CHAPTER 6

MACROECONOMIC EFFECTS OF AID

6.1 Introduction

The role assigned to foreign aid by MIRAB proponents bears a close resemblance to that which critics of development assistance have long attacked. For instance, Bertram and Watters' contention that:

> "Aid" to [the MIRAB countries], although usually described as "development aid", has in fact tended to have the character of a straightforward supplement to local incomes and consumption, and accounts for a large proportion of both. (1985, p. 499)

owes a clear debt (acknowledged by these authors) to views originally expressed by Griffin (1970) and Griffin and Enos (1970: see 3.2.2). In another area, the idea of an aid-financed 'parasitic over-expansion of government bureaucracies' put forward by Bertram (1986, p. 820) is not far removed from Bauer et al.'s belief that:

> It is because aid accrues to the government that the latter increases its resources, patronage and power compared with those of the rest of society. The resulting politicisation of life enhances the hold of governments over their subjects and increases the stakes, both gains and losses, in the struggle for power. (Bauer et al. 1991, p. 9)

Finally, the emphasis of the MIRAB hypothesis on the Dutch Disease effects of aid clearly mirrors the growing interest of aid researchers for these effects.

Thus it appears that the MIRAB hypothesis, while it represents an original contribution to the issue of development in small island nations, is nonetheless firmly rooted in the wider aid debate. Given this close association, it is useful to go beyond the empirical verification of the MIRAB hypothesis, to investigate the role of aid in the five countries concerned from the perspective of the aid debate itself. As summarised in chapter 3, this debate is primarily concerned with the impact of aid on growth (the 'aid-growth relationship'), on saving (the 'aid-saving relationship'), on government finance (the 'fiscal response' question) and on economic structure (the 'Dutch Disease' question). Accordingly, each of these possible impacts of aid is examined below, with a view to assessing the extent to

which phenomena observed in other regions of the world are also present in the MIRAB group of countries.

6.2 Aid and economic growth

6.2.2 Growth performance

In 1991, the World Bank noted that the growth performance of its South Pacific member countries during the previous decade was poor by comparison with Caribbean and Indian Ocean island countries, although not as unfavourable as that recorded in many Sub-Saharan African countries (1991, vii). Furthermore, it added that economic growth in the South Pacific region had often failed to keep up with population growth, which had resulted in a fall in GNP per capita, overall in that region during the 1980-1988 period. By contrast, Caribbean countries (excluding Trinidad & Tobago and Barbados) had increased income per head by 4 per cent, and the Maldives and Mauritius by 5 per cent over the same period (ibid., p. 9). The growth rates data presented in table 6.1 allow the recent performance of some MIRAB countries to be assessed against this backdrop of sluggish growth in the South Pacific region as a whole. Only three MIRAB

Table 6.1 **Growth rate of real GDP in selected South Pacific countries** (1983-90)

Year	Kiribati	Tuvalu	Cook Islands	Fiji	Solomon Is.	Tonga [b]	Vanuatu	Western Samoa	PNG
1983	-1.0	23.1	1.6	-3.9	4.7	1.2	8.5	6.2	12.5
1984	5.3	7.5	12.7	8.3	7.4	2.3	6.9	-1	-1.5
1985	-6.4	-1.8	10.8	-4.7	2.8	5.6	1.8	5.7	5.1
1986	2.8	..	6.9	8.8	-0.7	3.2	-2.0	3.5	4.7
1987	-7.8	6.4	0.1	-7.8	2.3	3.5	0.4	3.9	2.8
1988	17.0	..	7.1	0.4	5.4	-2.1	0.6	-1.4	2.9
1989	1.1	4.8	6.7	11.9	6.8	3.6	4.5	2.9	-1.4
1990	-8.8	13.8	1.7	5.0	5.6	2.5	5.2	-5.9	-3.7
Average	*0.3*	*9.0*	*6.0*	*2.3*	*4.3*	*2.5*	*3.2*	*1.7*	*2.7*
St.Dev.	*8.5*	*8.5*	*4.5*	*7.3*	*2.7*	*2.2*	*3.6*	*4.1*	*5.1*
1982-90 [a]	*100*	*165*	*158*	*117*	*140*	*121*	*128*	*114*	*122*

[a] This figure expresses real GDP in 1990 as an index number (real GDP in 1982 = 100). [b] Growth rate for the financial year ending in the calendar year shown for the row.

Sources: SPD; AIDAB 1991a, 1991b, 1992a, 1992b, 1992c, 1993, 1994a, 1994b; United Nations, *National Accounts Statistics: Analysis of Main Aggregates*, various issues.

countries are represented in this table as time-series GDP data for Niue and Tokelau are not available.

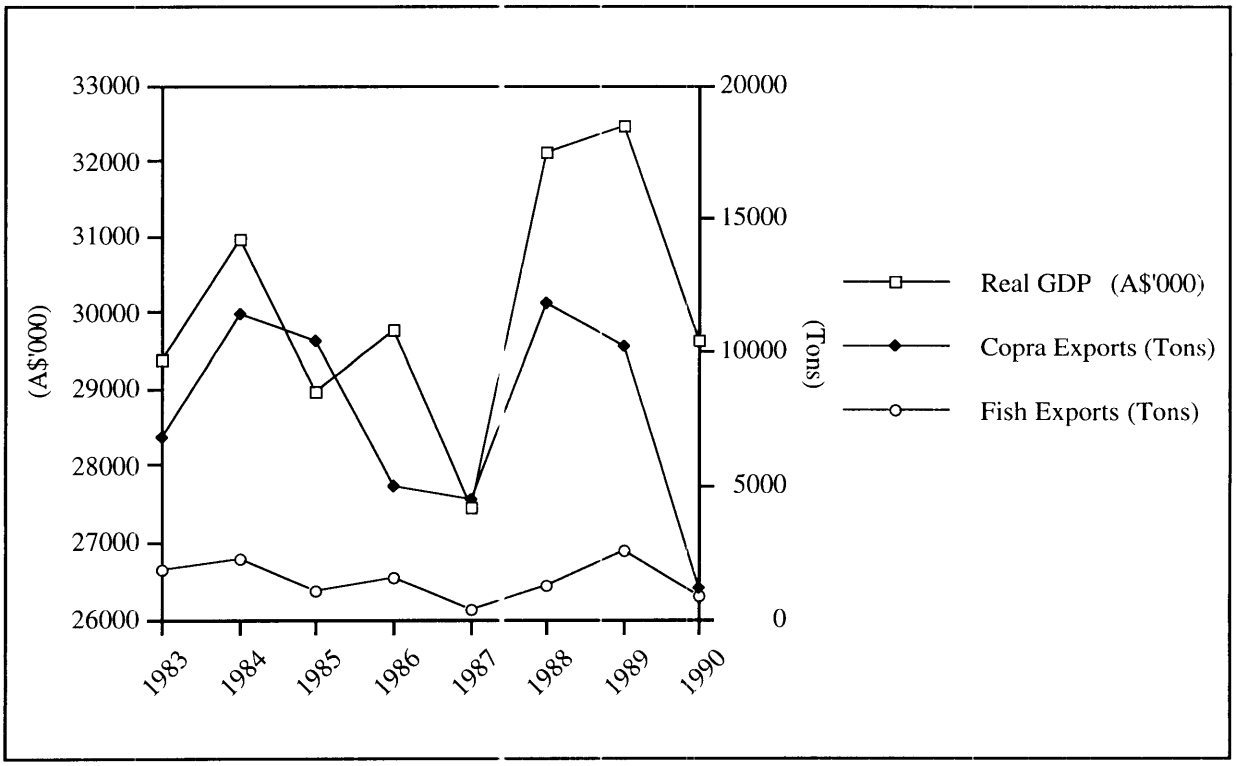
As can be seen from the annual and average growth rates for the 1983-90 period, two MIRAB countries, Tuvalu and the Cook Islands, have grown more rapidly than any other country. By contrast, Kiribati was the only country, MIRAB or non-MIRAB, to have experienced virtually no growth, on average over that period. Thus, MIRAB countries are found to have diverged from the wider South Pacific trend, albeit in quite opposite fashion. This divergence is further illustrated by the index number in the last row of table 6.1, which compares the end-of-period output level with the initial (1982) level. While the output level of non-MIRAB countries had increased by between 14 and 40 per cent in eight years, it had increased by more than half in Tuvalu and the Cook Islands, and had shown no change in Kiribati.

In addition to having averaged growth rates furthest from the general trend, Kiribati and Tuvalu also exhibited an extremely variable growth pattern. As measured by the standard deviation of annual growth rates (second last row in table 6.1), the variability of their growth performance was considerably higher than in the Cook Islands and in the non-MIRAB countries. In a region of the world already noted for the volatility of its growth performance (World Bank 1991, p. 6), only Fiji came close to experiencing the same degree of output fluctuation. In that country, and in the South Pacific at large, the instability of output and incomes has been attributed by the World Bank (ibid., pp. 20-22) to the frequent occurrence of natural disasters such as cyclones, and to the narrowness of the production and export base.

It is probable that both these factors impact more strongly on MIRAB than on non-MIRAB economies. Cyclones, first, reap more devastation on atolls lying just a few metres above sea level than on more sizeable land masses. Second, the scarcity of water resources on this type of coral island increases the relative severity of droughts. Finally, the greater reliance of some MIRAB economies on copra and fish exports, makes them particularly vulnerable to inclement weather conditions. This appears to have been the case in Kiribati (AIDAB 1992a, ix) where, as figure 6.1 shows, fluctuations in copra and fish volume exports are closely associated with the level of real GDP.

Conversely, in Tuvalu, the level of economic activity is strongly influenced by aid inflows, but only minimally by export earnings (AIDAB 1993, ix), now that

Figure 6.1 **Comparison of real GDP and copra and fish exports in Kiribati** (1983-90)



Source: AIDAB 1992a.

stamp exports have declined significantly. In the Cook Islands, finally, the strong growth performance of the 1980s has been attributed to an expansion in government investment spending, to tourism-related activities, and to off-shore finance services (Fairbairn 1994, p. 2).

To a large extent, the differing growth performances of the countries[1] appearing in table 6.1, are mirrored in the evolution of their GDP per capita over the same period. Accordingly, the observations made with respect to inter-country differences in real GDP growth are equally valid to describe the data presented in table 6.2. That is, at a time when non-MIRAB countries recorded generally low rates of growth in income per head, Tuvalu and the Cook Islands recorded very strong growth, while Kiribati experienced negative growth. Furthermore, as with real GDP, Kiribati and Tuvalu experienced above-average output fluctuations, while growth in the Cook Islands was more stable.

A comparison of real GDP and GDP per capita growth rates in the three

[1] No GDP per capita or population time-series data were available for Tonga and the Solomon Islands.

