employers includes the gross wage, payroll taxes and 
other costs of employing labour, such as superannuation contributions. 
It can be seen from Table 1 that a 1.08 per cent cut in the real wage 
rate as a cost to employers would generate a one billion dollar (1985-86 
prices) improvement in the balance of trade after about 2 years.

A real wage cut is deflationary. The CPI is projected to 
fall by 1.87 per cent due to a 1.08 per cent real wage cut. As domestic 
costs fall, the international competitiveness of the traded sectors 
 improve. This leads to an increase in exports of 2.59 per cent and a 
decline in imports of 0.92 per cent. Furthermore, the cut in the real 
wage rate as a cost to employers is projected to increase employment by 
0.94 per cent and real GDP by 0.64 per cent. Note that real GDP is 
calculated here as a quantum index of domestic output; see equation (5).

The detrimental effects of Australia's continuing high levels 
of protection for its manufacturing industries are specifically

The results for the effects of a real wage cut and a change 
in the tax mix are given in the second and fourth columns of Table 2. 
These results are very similar since, as discussed above, the change in 
the tax mix results in a fall in the real wage as a cost to employers. 
The Pastoral, Wheat-Sheep, and High Rainfall Zones all directly export a 
significant portion of their output. Due to competitive pressures on 
world markets the exports of these industries will rise if there is a 
fall in real wages. The Northern Beef and Other Farming (Sugar Cane, 
Fruit, and Nuts) industries sell a significant portion of their produce 
to domestic processing industries which do the exporting. Because the 
produce of these export-related industries must be processed before 
export, they are exposed to greater opportunities for domestic cost 
reductions and consequently are particularly sensitive to the cut in 
real wages. The three remaining industries - Milk Cattle and Pigs, 
Other Farming (Vegetables, Cotton, Oilseeds, and Tobacco), and Poultry - 
also sell some of their output to food processing export industries. 
However, these industries are not affected to the same extent as the 
other agricultural industries since a significant amount of their sales 
is to domestic household consumption.

The agricultural industries are all projected to increase 
their output if there is an across-the-board tariff cut or a cut in real 
absorption; see Table 2, third and fifth columns. However the size of 
the increases generated by the tariff cut are the largest in the table 
while those generated by the cut in real absorption are, for the most 
part, the smallest. This can be explained as follows. The cut in 
tariffs results in increased imports which must be offset by a 
relatively large increase in exports to achieve the targeted improvement 
in the balance of trade; see Table 1, third column. However the cut in
The next aspect of domestic economic management studied here

... projected to increase in response to the cross-border flow of goods. A

increase of 6.07 per cent. A decrease or an increase of 6.5 per cent. While imports increase by 6.5 per cent. As domestic exports, increase the

interdependence of the traded good sector increases. For example, the exports of the traded good sector of the US to Canada and Mexico have been in the absence of the US-CPTPA, which would lead to a 1.7 per cent. After all, the

exports and an 8.9 per cent. Greater-than-expected reductions in trade would lead to a lower overall output of goods. The

exports of a country would be a fall in its exports of goods. The situation would favor the

country of origin, even though it would mean an 8.9 per cent. Of goods. This can be seen from the third

column of Table 1, which shows that an 8.9 per cent. Of goods.

Table 1. U.S. Import Competitiveness and Export Competitiveness

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<tr>
<th>Country</th>
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<tbody>
<tr>
<td>Canada</td>
<td>0.95</td>
<td>1.02</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.94</td>
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The Northern Inter-sector Production and Export Competitiveness

...the effect of changes in the correlation of the export sector. This can be taken from the third

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private absorption (i.e., real household consumption plus real private investment) unchanged. The outcome of any tax package is going to depend crucially on the response of the labour movement. The response studied here is one where post-tax wage rates (i.e., rates of take-home pay) are fully indexed to consumer prices. The outcome also depends on the distribution of the compensating tax cuts between labour and capital income. Here it is assumed that only the effective tax rate on labour income is cut. Under the above conditions, the imposition of a consumption tax of 4.80 per cent would generate a one billion dollar (1985-86 prices) improvement in the balance of trade after about 2 years; see Table 1, fourth column.

Recall that it is important to distinguish between wage rates as a cost and wage rates as an income. The wedge between these two largely consists of the income tax rate. In the ONAMI database, the initial effective tax rate on labour income is 21.73 per cent. Thus, if the average worker receives a pre-tax wage of $400 (i.e., wages as a cost), then the take-home pay is $313.08 (i.e., wages as an income = $400 x (1 - 0.2173)). The imposition of the household consumption tax will increase the CPI by 3.04 per cent; see Table 1, fourth column. (The reason that the CPI rises by less than the 4.80 per cent of the consumer tax is that, as will be seen below, there is some savings of labour costs that feed into prices.) If an agreement is reached with the labour movement to fully index take-home pay, then the latter must increase by $9.52 (i.e., 0.0304 x $313.08). If such a payment is made, then there will be no change in the purchasing power of an employed worker (i.e., the real wage as an income will not have changed). The implicit bargain struck between employers and employees, through the interventions by the government in the tax field, guarantees that such a

\[ \lambda_j = \alpha(1 - S_{pj})/(S_{pj} H_{xj}) \]  

(7)

The percentage change in industry j’s output is represented by \( \lambda_j \), \( \lambda_j \) is the percentage change in the farm-gate price of industry j’s output (this is an appropriately weighted index for the multi-product industries); \( S_{pj} \) is the percentage change in the index of consumer prices; \( \alpha \) is the elasticity of substitution between primary factors (assumed to be 0.5 for all industries in the short run); \( S_{pj} \) is the share of the fixed factors in industry j’s primary-factor inputs; and \( H_{xj} \) is the share of primary factor inputs in industry j’s total costs.

