The views expressed in this paper do not necessarily reflect the official position of the Commonwealth Government.

Melbourne: March 1978

Project
Associate Director, IMPACT
Peter B. Dixon

By

OF IMPACT
P. 2. BRAHMA EKAVAN
COMMENTS ON

"intellectuals of policy change in the Aristotelian economy."

...should not necessarily be used to make the medium term

The brain is not committed to the recent policy of

I. THE MAIN POINT

The remarks...are applications of impact of concept.

1. Brain," role as a source of information about

who contribute to this economic impact to impact.

Contents: 1. THE MAIN POINT: 2. THREE MORE POINTS: 3. THE BRAIN'S

Contributions on P. J. Malpas, Evaluation of Impact

Associate Director, Impact Project

Peter D. Dixon
applications papers, i.e., papers where IMPACT has been used for policy analysis of the Australian economy. This omission is crucial because the usefulness of any model is only defined in relation to a specific purpose. To take an example from the everyday English use of the word 'model,' a tailor's dummy is perfectly adequate for displaying a suit in a shop window. It is, therefore, 'good' or 'useful' for that purpose. Such a model would not be 'good,' however, for teaching anatomy to students of surgery. And so it is with economic models. Each has its own strengths and weaknesses which implies that each should be used for some, but not other purposes. To demonstrate that the IMPACT framework is not relevant for policy purposes, therefore, would require a careful examination of the illustrative applications which have been made to date.

Section 3 contains a brief summary of some of the applications papers. Hopefully, the material there is sufficient at least to indicate IMPACT's policy relevance. Section 2 is a series of short points setting the record straight in places where Brain's review might be particularly misleading.

2 THREE MORE POINTS

2.1 Brain's nine criteria

Brain suggests nine properties "which a medium-term econometric model - like IMPACT - should have," Brain [1977b, p. 92]. He argues that IMPACT violates these properties and that, therefore,

---

1. See Dixon, Harrower and Powell [1977], Dixon, Parmenter, Ryland and Sutton [1977, ch. 4], Dixon, Parmenter and Sutton [1977a, b, c], Industries Assistance Commission [1977]. Of these papers, only Dixon, Parmenter and Sutton [1977c] could reasonably be said to have post-dated the preparation of Brain's article.
even if it were true that IMPACT fails Brain’s various tests, there would be no need to accept his conclusion. He does not explain why failure of the tests means that the model cannot "sufficiently" represent the actual structure of the Australian economy."

2.2 Econometric input to IMPACT

Brain chides IMPACT for alleged failures to tap best possible data sources or to adopt best possible econometric methods. As evidence he asserts that superior work has been done in the IMP model,2 of which he is the director. (Outstanding instances of this type of argument appear on pages 96, 100, 103 and 105 of his review.)

It is impossible for us to assess Brain’s claims. Almost all IMP material to which he refers is confidential and unavailable for independent professional scrutiny. By contrast, detailed working papers and reports on all completed technical aspects of the IMPACT project are published.3 These papers are given wide circulation among research economists. The feedback generated is IMPACT’s insurance against overlooking potential improvements in research strategy which are feasible in terms of data, manpower and computing constraints.

1. An obvious question is: sufficiently for what?

2. IMP is an econometric model developed by the Institute of Applied Economic and Social Research at the University of Melbourne. A brief non-technical outline is in Brain [1977a]. No comprehensive technical description has been published.

3. Over the past two and a half years, about 50 IMPACT working papers and reports have been publicly circulated.

REFERENCES


The approach which may be of particular interest.

Among the major issues of concern, the reader may identify:

(1) The question of the role of the competitive process in generating innovation.

(2) The question of the relationship between economic growth and technological progress.

(3) The question of the role of government in promoting innovation.

In the following section, an elaboration of the model of the innovation process will be provided.
In response to (a) we note that IMPACT is currently being developed. It is not yet complete. However, a modular design strategy has been adopted so that completed parts can be used as they become available. (For example, the ORANI module has already been applied in several policy relevant studies, see section 3.) One of the unfinished tasks for the IMPACT development staff is the linking of the modules. For obvious reasons this work comes at the end of the development phase. It is clearly premature to imply (as Brain appears to do on pages 96, 97, 101, and 106 of his review) that IMPACT users will be faced with inconsistencies between the modules.