Table 6.2 **Growth rate of real GDP per capita in selected South Pacific countries** (1983-90)

Year	Kiribati	Tuvalu	Cook Islands	Fiji	Vanuatu	Western Samoa	PNG
1983	-3.5	15.2	1.8	-6.0	8.5	6.1	9.5
1984	2.9	7.8	12.9	6.2	4.7	-1.1	-4.1
1985	-8.8	-2.1	9.0	-6.6	-0.6	5.6	2.3
1986	0.7	..	7.0	5.5	-4.7	3.4	2
1987	-9.7	5.3	-1.1	-7.5	-1.9	3.6	0.1
1988	14.6	..	5.5	1.2	-1.8	-1.7	0.2
1989	-1.0	2.7	5.3	11.0	1.8	2.6	-4.1
1990	-12.2	11.4	1.9	3.3	2.4	-6.2	-6.2
Average	*-2.1*	*6.7*	*5.3*	*0.9*	*1.1*	*1.5*	*0.0*
St.Dev.	*8.6*	*6.2*	*4.4*	*6.9*	*4.2*	*4.2*	*5.0*
1982-90 [a]	*82*	*146*	*150*	*106*	*108*	*112*	*99*

[a] This figure expresses real GDP in 1990 as an index number (real GDP in 1982 = 100).

Sources: SPD; AIDAB 1991a, 1991b, 1992a, 1992b, 1992c, 1993, 1994a, 1994b; United Nations, *National Accounts Statistics: Analysis of Main Aggregates*, various issues.

MIRAB countries considered reveals, as expected, that the negative influence of population growth on the level of income per head is felt much more strongly in Kiribati and Tuvalu than in the Cook Islands. This influence notwithstanding, Tuvalu has managed to increase GDP per capita by almost half over the 1982-90 period, almost to the same extent as the Cook Islands. By contrast, Kiribati's level of GDP per capita fell by 18 per cent.

The recent growth experience of some MIRAB countries appears, in summary, to have been markedly different from that of their non-MIRAB counterparts. That such disparity exists should not come as a surprise, given the gap between the economic circumstances of these microstates and those of larger, often more resource-rich South Pacific countries. Less expected, perhaps, is the fact that in at least two MIRAB countries, economic growth has been above-average, and sufficiently strong to bring about an increase in the level of real GDP per capita. While this indicator is an imperfect measure of the standard of living of the population, there is nonetheless a strong presumption that this standard has improved in recent times in these two countries. Conversely, in Kiribati, the level of real GDP per head has fallen drastically. According to

AIDAB (1992a, ix), the repercussions of this fall on the standard of living of the population have been softened by external sources of income such as remittances and trust fund income, which have led to a 0.4 per cent annual growth in real GNP per capita during the 1982-91 period. However, this purported rise in living standards does not appear to be confirmed by private monetary consumption expenditure data, which show that a 2 per cent average annual decline in real terms has occurred during the 1982-90 period (SPD).

Given the common view that the traditional obstacles to development are exacerbated in atoll countries and microstates (see 2.2), it might have been expected that Kiribati's dismal growth performance was symptomatic of MIRAB economies as a group. Indeed, this expectation has previously been expressed by Fairbairn (1985, p. 45, quoted in Pollard 1989, p. 67), who termed the five MIRAB economies 'no growth problem economies', where 'economic growth cannot be envisaged because of poverty of resources combined with rapid population growth.' Other authors reserved such severe prognosis for some MIRAB countries only. Fisk (1981, p. 11), for instance, agreed that very little growth prospects existed in Kiribati, Tuvalu and Tokelau, especially when population growth was taken into account. In Niue and the Cook Islands, however, he saw 'countries with limited resources that are adequate to sustain the population well above minimum subsistence level, but not at their present level of incomes' (loc. cit.). Other authors, finally, have expressed the view that emigration was likely to result in falls in output in, *inter alia*, Niue and the Cook Islands (e.g. Connell 1990, p. 8).

Recent GDP growth data, presented in tables 6.1 and 6.2, have proven all these predictions to be incorrect to a certain extent. First, Tuvalu's experience during the 1980s is proof that, despite rapid population growth (20 per cent between 1980 and 1992), sizeable increases in income per head can be achieved. Second, the recent economic performance of the Cook Islands is evidence of a MIRAB economy's capacity to grow in conjunction with high levels of emigration (averaging almost 500 persons per year between 1982 and 1992). Only in Kiribati does the population pressure - economic decline scenario appear to hold. There is some doubt regarding this country's capacity to achieve significant growth in the 1990s. In its South Pacific study, the World Bank (1991, p. 169) put the growth potential of the Kiribati economy at 3.3 per cent in real terms during 1990-94, and 4.5 per cent during 1995-1999. However, the most recent data available at the time of writing (February 1996) do not support this optimistic outlook, with real growth rates of -0.3 per cent and 1.9 per cent in 1991 and 1992 respectively (Fairbairn 1994, p. 21).

6.2.2 The role of aid

The aid-growth relationship debate, examined in chapter 3, is especially relevant in the context of the South Pacific, given the co-existence, in that region, of a large volume of aid and a generally poor economic growth record. On the basis of these two features alone, the conclusion that foreign assistance has not been effective in promoting growth may appear inescapable. This is a view subscribed to by the World Bank (1991), in a survey of six of its South Pacific member nations. In this survey, it noted that, although aid flows had allowed very high and sustained levels of investment relative to GDP, this expenditure had failed to translate into correspondingly high rates of growth (1991, vii). In the same survey, this failure is variously attributed to (ibid, pp. 78-9):

- the infrastructural bias of aid-financed projects;
- the discrepancy between official aid figures and the actual transfer of financial resources;
- the existence of adverse exchange rate, prices, and wages effects of aid;
- poor project planning, implementation, and monitoring; and
- the crowding-out of the private sector.

As well as those listed above, additional factors of aid ineffectiveness in the South Pacific have been suggested by other authors:

- the inadequate size and technology of projects (Pollard 1989, p. 77);
- the existence of on-costs associated with aid (Pollard 1989, p. 78);
- a low absorptive capacity in the form of financially viable projects (Bertram and Watters 1985, p. 500; Knapman 1986, p. 148); and
- a high incremental capital-output ratio due to the existence of diminishing marginal returns (Knapman 1986, p. 149).

Some authors still have looked beyond such 'technical' reasons, to express the belief that aid has encouraged rent-seeking behaviour by South Pacific governments, at the expense of the pursuit of genuine developmental goals (e.g. Kasper 1991).

As is apparent from the points listed above, a number of the obstacles to aid effectiveness which have been identified in the context of the South Pacific are identical to those at the centre of the aid-growth debate. As such, they have already been discussed in chapter 3. In addition, some obstacles (e.g. crowding-out, rent-seeking) have been discussed further in chapters 4 and 5.

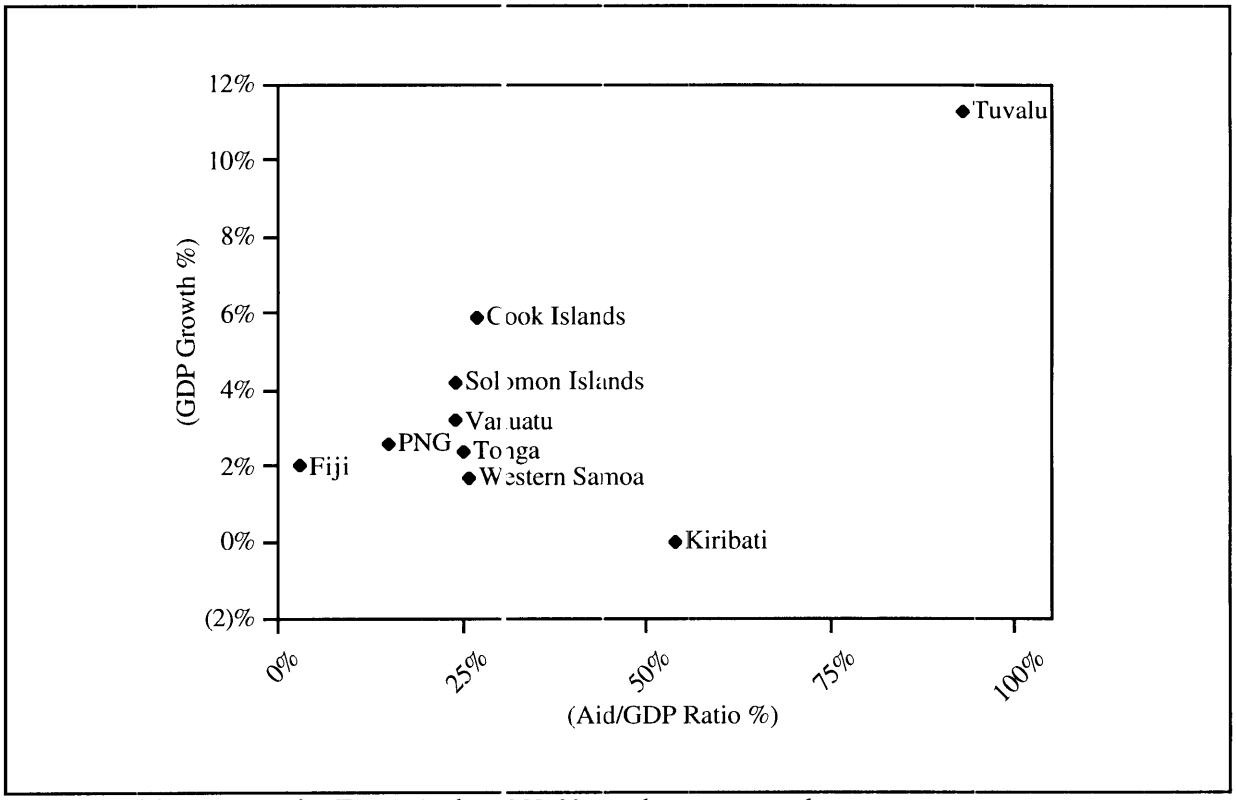
The similarity between the international aid literature and that devoted to aid in the South Pacific is to be expected since the factors detracting from the effectiveness of ODA are largely independent from the identity of the recipient. In other words, when aid fails to have an impact on growth, the reasons are often the same from one country to another. For instance, the persistence of an infrastructural bias in aid projects is likely to have similar detrimental repercussions in Sub-Saharan Africa and in the South Pacific.

It should be noted, finally, that not all the evidence emerging from the South Pacific region is supportive of the view that aid is ineffective. Ahlburg (1986, p. 16), looking at 1970s data for seventeen South Pacific countries, found that higher aid per capita was associated with statistically higher GDP per capita. He does not elaborate on the direction of the causality, however.

Irrespective of its effectiveness or lack of it, the question arises of whether the impact of aid is the same in MIRAB and in non-MIRAB countries. As is shown in figure 6.2, some MIRAB economies have diverged markedly, in recent years, from their non-MIRAB counterparts, in terms of both their growth and their aid experiences. Overall, the data presented in figure 6.2 offer broad confirmation of the World Bank's diagnostic regarding the aid-growth relationship in the South Pacific. This is illustrated, for instance, by the fact that four countries—Tonga, the Solomon Islands, Western Samoa and Vanuatu—achieved markedly different growth rates while averaging approximately the same aid to GDP ratio between 1983 and 1990. In figure 6.2, the position of the three MIRAB countries as clear outliers suggests that their aid-growth relationship has differed from that of the wider South Pacific region. However, as the figure also reveals, there has been considerable disparity in the individual experiences of MIRAB countries. While the Cook Islands achieved above-average growth with a relatively low aid ratio, Tuvalu combined a very high growth rate with a very high aid ratio. In Kiribati, where aid levels were also high in relative terms, no real GDP growth was recorded. Of course, such diversity does not rule out entirely the possibility of a common aid-growth relationship in MIRAB countries, given the likely influence of other variables on the growth rate of GDP.