Equation (6) suggests that we need look only at three influences to determine an industry’s output response. The first is \( \lambda_j \), which, according to equation (7), consists of base-period shares and an elasticity. The second is the change in the industry output price, and the third is the CPI (i.e., an index of costs). The greater the fixed factor share, \( S_{pj} \), and the primary-factor share, \( H_{xj} \), the less responsive is the industry (i.e., the smaller is \( \lambda_j \)). For the three zonal industries the \( \lambda_j \)‘s are as follows: \( \lambda_1 = 0.75 \), \( \lambda_2 = 0.57 \), and \( \lambda_3 = 0.92 \). Thus of the zonal industries we would expect the High Rainfall Zone (\( j = 3 \)) to be the most responsive, followed by the Pastoral Zone (\( j = 1 \)), and finally by the Wheat-Sheep Zone (\( j = 2 \)). These relative responses are reflected in the projections listed in Table 2. Furthermore, if we make the crude approximation (for the purpose of this back-of-the-envelope calculation) that the output price of these industries increased by 6.28 per cent, and we substitute this and the CPI response from Table 1 into equation (6), then the percentage change in the output of, say, the Pastoral Zone is roughly equal to 3 per cent (i.e., 0.75 x (6.28 - 1.86)).
operation of power plants. If the power generation is required to be 3,292.9MW, it is expected that the total capacity of the power plant will be increased to 3,500MW. The contribution of the power plant to the national energy consumption is estimated at 29.2% of the total energy consumed in the country. The total energy consumption in the country is projected to increase by 3.5% in the next year.

In the context of industrialization, the electricity demand is expected to increase significantly. The government has implemented policies to increase the production of electricity to meet the growing demand. The implementation of these policies is expected to contribute to the economic growth of the country.

The government has also taken steps to increase the efficiency of power plants. The efficiency of power plants is expected to increase by 15% in the next year. This is expected to reduce the cost of electricity production and make it more competitive in the market.

The government has also taken steps to increase the use of renewable energy sources. The use of renewable energy sources is expected to increase by 20% in the next year. This is expected to reduce the carbon footprint of the country and make it more environmentally sustainable.

The government has also taken steps to increase the capacity of power plants. The capacity of power plants is expected to increase by 20% in the next year. This is expected to meet the growing demand for electricity and ensure a stable supply.

The government has also taken steps to increase the efficiency of power plants. The efficiency of power plants is expected to increase by 15% in the next year. This is expected to reduce the cost of electricity production and make it more competitive in the market.
(i.e., \( 313.08 + 9.52 \)), then the pre-tax wage, with the effective income tax rate now at 16.95 per cent, can be reduced to \( 388.44 \) (i.e., \( \frac{322.60}{1 - 0.1695} \)).

We are now in a position to say what will have happened to the real wage rate as a cost. Nominal wages, as a cost, have fallen by \( \$11.56 \) (i.e., \( 388.44 - 400 \)) or 2.89 per cent (i.e., \( \frac{11.56}{400} \times 100 \)). It turns out, however, that prices received by producers have fallen by 2.01 per cent.\(^{15}\) Thus the real wage rate as a cost has fallen by 0.88 per cent (\( -2.89 - (-2.01) \)).

As the change in the tax mix is projected to cause a fall in the real wage as a cost, the international competitiveness of the traded sector improves. Exports are projected to increase by 2.55 per cent and imports are projected to fall by 0.93 per cent. Aggregate employment and real GDP are projected to increase due to the change in the tax mix.

The final economic shock to be studied is a change in aggregate demand. A reduction in domestic demand, say through reduced government spending, would cause contractions in the non-traded sectors of the economy. However, it would also tend to reduce domestic costs and thus improve the competitiveness of domestic export and import-competing industries. It can be seen from the fifth column of Table 1 that a 0.77 per cent cut in real absorption (i.e., the sum of real household consumption, real investment, and real government spending) would generate a one billion dollar (1985-86 prices) improvement in the balance of trade after about 2 years. This out in real absorption causes the CPI to fall by 1.80 per cent. Exports are projected to increase by 0.97 per cent and imports are reduced by 1.52 per cent. The reduction in imports is partially due to the contraction in the size of the domestic economy. Real GDP and hence aggregate employment are both projected to decline.\(^{16}\)

3.2 Agricultural Outputs

As agriculture is an export sector it benefits from the effects of policies designed to improve the balance of trade. However, the increases in outputs are not uniform across the simulations nor across the agricultural industries. This is due in the first instance to the different mixes of aggregate export and import responses observed to achieve the balance of trade target, and in the second instance to the different cost structures, sales patterns, and product mixes of the agricultural industries. The short-run effects on agricultural industry outputs of the economic shocks discussed above are given in Table 2.

The first column of Table 2 shows the effects of a 6.28 per cent increase in the world prices of wool, wheat, barley, other cereal grains, meat products, other food products and a composite commodity consisting of cotton ginning, wool scouring and top making. If it is assumed that wages are maintained in real terms and we make the approximation that the costs of intermediate inputs move in line with the CPI, then the ORANI short-run supply function for industry \( j \) can be written:\(^{17}\)

\[
x_j = \lambda^j (p_j - \xi) + \]

where...