As for (b), even a superficial glance at the IMPACT applications papers reveals that ORANI can be used either with slack labour market assumptions or with clearing labour markets. The appropriate choice depends on the application. For example, in long-run analysis it is sensible to assume that factor prices adjust to allow approximate full employment. On the other hand, in the short-run, factor prices and quantities might adjust too slowly to allow factor market clearing. In this case, ORANI simulations can be used to study the implications of policy changes for the level of unemployment.\footnote{1}

\footnote{1}{See Dixon, Harrower and Powell [1977]. Incidentally, this paper shows that applications of ORANI are not restricted to the "one year solution period."}

\footnote{2}{Among the papers with a comparatively short-run focus where the slack labour market assumption has been used are Dixon, Parmenter, Ryland and Sutton [1977, ch. 4], and Dixon, Parmenter and Sutton [1977a, b].}

On the influence of changes in world commodity prices, the ORANI simulations implied that most Australian industries have benefited. Some capital-good industries may be exceptions. International prices for capital goods increased relatively slowly and it is not surprising that the ORANI results showed motor vehicles, electronic equipment and aircraft building among the industries for which current difficulties may be partly attributable to shifts in international prices over the period 1968-1975. In general, however, the shifts in world commodity prices improved Australia's terms of trade. ORANI implied that the associated increase in national income and demand was sufficient to compensate the majority of industries for any adverse effects arising from changes in particular international prices.

On the real wage explosion, ORANI generated strong negative effects for outputs and employment throughout the economy. Labour intensive industries and those supplying "luxury" goods (i.e., highly income elastic goods) were among the heaviest losers. By comparison, ORANI assigned only minor importance to the change in female/male wage relativities. Certainly the ORANI results were consistent with the hypothesis that increases in female relative to male wages have significantly reduced female employment opportunities. On the other hand, for most industries, the female wage bill is still a fairly minor part of the total wage bill. Consequently, according to ORANI, increases in female relative to male wages pose a problem for only a few industries: textiles, footwear, pharmaceuticals, electronic equipment, leather products and some of the service industries.

The overall conclusion from the study was that each of the four phenomena, the mining boom, the changes in world commodity prices, the real wage explosion and the change in wage relativities, has presented some
...
used to simulate the effects on Australia's import competing sector of further expansions in mining exports and of improvements in Australia's terms of trade (mainly via relative reductions in foreign currency prices of imports from less developed countries). The ORANI simulation indicated those import competing industries whose growth opportunities were likely to be most severely affected. A second ORANI computation was then made under the assumption that the most severely affected industries were protected so that they could at least achieve the economy-wide average rate of growth. This second simulation showed how the insulation of one group of import-competing industries from adverse effects of change could be expected to reduce the growth opportunities of other import-competing industries. The mechanism captured by the model which provided the principal explanation for this result was as follows. Restrictions on particular imports caused the model to project a weakening in the competitive position of "uninsulated" import-competing industries via an increase in the overall domestic cost level relative to the Australian dollar value of foreign commodity prices. The model implied that the unfavourable cost shift could arise either through the domestic rate of inflation or through the exchange rate, i.e., import restrictions would either increase the rate of inflation (relative to the level at which it would otherwise have been) or lead to a relative revaluation. For the purposes at hand it was unnecessary to disaggregate the cost shift between inflation effects and exchange rate effects. In any case, such a disaggregation, depending as it does on macro monetary phenomena, falls outside the scope of ORANI. It belongs to a linked ORANI-MACRO model.

In another IMPACT paper,1 ORANI provided the basis for an analysis of the industry output and employment effects of a uniform increase in all tariffs. The most striking finding was that in an environment of fixed real wages, increases in protection could be expected to have almost no impact on the overall level of employment. It appeared that increases in employment opportunities in the import-competing sector would be offset by the loss in employment opportunities in the export industries and in industries supplying the export industries. According to ORANI, the export-related industries suffer under a tariff increase because they are poorly placed to pass on cost increases in the form of higher prices. The tariff increases were projected to impose significant cost increases mainly through their effects on money wages. Increases in money wages were required to maintain real wages in the face of (1) increases in the domestic selling prices of imported household commodities, (2) increases in costs and product prices of industries relying on imported inputs and (3) increases in the prices of domestically-produced import-competing commodities resulting from a relaxation of competitive pressures.

Recently, the UNANI projections on the effects of an uniform tariff increase have been given a regional dimension.1 The model implies that only Victoria could be expected to gain in terms of overall economic activity from a general tightening of protection. At the other extreme, Queensland and Western Australia could be expected to lose. These results reflect the regional location of Australia's import-competing and export-related activities. The Queensland and Western Australian economies are heavily export oriented and have comparatively little import-competing industry. The opposite is true for Victoria.

1. Dixon, Parmenter, Ryland and Sutton [1977, ch. 4].