The possibility that aid's impact on growth may only be significantly positive in the longer term, due to the existence of time lags, has been noted by Mosley et al. (1987; 1992). Given the infrastructural bias of aid observed in the South Pacific (World Bank 199[illegible], p. 78) and in MIRAB countries (see 2.3.3), a

Figure 6.2 **Scatter diagram of real GDP growth and aid as a percentage of GDP for selected countries** (1983-90, yearly average)



Notes: Aid/GDP ratio for Tonga is the 1982-88 yearly average only.
Sources: SPC; SPD; NCDS, *Pacific Economic Bulletin*, various issues; Weisman 1990; World Bank 1991; AIDAB 1991b, 1992c, 1994a, 1994b.

gestation period in the impact of aid flows may be confidently expected. Thus, it could be argued that the diverging aid-growth experiences of MIRAB countries are due to these countries' position at different points of their 'aid-growth cycle'. This explanation is, however, unlikely to apply to the data in figure 6.2, given that they are based on eight-year averages of both the growth rate and the aid to GDP ratio.

One way of identifying any differences or similarities between the three MIRAB countries, would be to use regression analysis to measure the aid-growth relationship for each country in turn, in the manner commonly found in the literature (see 3.3.1). However, as indicated in chapter 3, the use of econometric techniques for this purpose has been severely criticised in recent times, both on theoretical and technical grounds. Accordingly, it will not be attempted here.

Some indication of the nature of the aid-growth relationship in MIRAB countries may be gauged from the writings of some authors on the matter. On

the whole, however, it is impossible to detect any consensus regarding the potential or actual contribution of aid to growth in these, or similar, countries. Referring to atoll economies in general, Pollard (1989) is ambivalent, writing that:

> External aid has had a fundamental influence on atoll countries, not only on their economies in terms of growth and development, or the lack of it, but also on their peoples' attitudes and aspirations. (p. 77)

Fisk and Mellor, noting the harsh natural conditions in Tuvalu compared with other island countries, contend that 'the scope for development assistance to increase overall production of the Tuvalu economy is quite limited' (1986, p. 2, quoted in Pollard 1989, p. 68). The view of aid effectiveness embodied in the MIRAB hypothesis is equally bleak, with its emphasis on the gap between the avowed purpose of aid—growth through capital accumulation—and its real function as an income supplement financing the increased consumption of imports (see 4.2.3).

Yet, favourable reports of the effectiveness of aid in MIRAB countries are not uncommon. In Tuvalu, for instance, AIDAB (1993, p. 2) found that the impact of aid flows on domestic expenditure had been a major factor in achieving the 7 per cent annual real growth rate between 1986 and 1990. This agency's report pointed, in particular, to the favourable effects of aid-financed expenditure in such sectors as transportation, electricity, and trade. In the Cook Islands, the fairly impressive growth rate achieved in recent years has been partly attributed to government investment spending (Fairbairn 1994, p. 3). Since that form of public expenditure is primarily financed by aid, it seems possible to conclude that ODA has been partly responsible for the satisfactory growth performance recorded in that country. In Kiribati, finally, labelling the dismal growth record of the 1980s as a failure of aid does not appear entirely warranted. According to AIDAB (1992a, ix), this record is attributable to external influences, such as bad weather and weak commodity prices, on the production of the two major export items, copra and fish (see figure 6.1).

In summary, the recent economic record of MIRAB countries does not appear to validate the radical view of aid as an impediment to growth, or even the more moderate view of aid as ineffective. In contrast to other countries of the South Pacific, aid has, on occasions, significantly contributed to output expansion in some MIRAB economies. There are indications, however, that this contribution has been accompanied by drawbacks, in the form of macroeconomic

and factor markets distortions (e.g. Siwatibau 1991; AIDAB 1993, p. 10). It is to the examination of such distortions that the next three sections are devoted.

6.3 Aid and domestic saving

6.3.1 Saving performance

According to the World Bank (1991, p. 10), domestic saving rates in the South Pacific are low, often to the point of being negative. This poor saving performance is attributed by the Bank to high propensities to consume, shallow financial systems, and the narrowness of the monetised portion of the economy. As shown in table 6.3, Kiribati had the most unfavourable saving ratio of the seven countries selected, with total (private and public) consumption expenditure exceeding domestic income by an average of 37 per cent over the 1986-1988 period. This led to a resource gap in that country which was extremely large relative to GDP, even by South Pacific standards. However, as pointed out

Table 6.3 **Saving-investment gap in selected South Pacific countries** (1985-88 average, per cent of GDP)

	Fiji	Kiribati	Solomon Islands	Tonga	Vanuatu	Western Samoa
Gross Domestic Saving (A)	18.3	-37.0	-2.8	-17.7	2.8	-6.7
Gross Domestic Investment (B)	15.0	30.8	30.9	29.4	31.7	31.5
Resource gap (B - A)	-3.3	60.6	33.7	47.1	28.9	38.2

Source: World Bank 1991.

by AIDAB (1992a, p. 8), Kiribati's saving performance during the 1980s is something of an anomaly, having resulted from the failure of consumption levels to respond to the 40 per cent fall in real GDP which followed the exhaustion of phosphate mining in 1979. Since that time, high consumption levels have been financed by unrequited transfers, namely aid and remittances, as well as by incomes originating domestically. In recent years, this country's saving performance has improved: in 1991, domestic dissaving only equalled 1 per cent of GDP, and was forecast to become positive in 1995 (Kiribati 1992).

While saving data pertaining to the other MIRAB countries are non-existent, the same scarcity of domestic resources is thought to prevail, given their reliance on foreign transfers. In Tuvalu, for instance, AIDAB notes that:

> Estimates of gross domestic savings or gross national savings are not available, but it is apparent that Tuvalu is very heavily dependent on external savings in the form of ODA, and to a lesser extent, remittance transfers. (1993, p. 11)

More so than in other South Pacific countries, the lack of sophistication of the financial sectors of MIRAB countries is a serious impediment to the successful mobilisation of domestic resources. These financial sectors are characterised by the absence of a central bank[2] or domestic capital market, and, usually, by the operation of a single, foreign-owned, commercial bank (e.g. Westpac in Kiribati and Tuvalu). While the Cook Islands enjoy a more diversified financial industry (mainly due to the provision of offshore financial services), this industry remains underdeveloped. In addition to commercial banks, such financial institutions as provident funds and insurance companies can provide further conduits for savings in MIRAB economies.

According to Fairbairn (1994, p. 9), the lack of competition and moral suasion resulting from rudimentary financial sectors, has led to relatively unattractive deposit interest rates being offered in Kiribati, Tuvalu, and the Cook Islands (see 6.6.2), thus blunting the incentive to save. In developing countries generally, the influence of real interest rates on saving performance is a matter of continuing debate (e.g. Wickramanayake 1992, pp. 6-8). This stems, in part, from the fact that higher real deposit interest rates result in both an income and a substitution effect as far as consumption is concerned. Depending on the relative strength of these effects, therefore, saving could increase or decrease in proportion to income (loc. cit.).

However, in the context of MIRAB and similar countries, the influence of real interest rates on saving must be considered from the wider perspective of migrants' remittances. A recent study of Tonga and Western Samoa (e.g. Brown and Foster 1994) has found real interest rates to be a significant determinant of migrants' decisions to remit savings to their home country. It also found that remittance-receiving households were sensitive to real interest rates, in deciding whether to save or to consume this supplementary income. Given that MIRAB countries generally share the remittance experience of Tonga and Western

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[2] Or, indeed, by the absence of any bank in Tokelau.

Samoa, Brown and Foster's finding appears to lend support to Fairbairn's contention regarding the disincentive created by real interest rates in Kiribati, Tuvalu and the Cook Islands.

If a low return on invested funds discourages migrants from remitting and holding assets in their home country, it is likely that MIRAB residents are similarly affected. Given the strong degree of integration between financial sectors in the MIRAB and metropolitan countries, capital mobility, and the links with overseas islander communities, it is not surprising to find domestic savings commonly invested overseas (Bertram and Watters 1985, p. 512). This capital outflow is further encouraged by the paucity of bankable projects (AIDAB 1993, p. 11), itself exacerbated by the prohibition of land being used as loan security. In some MIRAB countries, the greater mobilisation of domestic savings has been given priority (Kiribati 1992; Tuvalu 1992), and efforts have been made to implement favourable measures such as tax deductions, passbook schemes and 'save-as-you-earn' schemes.

6.3.2 The role of aid

As mentioned in 6.3.1, large inflows of foreign savings in the form of foreign aid and remittances have frequently been associated with negative domestic saving rates in MIRAB economies. As was examined in chapter 3, the nature—or existence—of the aid-saving relationship has long been a matter of debate. Papanek (1972, 1973) famously asserted that the inverse relationship detected by previous authors (e.g. Griffin 1970) was simply the consequence of calculating gross domestic saving as a residual in national accounts. Given this national accounting convention, he pointed out, foreign and domestic savings would move in opposite directions as long as some fraction of the incoming foreign funds was devoted to consumption expenditure, and as long as GDP remained constant (see 3.2.3). The thrust of recent contributions to the debate (e.g. Morisset 1989; White 1992a) appears to have successfully dispelled the idea that a negative *causal* relationship between aid and domestic saving should be expected (see 3.3.2).

These findings notwithstanding, the orthodox view of the aid-saving relationship in MIRAB economies is that, because they often finance an increase in consumption, unrequited transfers such as aid and remittances do indeed

cause saving to be low. This view is encapsulated in the World Bank's assessment of Kiribati's situation in this regard:

> A fundamental problem of [Kiribati's] economy concerns its high level of consumption relative to income and savings. A key to achieving self-reliance in the long-term would be to restrain private consumption, primarily through taxation, keeping it well below GDP. Such a strategy would increase tax revenues, raise national savings and also limit import growth in the 1990s to 4-4.5 per cent per annum. (1991, p. 170)

AIDAB concurs:

> Together with remittances, external aid also tends to stimulate domestic consumption expenditure to the point that such consumption can exceed GDP, resulting in negative gross domestic savings. (1993, p. 10)

The position of MIRAB proponents (e.g. Bertram and Watters 1985; Ogden 1989) on this issue is not fundamentally different: aid does indeed play a major part in financing consumption expenditure in MIRAB economies. It can do so directly, through budgetary aid which increases public consumption, or indirectly by supplementing local incomes through the distribution of wages and salaries. This spill-over of aid into consumption would not, in itself, be sufficient to guarantee a negative aid-saving relationship. However, when aid inflows are extremely large in relation to GDP, when the import content of consumption is high, and when aid is not successful in lifting GDP sufficiently, the gross domestic saving rate can be adversely affected to the point of being negative.

However, the orthodox view of the aid-saving nexus has recently been criticised by Brown, in relation to Tonga and Western Samoa. He points out that:

> It would be a gross error to conclude ... that remittances and other transfers caused excessive consumption and negative savings in any behavioural sense. (1994, p. 352)

Brown's argument rests, in essence, on the distinction between domestic and national income. In countries with sizeable overseas populations (e.g. Tonga and Western Samoa), unrequited transfers in the form of remittances adds significantly to local households' incomes. Understandably, these households' consumption decisions are based on their total income, irrespective of its origins. For the national statistician to deduct *total* consumption from *domestic* income alone to obtain *domestic* saving is therefore an anomaly, which leads to results lacking real economic meaning. It is much more useful, Brown argues, to compare gross *national* saving with gross *national* income to gauge a country's saving performance. Having done so for Tonga and Western Samoa, he showed

that, far from having achieved negative saving, both countries had in fact saved a significant proportion of their national income (ibid., p. 350).

In common with Tonga and Western Samoa, MIRAB countries enjoy large net current transfer receipts in the balance of payments. These receipts consist of remittances and official grant aid. In addition, Kiribati and Tuvalu also receive factor income originating from their trust funds. Under these circumstances, low or negative gross *domestic* saving is inevitable, given the proportion of household and government income originating externally. Far from reflecting a detrimental effect of aid, or the local population's 'unhealthy' preference for current rather than future consumption, low gross domestic saving is simply an indication of the magnitude of external incomes. As such, it is not cause for concern, or for drastic reductions in consumption levels.

Using Brown's approach to investigate the case of Kiribati (the only MIRAB country for which sufficient national accounts and external accounts data are available) reveals the true magnitude of saving in that country. As calculated in table 6.4, gross national saving has been not only positive, but quite large over the 1985-88 period, averaging 40 per cent of GNP. This figure implies an excess of national saving over investment (a negative savings gap) equivalent to 15 per cent of GNP, or 20 per cent of GDP.

Table 6.4 **Calculation of gross national saving as a proportion of GDP and GNP** (per cent, 1985-88 average)

Aggregate	% of GDP	% of GNP
GDP	100	79
+ Net factor income [a]	26	21
= GNP	126	100
+ Net private transfers	7	6
+ Net official transfers	56	44
= Gross national disposable income	189	150
- Consumption	138	110
= Gross National Saving (GNS)	51	40
Investment	31	25
Investment - GNS gap	- 20	-15

[a] RERF drawdowns.
Sources: SPD; AIDAB 1992a.

As anticipated, the key to the 'saving puzzle' lies in the flows of income originating overseas, which provide Kiribati with almost half of its gross national disposable income. When this measure of income is taken as reference, the saving performance of a remittance and aid-receiving economy such as Kiribati appears satisfactory, as reflected in a negative savings gap. While it is true that reliance on external sources of income to fund saving carries some element of risk, it also has potential advantages. For instance, migrants' incomes are likely to grow more regularly than islanders' incomes. As long as migrants maintain their ties with their home country, therefore, or as long as emigration continues unabated, remittances are likely to prove a stable source of rent income. Equally, trust fund income growth is probably more secure and predictable than its domestic counterpart.

Using table 6.4, it is also possible to shed some light upon the extent of the real transfer of resources permitted by aid to Kiribati. As is well known (e.g. Kindleberger 1963, ch. 18; Hawkins 1970, ch. 3), the potential benefits of a foreign aid inflow are only realised if they lead to a transfer of real resources into the recipient economy. Thus, for such transfer to be fully effected, a current account deficit of an amount equal to the aid inflow must open up in the balance of payments. This is equivalent to saying that the absorption level of the recipient must increase by the same amount as the aid inflow. If the former increases by less than the latter, the transfer will be under-effected. Inspection of table 6.4 reveals that an under-effected transfer prevailed, in Kiribati, over the 1985-88 period. In that period, the excess of GNS over investment, equal to 20 per cent of GDP on average (see last row in table 6.4), indicates that a current account surplus of the same magnitude existed. This surplus led, in turn, to a balance of payments surplus and, hence, to the accumulation of foreign assets. In practice, this accumulation took the form of re-invested RERF income and increased reserves. Ultimately, however, the existence of a balance of payments surplus reveals that part of the aid inflow has been 'recycled' into capital outflow and, therefore, that the transfer has been under-effected. Put another way, the availability of aid for investment financing purposes has meant that Kiribati had an excess of saving which it was able to use to accumulate foreign assets. While these assets can be expected to yield welfare benefits for the population, such indirect benefits of aid are clearly not those originally contemplated by donor countries! This 'recycling' of aid does, however, lend support to Bertram's (1986, p. 820) argument in favour of a locating some aid directly to overseas portfolio investments held by the recipients.

If Kiribati's experience in regard to saving is symptomatic of all MIRAB countries, it is doubtful whether these countries' saving performance is as unsatisfactory as implied by the orthodox view. As is apparent from the gross national saving calculations shown in table 6.4, households in MIRAB countries save a significant proportion of the total income at their disposal. The fact that part of this income originates overseas does not cause these households to be any less thrifty than when their income originates domestically. In fact, saving is such, in Kiribati, that it leads to a negative savings gap, and to the recycling of part of the aid inflow overseas. This is not to say, however, that more resources cannot be mobilised domestically in MIRAB countries. It is likely, in fact, that such factors as underdeveloped financial sectors, inappropriate returns on assets, and a low degree of monetisation are potent obstacles in that respect.

6.4 Aid and the tax effort

The impact of foreign aid on a recipient government's fiscal stance in general, and tax effort in particular, has been studied with increasing frequency since Heller's (1975) seminal contribution. The 'fiscal response' literature which has ensued (see 3.3.3) is, in effect, an offshoot of that on aid and saving, since it seeks to identify the conditions under which aid will displace public saving. In the fiscal response literature, such displacement is normally predicated upon the 'switching' of aid monies, allowed by the fungible nature of these funds. In Mosley et al.'s (1987, p. 616) words, an aid inflow 'gives the finance ministry an opportunity to reshuffle the government's entire spending programme.' Thus, the aid inflow could well have the unintended (by the donor) consequences of leading to reductions in taxes, increases in subsidies, or increases in public consumption.

According to Mosley et al. (1992, p. 141), however, the problem of fungibility disappears if all of the recipient's development budget is financed by aid, since the scope for 'switching' is then removed. As this is virtually the case in MIRAB countries, it may be concluded that aid can have no detrimental effects upon their public saving performance. However, four reasons suggest that such negative effects remain a real possibility:

(i) in countries where budgetary aid is present, its impact on public saving can be somewhat perverse. According to Bertram (1986, p. 811), donors' criteria and expectations are such that any attempt by island governments

to run budget surpluses would only serve to decrease budgetary aid in the next period. As a result, the recipient government's incentive to be thrifty is removed and replaced by a willingness to squander money;

(ii) when project aid is granted in sufficient amounts to finance the entire development budget, the recipient government is freed from the need to save to fund capital expenditure. However, had no project aid been forthcoming, it is likely that some public investment would still have taken place, which may have required, *inter alia*, taxes to be raised or current expenditure to be reined in. Thus, project aid can lead to a lower level of public saving than would otherwise be achieved;

(iii) recurrent costs (on-costs) associated with the operation and maintenance of aid-financed projects are often required to be financed locally (World Bank 1991, pp. 79-82), thus creating a direct link between project aid and the level of public saving, although not usually in the same year; and

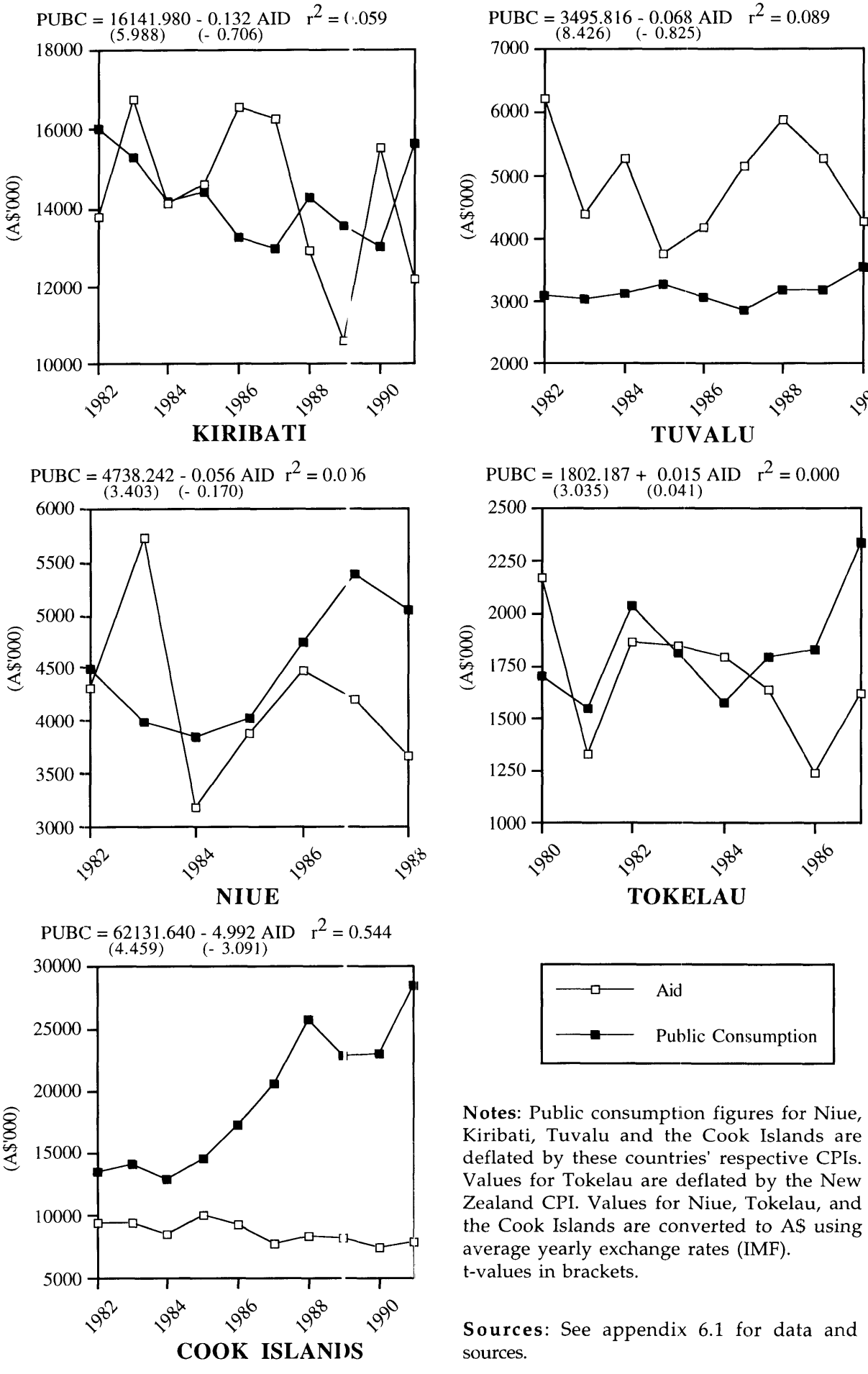
(iv) the administration, monitoring, and co-ordination of aid flows creates the need for a large number of civil servants, especially when there are many donors. According to Knapman (1986, p. 149), this increases governments' recurrent cost burdens, as 'the business of government becomes the aid business'.

Given the above reasons, the possibility that aid promotes a lower level of saving by the public sector, either through lower taxation or greater expenditure, appears to be deserving of study. Accordingly, the existence of such links in MIRAB countries is explored further in the two following sub-sections.

6.4.1 Government current expenditure

If foreign aid received by a country leads to an increase in current government expenditure, it should be possible to detect a positive correlation between these two variables. In Figure 6.3, the annual amounts of aid and public consumption (recurrent expenditure), expressed in real terms, are shown for the five MIRAB countries. In each case, the equation and r-squared value produced by the OLS regression of the two variables is also provided. As is apparent from both the diagrams and the regression results, the link between aid and public consumption appears to be very weak, with the exception of the Cook Islands. In all countries except Tokelau, the relationship is an inverse one, which is not what would be expected if aid encouraged public current expenditure. The

Figure 6.3 **Aid and public consumption in MIRAB economies**
(1980-91, 1982 A$'000)



Notes: Public consumption figures for Niue, Kiribati, Tuvalu and the Cook Islands are deflated by these countries' respective CPIs. Values for Tokelau are deflated by the New Zealand CPI. Values for Niue, Tokelau, and the Cook Islands are converted to A$ using average yearly exchange rates (IMF).
t-values in brackets.

Sources: See appendix 6.1 for data and sources.

positive relationship detected in Tokelau does not show a good fit, as reflected in a r-squared value of zero. The absence of a significant positive correlation between foreign aid inflows and public consumption in the MIRAB countries suggests that the four possible links envisaged between these two variables are not strongly influential in these countries. In particular, it appears that fungibility and the scope for the 'switching' of aid flows are effectively restricted by the large proportion of capital expenditure which aid finances. Undoubtedly, the fact that all MIRAB countries receive recurrent budget supplements in the form of budgetary aid or trust fund income, reduces the incentive of governments to 'redirect' part of the capital budget to fund consumption.

The absence of correlation also indicates that the 'by-products' of aid, that is, the hiring of civil servants for administration and monitoring purposes, and the incurring of on-costs, are not significant influences on public consumption levels. Regarding on-costs, there is evidence that they largely go unmet in some countries (AIDAB 1993, p. 21), which, if anything, tends to indicate that project aid *cannot* be easily diverted from its intended purpose.

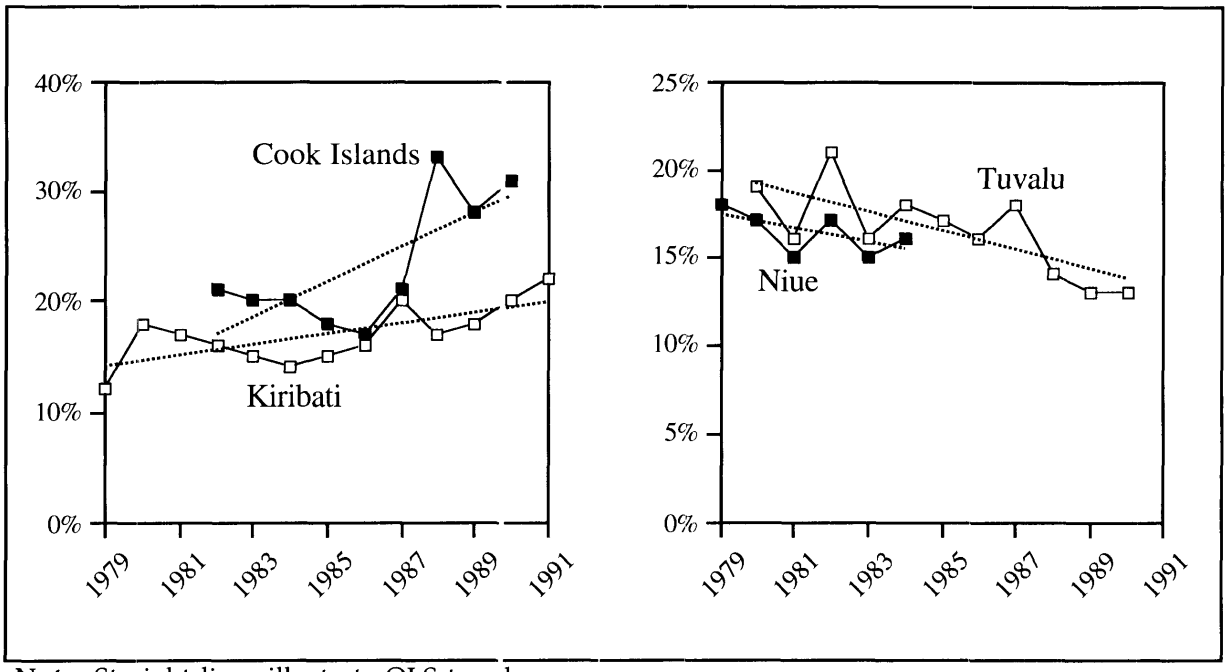
The fact that the level of public current expenditure does not appear to be affected by the provision of aid does not, in itself, guarantee that inflows of foreign savings do not displace public saving. As previously mentioned, the possibility exists that the availability of aid to finance capital expenditure, frees the government from the need to raise taxes, lower subsidies, or improve its tax collection efforts. This possibility is investigated below.

6.4.2 Taxation and subsidies

According to Mosley (1980, p. 86), 'the trend in the tax effort is probably a good proxy for the extent to which aid inflows are switched into consumption'. That is, if the ratio of tax revenue to the available tax base increases, it may be inferred that very little switching of aid resources into public consumption is occurring. Conversely, a falling tax effort, reflected in the reluctance to raise taxes, expand the tax base, or collect taxes that are due, would provide some indication of the fact that aid is being diverted from its stated purposes.

In figure 6.4, the trend in the tax effort, as measured by the ratio of tax revenue to GDP[3], is shown for four MIRAB countries. While considerable

Figure 6.4 **Tax revenue as a percentage of GDP in Kiribati, Tuvalu, the Cook Islands, and Niue** (1979-91)



Note: Straight lines illustrate OLS trends.
Sources: SPC; SPD; Mataio 1991.

fluctuations are apparent in some time-series, it is nevertheless possible to distinguish between two groups of countries. In Kiribati and the Cook Islands, the tax effort is relatively high and on a rising trend. In Tuvalu and Niue, the tax effort is relatively low and falling. According to the findings of the fiscal response literature, therefore, aid switching is less likely to have taken place in the former group, because of a greater commitment to raising taxes. Evidence of such a commitment is found in Kiribati, for instance, where the government introduced a number of tax reforms early in 1991, which were designed to broaden the tax base and improve tax collection efficiency (AIDAB 1992a, p. 12). In that country, greater reliance on taxation has also been motivated by the government's decision to limit drawdowns from the RERF as much as possible, while at the same time maintaining a balanced current budget (Kiribati 1992). By contrast, in Tuvalu, a falling tax effort was reflected in recurring deficits from 1988 to 1990, which had to be financed through bank borrowing (AIDAB 1993, p.

[3] Mosley (1980) uses the ratio of tax revenue to GNP. Sufficient data for the latter are, unfortunately, unavailable for MIRAB countries. Thus, a bias is unavoidably introduced given the gap, already mentioned, between GDP and GNP in some countries.

12). Further deficits were avoided in 1991 and 1992 due to trust fund income, but the chronic shortcomings of the tax system led to the implementation of a reform in 1993, designed to strengthen tax collection and broaden the tax base (ibid., p. 14, p. 40). Thus, a renewal of that country's tax effort may be expected.

The intensity of a country's tax effort may be gauged through the use of another proxy, namely the share of tax receipts within total current budget revenues. In table 6.5, these shares are given for selected MIRAB and non-MIRAB countries, in two separate years. As can be seen from the table, reliance upon taxation is considerably lower in MIRAB economies than in other South Pacific economies. According to this criterion, however, the tax effort increased

Table 6.5 **Tax revenue as a percentage of total recurrent budget revenue** (excluding budgetary aid and grants)

Country	1985	1990
Kiribati	28 (7)	43 (16)
Tuvalu	30 (8)	39 (18)
Cook Islands	50 (25)	64 (17 [a])
Niue	48 (35)	45 [b] (33 [b])
Solomon Islands	91 (33)	90 (30)
Vanuatu [c]	77	81
Fiji	83 (42)	86 (38)
Tonga	71 (11)	71 (11)
PNG	77 (40)	78 (38)
Western Samoa	81 (19)	73 (17)

[a] 1988 data. [b] 1989 data. [c] There are no direct personal or corporate income taxes in Vanuatu.

Note: Figures in brackets measure direct taxes as a percentage of total non-aid and non-trust fund revenue.

Sources: SPD; AIDAB 1991a, 1991b, 1992a, 1992b, 1992c, 1993, 1994a, 1994b.

in the second half of the 1980s, in all MIRAB countries except Niue (no figures are available for Tokelau). This is in contrast to the experience of other South Pacific nations, where the already high proportion of taxes in the current budget was generally stagnating during that period. The growing tax effort of the Cook Islands, already apparent in figure 6.4, is also evident in table 6.5, with that country the only one of the MIRAB group to rely on taxes to an extent

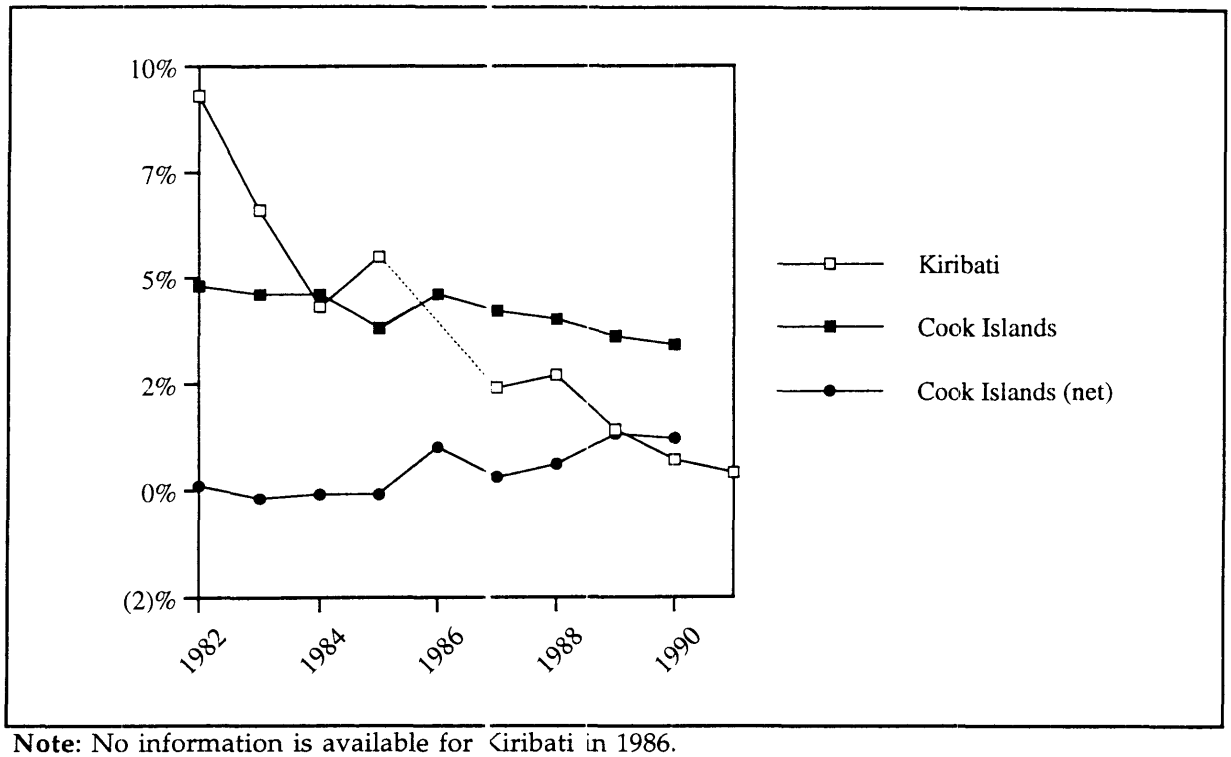
approaching that of non-MIRAB countries. In common with those countries also, the Cook Islands have seen the share of income tax to current revenue fall between 1985 and 1990. This trend was emulated by Niue, but not by Kiribati and Tuvalu.

The broad picture of taxation in the MIRAB countries, painted above, can only portray part of the fiscal stance of the governments concerned. As was noted in chapter 5 (see 5.3.2), the rapid expansion of their public sectors since independence has typically resulted in a multiplicity of statutory enterprises operating in the countries concerned. In many cases, these enterprises have consistently recorded losses, and have thus required government subsidisation. The impact of a large subsidisation program can be threefold: (i) it imposes a heavy burden on the government's finances; (ii) it can serve to perpetuate inefficiency and complacency in state-owned enterprises; and (iii) it deters private sector initiative and competition. All three effects have been recorded in the context of some MIRAB economies (e.g. Kiribati: World Bank 1991, pp. 172-74; Tuvalu: AIDAB 1993, p. 19). For these reasons, the governments of Tuvalu and Kiribati have become increasingly convinced of the need to adopt policies aimed at reducing subsidies, principally through the privatisation, commercialisation and corporatisation of government-owned assets. However, early indications (e.g. AIDAB 1992a; 1993) are that the success of these policies has been limited by shortages of private capital and entrepreneurial skills.

Data pertaining to public sector subsidies, only available for Kiribati and the Cook Islands, are presented in figure 6.5, as a percentage of GDP. As can be seen from this diagram, the relative magnitude of government subsidies in Kiribati was almost twice that of the Cook Islands, in 1982. Subsequently, however, subsidies in Kiribati decreased significantly, to the extent that they only amounted to 0.4 per cent of GDP in 1991. In the Cook Islands, subsidies also fell compared with GDP, but by a much smaller extent. In that country, however, the impact of subsidies on the budget is greatly tempered by the income which public enterprises contributed to it, so that net subsidies have been negative in some years, and only amounted to 1.2 per cent of GDP in 1990. No equivalent data are available for Kiribati.

On the strength of the partial evidence presented, the possibility that aid has displaced public saving by allowing the generous subsidisation of public enterprises appears a real one. In Kiribati, subsidy levels were particularly high until 1985. After the cessation of UK budgetary aid in 1986, subsidy levels have

Figure 6.5 **Subsidies granted to public enterprises in Kiribati and the Cook Islands** (per cent of GDP, 1982-91)



Note: No information is available for Kiribati in 1986.
Sources: SPD; Kiribati 1988, 1992.

been significantly lower and decreasing. In the Cook Islands, where the phasing-down of New Zealand budgetary aid only began in 1989, the need to reduce subsidies may not have been felt as keenly prior to that year.

Overall, government expenditure, taxation, and subsidy data available for four MIRAB countries do not unequivocally reflect the existence of a negative aid-public saving relationship, especially of the kind envisaged by the fiscal response literature. There appears to be little scope, in MIRAB countries, for the diversion of aid funds into recurrent expenditure. In fact, in an instance of 'reverse switching', a reduction in Kiribati's current expenditure during the second half of the 1980s, enabled the government to finance about 4-5 per cent of capital expenditure (World Bank 1991, p. 162). However, there is evidence to suggest that public saving in MIRAB economies may have been higher had it not been for the availability of aid, of the budgetary or project kind. This observation is based on circumstantial and often incomplete evidence, such as the low degree of reliance on taxation compared with other South Pacific economies, and on the granting of generous government subsidies in some countries. The case of the Cook Islands is particularly enlightening, in that respect. In that country, a fall in

the ratio of aid to GDP during the 1980s (see figure 5.3) has been accompanied by a rise in the tax effort, a fall in subsidies, and a rise in current expenditure. This may be interpreted as *a contrario* confirmation that relatively abundant aid inflows, while not necessarily encouraging public consumption, blunt the government's commitment to raising domestic revenue.

6.5 Aid and economic structure

As mentioned in chapter 3 (see 3.3.5), the impact of aid on the economic structure of the recipient has attracted growing attention since the mid-1980s. The application of trade theoretic and dependent economy models to the analysis of aid inflows has become variously known as the 'booming sector' or 'Dutch Disease' approach to aid. In essence, the argument underlying this approach is that aid inflows, through wage-price effects and balance of payments effects, can alter the internal terms of trade (real exchange rate) in an economy, in favour of non-tradable goods production, thus leading to a reallocation of resources in the economy and, hence, to a change in its economic structure.

As reviewed in chapter 4 (see 4.2.5), the MIRAB hypothesis draws significantly on this approach to explain a number of phenomena associated with the provision of aid and other rent incomes to South Pacific microstates. As described by MIRAB proponents, such phenomena may be broadly categorised as follows:

> (i) the crowding-out of labour and capital resources, away from the domestic subsistence and private sectors, towards the public and overseas sectors (Bertram and Watters 1985; Poirine 1994);
> (ii) the public sector-caused inflation of wages and other production costs, resulting in the lower competitiveness of the tradable goods sector, be it in export or domestic markets (Poirine 1994); and
> (iii) the overvaluation of the real exchange rate, effectively discouraging the expansion of tradable goods production (Bertram and Watters 1985; Bertram 1986; Ogden 1989)

In the context of South Pacific economies, mentions of the existence of 'Dutch Disease' effects of foreign aid and remittances do not emanate exclusively from MIRAB theorists. For instance, Cole and Parry (1986, p. 1) put such effects at the heart of the economic problems of some of the South Pacific islands. More

recently, the World Bank (1991, p. 79) invoked wage-price distortions as partial reasons for aid ineffectiveness in that region. Siwatibau (1991) attributes high agricultural wages and labour shortages in the Cook Islands to the influence of foreign aid. Ahlburg (1991, pp. 38-9) found evidence of remittance-induced Dutch Disease in Tonga and Western Samoa. In Tuvalu, AIDAB (1993, p. 10) notes the probable existence of aid and remittance-induced macroeconomic and factor markets distortions. Weisman (1990) used computable general equilibrium (CGE) analysis to isolate the booming sector effects of aid in PNG. He concluded that development assistance, through the channel of increased government demand, caused very substantial resource reallocation to occur in that country. He cautioned that such a shift of the economy away from its comparative advantage could leave the country in a very precarious economic situation if or when the boom ended. Finally, he added that his conclusions were equally relevant in smaller island nations of the South Pacific (ibid., pp. 19-23). However, Weisman (1990) only considered the spending effect of aid, and did not allow for the possibility that sectoral capital stocks could be increased by overseas assistance.

Paucity of data does not permit the use of CGE to investigate the incidence of the Dutch Disease in MIRAB economies. Accordingly, the inability to simulate a 'without aid' scenario means that any evidence of aid-induced economic distortions can only be circumstantial. Nevertheless, if the various symptoms of the disease can be identified with sufficient clarity, a strong case may be made for its existence, possible competing influences notwithstanding. The existence of such symptoms is ascertained below.

6.5.1 Real exchange rate and resource reallocation

In essence, the economic distortions associated with the Dutch Disease are attributable to an appreciation of the real exchange rate (RER). This rate can be expressed algebraically[4] as:

$$RER = \frac{e\,P_f}{P} \qquad (6.1)$$

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[4] Equation 6.1 is the conventional expression of the real exchange rate, found in international trade and open economy theory (e.g. Findlay 1973; Dornbusch 1980). In much of the Dutch Disease literature (e.g. Corden and Neary 1982; van Wijnbergen 1986), the real exchange rate is defined as the inverse of this ratio. These alternative definitions do not affect the meaning of the terms 'appreciation' and 'depreciation', however.

where RER = real exchange rate
e = nominal exchange rate (local currency price of foreign currency)
P_f = index of foreign prices in foreign currency
P = index of domestic prices in local currency

If the economy is both a price-taker and a free trader in world markets, the price of tradable goods is dictated by world prices, and hence must be equal to $e.P_f$ in local currency. The price of all goods (tradables and non-tradables) is P, in local currency also. If, for a given nominal exchange rate, e, the pace of inflation is more rapid in the local economy than overseas, P will increase more quickly than P_f, thus resulting in a fall in the value of RER. The real exchange rate is then said to have appreciated. Such appreciation could also be brought about by a fall in e (i.e. an appreciation of the nominal exchange rate), other things remaining equal.

A change in the value of the RER has profound implications for the structure of the economy as this rate measures the *internal* terms of trade within an economy. Put another way, it measures the price of tradables (expressed in local currency) relative to that of all goods in the economy. An appreciation of the RER means that producers of tradable goods are now faced with relatively lower prices for their output and relatively higher prices for their inputs (including, typically, labour). As a result, tradable goods production suffers from both a lack of international competitiveness, and a lack of profitability. There ensues a reallocation of resources towards non-tradable goods production, which is reflected in a deteriorating balance of trade on goods and services. At this point, the real exchange rate is said to be overvalued, that is, it has appreciated to an extent that hinders exporting and import-competing sectors. For international competitiveness to be restored, the RER has to increase (i.e. depreciate), a result which can be achieved through nominal depreciation or devaluation.

However, as is well known since seminal works on natural resources booms (e.g. Gregory 1976), exchange rate adjustments may be prevented by sizeable foreign exchange inflows in the current account of the balance of payments. While mineral, gas, or oil rents can trigger wage and inflationary pressures, and thus lead to an appreciation of the RER, they also allow balance of payments equilibria to coexist with a deteriorating performance of the traditional (non-rent receiving) export sectors. Thus, while the real exchange rate is

overvalued from the point of view of these sectors, it may be judged satisfactory from an economy-wide perspective and, hence, remain unadjusted.

Since MIRAB countries belong to either Australia's or New Zealand's currency zone, their nominal exchange rates are exogenously determined and, therefore, cannot be adjusted to pursue internal or external balance objectives. As inflation in MIRAB economies is primarily imported (Fairbairn 1994), the other determinant of their real exchange rate, the inflation differential with the rest of the world, is similarly beyond their control. Thus, MIRAB countries are largely unable to influence their international competitiveness through real exchange rate adjustments. According to Smith (1987, p. 258), real exchange rates in South Pacific countries are strongly affected by the value of the Australian and New Zealand dollars relative to other currencies. This is because South Pacific countries obtain a large share of their imports from Australia and New Zealand, but export relatively little to these countries. Thus, a stronger Australian dollar, for instance, would mean higher import prices initially, and higher general prices eventually, in the South Pacific country. Assuming that export prices have remained constant (in foreign currency terms) in the interval, an appreciation of the real exchange rate would result (loc. cit.).

As regards MIRAB countries, table 6.6 shows that the pattern of trade mentioned by Smith applies to Kiribati and, probably, Tuvalu, but not to New Zealand-linked countries. Since Kiribati and Tuvalu use the Australian dollar,

Table 6.6 **Importance of Australia and New Zealand in the foreign trade of MIRAB countries** (per cent)

Country	Imports	Exports	*Period*
Kiribati	41% (Aus)	1% (Aus)	*1985-90*
Tuvalu	38% (Aus)	..	*1980-85*
Cook Islands	..	87% (NZ)	*1986-87*
Niue	65% (NZ)	92% (NZ)	*1980-85*

Note: Percentages refer to Australia's or New Zealand's (in brackets) share of a MIRAB country's commodity imports and exports.
Sources: SPD; AIDAB 1992a, 1993.

an appreciation of that currency would leave import prices, wages, and general prices unchanged. However, export prices (denominated in foreign currency) would fall, thus resulting in a real exchange rate appreciation nonetheless. Thus,

ultimately, the international competitiveness of some MIRAB countries rests upon factors reflecting economic conditions conceivably quite different from their own.

The change in economic structure precipitated by relative price movements plays a pivotal role in the transition to a MIRAB state envisaged by Bertram and Watters (1985). The deterioration in the trade balance, the growth of the public sector, the internal and external migratory movements even, are phenomena that can, in principle, be attributed to such transition. Empirical investigation of the links postulated by these authors is, however, complicated by the existence of a host of other influences on relative prices in any economy. According to Warr (1986, p. 293), they are domestic monetary and fiscal policy, domestic price interventions, exogenous domestic supply shocks, and international commodity price movements. Not only must these additional influences be assumed constant in any comparative static analysis of booming sector effects, they must also be assumed to have remained unchanged by the boom, which is unlikely.

This must be borne in mind when examining table 6.7, in which measures of the relative importance of the tradable goods sector in selected South Pacific countries are given in three separate years. In that table, a somewhat narrow delineation of the tradable goods sector was adopted, to facilitate inter-country comparisons. For instance, no attempt was made to distinguish tradable services from non-tradable ones, as the two are routinely aggregated in national accounts statistics. In a country such as the Cook Islands, with a large tourism and off-shore financial sector, the bias introduced by such an omission will naturally be significant. Conversely, subsistence output was included in the tradables sector because of its incorporation into 'Agriculture' in some countries' accounts, and because it can be considered to be in competition with imports to some extent[5].

The distinction between tradable and non-tradable commodities is an artificial one in many respects. In principle, this distinction rests upon a market's (in)ability to set a price independently of world prices. In practice, reference is often made to import–domestic supply and export–production ratios to decide on the nature of a good or service (e.g. Weisman 1990). This is despite the fact that, in the case of an imported good for instance, a binding import quota could transform it into a *de facto* non-tradable good. Conversely, some authors have

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[5] For instance, if it can be assumed that subsistence foodstuffs are substitutes for imported foodstuffs, then a rise in the price of the latter will lead to an increase in subsistence output, as would be expected for a tradable commodity.

asserted that, except in the very short run, there could be no non-tradable goods in very small economies such as the MIRAB ones (Arndt 1994, p. 18). This argument rests upon the view that an increase in the local currency price of importables and exportables (e.g. as a result of a devaluation) would inevitably be transmitted to other sectors of the economy through wage/price effects. Thus, ultimately, all domestic prices are directly or indirectly determined by world prices (loc. cit.).

Table 6.7 **Tradable goods [a] output as a percentage of GDP in selected countries** (1982, 1986, 1990)

Country	1982	1986	1990
Kiribati	28	24	18
Tuvalu	9	19	29
Cook Islands	25	18	21
Fiji	34	32	30
Tonga	49	46	42
Solomon Islands	58	53	51
Western Samoa	52	51	44
Vanuatu	..	28	26
PNG	55	61	58

[a] Tradable goods are assumed to include output from agriculture (including subsistence), mining, forestry, fishing and manufacturing.
Sources: SPD; AIDAB 1991a, 1991b, 1992a, 1992b, 1992c, 1993, 1994a, 1994b.

Subject to the caveats above, the evidence presented in table 6.7 does not allow any generalisation concerning the hypothesised contraction of the tradable goods sector. In MIRAB economies, such a contraction is only clearly discernable in Kiribati, where a 10 per cent reduction in the relative size of tradable output occurred between 1982 and 1990. Over the same period, the share of tradable goods in Tuvalu's GDP more than trebled. Inspection of national accounts data reveals that the trends experienced by these two countries were primarily due to a change in the share of agriculture (including subsistence): while, in Tuvalu, this share rose from 5.1 per cent in 1982 to 19.2 per cent in 1990 (AIDAB 1993, p. 49), it fell from 25.7 to 16 per cent during the same period in Kiribati (SPD). In the Cook Islands finally, the share of the tradables sector was broadly constant, although the inclusion of the tourism sector would undoubtedly modify this conclusion. In 1990, tourism receipts in that country were estimated at NZ$27.4

million (Mataio 1991), a figure in excess of the value of tradable output used in the construction of table 6.7 (NZ$22.3 m). By contrast, Kiribati's tourism receipts were estimated at US$ 1 million in 1988 (World Bank 1991, p. 58). No figures are available for other MIRAB economies.

In the rest of the South Pacific region, a clearer trend is discernable: except for Vanuatu and PNG, all non-MIRAB countries have seen the share of their tradable output fall over the period under consideration. In all likelihood, the decline in the relative importance of tradable output in those countries is a reflection of the expansion of the public sector throughout the 1980s (World Bank 1991). Unlike in Kiribati, however, this decline started from a higher initial level, and has been somewhat slower on the whole.

The data on changes in output shares can only provide part of the answer to the question concerning the existence of the Dutch Disease in MIRAB economies. This is because, while the share of tradables in GDP may be increasing, the relative size of that sector could still be held in check by underlying Dutch Disease effects. In order to ascertain whether this is true of some MIRAB countries, an alternative method of Dutch Disease detection, devised by Gelb et al. (1988, ch. 6), is implemented. This method consists in comparing the GDP shares of agriculture and manufacturing (i.e. tradables) in one country to a norm established with reference to other countries which have reached a similar level of development[6] and are free of the disease. In table 6.8, the actual shares for three MIRAB countries are shown, alongside the corresponding norms based on a three-country average.

Table 6.8 **Comparison of actual and normal shares of tradable output in three MIRAB countries** (per cent of GDP)

		Agriculture [a]		Manufacturing [b]		Countries of
Country	Year	Actual	Norm	Actual	Norm	reference
Kiribati	1989	28	31	2	29	Ivory Coast, Philippines, Senegal
Tuvalu	1985	10	23	2	31	Mauritania, Bolivia, Zambia
Cook Islands	1986	13	19	5	38	Uruguay, Hungary, Mexico

[a] Includes forestry, fishing, and subsistence output. [b] Includes mining.
Sources: World Bank, *World Development Report*, various issues; SPD; AIDAB 1992a, 1993.

[6] Measured by their GNP per capita.

As is immediately apparent from the table, the GDP shares of tradables sectors are significantly smaller in MIRAB countries than in comparable developing countries. A possible exception may be the share of agriculture in Kiribati, which is only marginally below the norm. The deviation from the norm is especially striking with respect to the manufacturing sector which, instead of making up about a third of GDP, never rises above 5 per cent in the three MIRAB countries shown. Undoubtedly, part of the reason for the existence of this shortfall lies with the special obstacles facing island microstates, especially as small and isolated as those considered here, where such factors as high transport costs and small domestic markets inevitably restrict the size of the manufacturing base. However, the fact that agriculture itself is, in some cases, significantly below the international average suggests that its growth may have been impaired by the kind of economic distortions associated with the Dutch Disease, such as an appreciation of the real exchange rate, examined below.

The empirical investigation of relative price movements between tradable and non-tradable goods and services requires the construction of price indices for these two categories. In the Cook Islands, where implicit sectoral GDP deflators are available, they have been used to construct weighted (by GDP shares) indices of tradables and non-tradables prices. In countries without deflators, such as Kiribati, Tuvalu and Niue, retail price indices were used as proxies. The use of such proxies is common: Warr, for instance, used the housing series within the CPI to approximate non-tradables prices in Indonesia (1986, p. 294). In the following analysis, this series and those for household maintenance and domestic transport have been combined in a weighted (by CPI shares) average, to obtain a non-tradables price index. As a proxy for the price of tradables, food, alcohol, and tobacco prices have been used in identical fashion, as these commodities figure prominently in import statistics. As price indices for traded commodities, export prices are generally considered less reliable as they are product-specific, and hence strongly influenced by world market conditions (Warr 1986, p. 294).

Relative price movements between tradables and non-tradables in three MIRAB countries are illustrated in index number format in figure 6.6. As is apparent from the diagram, both Kiribati and the Cook Islands have experienced a real exchange rate appreciation between 1982 and 1990. This is implied by the fall in the price of tradables relative to non-tradables in these countries[7].

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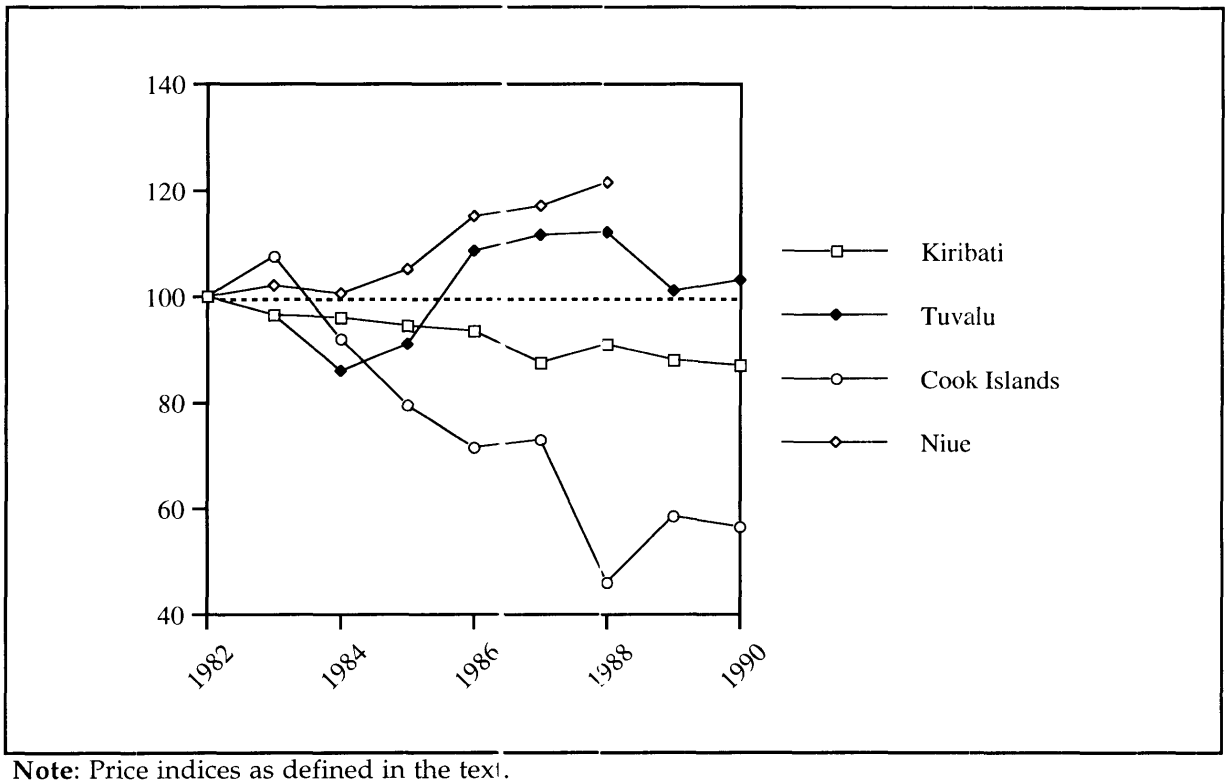
[7] Technically, a real exchange rate appreciation implies a fall in the price of tradables relative to that of *all* goods and services, tradable and non-tradable. However, given that both tradables and

Figure 6.6 **Ratio of the price of tradables to the price of non-tradables in four MIRAB countries** (per cent, 1982-90)



Note: Price indices as defined in the text.
Sources: Constructed from SPD; AIDAB 992a, 1993.

Conversely, in Niue, the real exchange rate has depreciated steadily between 1980 and 1988. In Tuvalu, finally, the real exchange rate has gone from an initial appreciation to a subsequent depreciation. Close inspection of CPI indices for that country reveals that this reversal in the relative price index was due to an 18 per cent reduction in the cost of housing, especially its maintenance cost component, between 1984 and 1986 (SPD). Given the limited information available, it is not possible to say whether this reduction was due to market forces, to price regulation, or to a change of coverage of the index. Thus, it is uncertain whether this fall in the price of housing is a reflection of a wider trend in the price of non-tradables. However, the increase in the share of tradable output observed in table 6.7 may be seen to lend support to the hypothesis that a real exchange rate depreciation did occur in Tuvalu, at some stage during the 1980s. No such claim is warranted in relation to Kiribati, where the combination of a declining share of tradable output, a smaller than normal tradables sector, and a steadily appreciating real exchange rate points to a 'standard' case of Dutch Disease. The

non-tradables enter the general price index (albeit with different weights), a real exchange rate appreciation will necessarily follow an increase in the price of non-tradables relative to that of tradables.

situation is less clear-cut in the Cook Islands, despite the near doubling of the relative price of non-tradables between 1982 and 1990. As mentioned in relation to table 6.7, the tradable goods sector's share of GDP is likely to have expanded in that country, during the 1980s. This conclusion is supported by the fact that most of the growth in real GDP over that decade has been attributed to tradable goods or services such as tourism, manufacturing, pearl shell production, and off-shore finance (World Bank 1991, p. 48 . Of course, it is possible for the growth in the tradables sector to have taken place in spite of the Dutch Disease; the fact that the size of the agricultural and manufacturing sectors lags behind international standards (see table 6.8), suggests that the existence of booming sector effects cannot be discounted entirely. For this reason, the next section seeks to identify any direct links between foreign aid and commodity and factor market distortions.

6.5.2 Effects of aid on commodity and factor prices

In this section, the question of whether aid impacts on the real exchange rate through the same transmission channels as, say, revenue from a natural resource boom, is investigated. In the event that a significant link between aid and commodity prices, or aid and factor prices, was detected, it would be possible to conclude that, at the very least, the potential for an aid-induced Dutch Disease was present in the economy concerned.

The link between income windfalls and prices is a central concern of the booming sector literature. According to Neary and van Wijnbergen (1986, p. 2), the link is in the form of a 'spending effect', whereby higher domestic incomes as a result of the boom, lead to extra expenditure on both traded and non-traded goods. This is a 'real' effect; there may be, in addition, a 'monetary' effect, due to the balance of payments implications of the boom. If large aid inflows lead to balance of payments surpluses and hence to the accumulation of external assets, inflation may result from money creation, which would also result in the real exchange rate being altered (Edwards 1986, p. 229). Furthermore, as already mentioned (see 6.5.1), balance of payments surpluses may see the nominal exchange rate appreciate, which would further lower the real exchange rate.

A second channel mentioned by Neary and van Wijnbergen (1986, p. 2) is the 'resource-movement effect', whereby factors of production shared by booming and non-booming sectors will see their prices bid up, thus reinforcing

the tendency towards an appreciation of the real exchange rate. The impact of foreign aid on wages and interest rates must, therefore, be considered a possible explanation for any Dutch Disease experienced by MIRAB economies.

As was seen in 6.3.2 above, aid, along with other forms of rent income, is a major contributor to the sum of resources from which absorption is financed in a MIRAB economy. As such, it is reasonable to expect the kind of 'spending effect' suggested in the literature to follow the injection of these unrequited transfers. Also, aid has contributed to balance of payments surpluses (AIDAB 1992a, 1993), which could have resulted in the 'monetary effect' already mentioned. If one, or both, of these effects is in operation in MIRAB economies, it should be possible to detect a positive link between aid flows and the price level. More importantly, it should be possible to detect an inverse relationship between proportional changes in the real level of aid on the one hand, and in the ratio of tradables prices to non-tradables prices (the 'relative price ratio') on the other hand. This is due to the fact that, while aid cannot affect the price of tradables in the short run, it can lead to increases in the price of non-tradables (as demand for them increases without commensurate increases in supply).

In table 6.9 , results of an OLS estimates of the relationship between real aid flows and the real exchange rate (both variables being expressed in natural logarithm form) during the 1982-90 period are presented. Following van Wijnbergen (1985, cited in White 1992a, p. 218), two possible time frames for the hypothesised relationship were tested: same period and one year-lagged.

Overall, the picture which emerges from these regression analyses does not support the hypothesised negative relationship between aid and the real exchange rate. In three of the four countries considered, there is no significant relationship between proportional changes in the real level of aid and in the ratio of tradables prices to non-tradables prices, either in the same period or in the following year. Thus, even in Kiribati, where clear symptoms of the Dutch Disease were detected, aid does not appear to exert a significant influence on the real exchange rate. From this observation, it may be concluded that Kiribati's real exchange rate fluctuations owe more to the reasons invoked by Smith (1987: see 6.5.1). In the Cook Islands, where a significant relationship was detected, both simultaneous and one year-lagged, the sign of the coefficient for aid was not negative as expected. Instead, a positive value reflected the fact that the relative price ratio had fallen at a time when the real value of aid was falling also.

Table 6.9 **OLS estimation of the relationship between real aid flows and the real exchange rate**

Country	Dependent variable [a]	Independent variable [a]	Intercept	Coefficient of aid	n=	Adjusted R^2	Durbin-Watson statistic
Cook Is.	P_t/P_{nt}	Aid	- 11.476	1.740*	9	0.271	1.881
			(1.452)	(1.996)			
Niue	P_t/P_{nt}	Aid	5.121	- 0.052	7	- 0.183	0.513
			3.124)	(- 0.265)			
Tuvalu	P_t/P_{nt}	Aid	3.579	0.121	9	- 0.083	1.076
			2.139)	(0.617)			
Kiribati	P_t/P_{nt}	Aid	3.936	0.061	9	- 0.104	0.897
			3.266)	(0.491)			
Cook Is.	P_t/P_{nt}	Aid_{-1}	- 17.205	2.363**	8	0.480	1.892
			(2.190)	(2.732)			
Niue	P_t/P_{nt}	Aid_{-1}	5.456	- 0.090	6	- 0.190	0.563
			3.221)	(- 0.446)			
Tuvalu	P_t/P_{nt}	Aid_{-1}	5.719	- 0.129	8	- 0.103	0.979
			3.033)	(- 0.586)			
Kiribati	P_t/P_{nt}	Aid_{-1}	3.464	0.110	8	0.013	1.121
			3.437)	(1.046)			

[a] Logged. * Significant at the 95 per cent level of confidence (df=7). ** Significant at the 95 per cent level of confidence (df=6).

Notes: t-values in brackets.

P_t/P_{nt} is the relative price ratio.

Aid_{-1} is aid in the previous year.

Source: Author's calculations from data shown in appendix 6.2.

Insofar as inferences can be drawn from linear regression analysis based on very short time-series, the spending and monetary effects envisaged in the Dutch Disease literature do not seem to have operated strongly in MIRAB countries, during the 1980s. This may be due to the fact, already mentioned, that the real exchange rate of some of these countries is strongly influenced by variations in the nominal exchange rate of the metropolitan country. It could also be due to the fact that inflation in the MIRAB economies is primarily imported. Fairbairn (1994) has shown that there is a close correlation between inflation rates in Kiribati, Tuvalu and Australia, and between those in the Cook Islands and New Zealand, a phenomenon which he attributes to the very high ratio of imports to GDP in the island economies. Moreover, because of the absence of a separate currency, exchange rate policy is not available to insulate the MIRAB economy from world inflation.

In practice, imported inflation in the MIRAB countries is underwritten by balance of payments surpluses, which lead to increases in the money supply (Fairbairn 1994). The rudimentary nature of financial sectors in these countries means that this monetary expansion cannot be sterilised easily by the central bank (or its equivalent). Insofar as foreign aid is a major credit item in the balance of payments, it can be regarded as a facilitating factor of imported inflation. However, in a small, open economy with a fixed exchange rate, adjustments in money balances would result in world inflation being fully imported sooner or later, even in the absence of aid and remittances. This type of inflation will initially affect prices in the tradables sector. In due course, prices of non-tradables will adjust upward to reflect the higher cost of inputs to that sector. For the price of non-tradables to rise faster than that of tradables, it must be the case that there are domestic inflationary forces in operation as well. One possible source of money supply increase and inflation, is the expansion in the level of total domestic credit outstanding (AIDAB 1992a, p. 13). However, it appears to have played only a minor role in most MIRAB countries, except in the Cook Islands where money-financing of deficits by the government has contributed to inflation to some extent (Fairbairn 1994). In that country, over-reliance on the printing of Cook Islands dollars (legal tender alongside New Zealand dollars) resulted in their withdrawal from circulation after a currency exchange crisis erupted in 1995 (*The Australian* 21-22 Jan. 1995, 13 Mar. 1996). In Tuvalu, the government resorted to bank borrowing to cover budget deficits during the 1988-91 period, without significant inflationary effects (the debt was retired fully in 1992) (AIDAB 1993, p. 12). In Kiribati, finally, the government's position with its banker (the Bank of Kiribati) was one of surplus savings in the early 1990s (AIDAB 1992a, p. 13). In general, monetary expansions originating domestically are likely to be short-lived in small open economies of the kind considered here. This is due to the fact that, as the money supply increases, residents find themselves with excess money balances which they attempt to reduce through purchases of goods and assets. This will result very quickly in a deterioration of both the current and capital accounts of the balance of payments. The ensuing reduction in the level of foreign exchange reserves means that the initial increase in the money supply is eventually negated.

Turning to factor prices, their detailed analysis is prevented by a lack of sufficient data. In the area of wages particularly, existing series are few, and cover disparate forms of remuneration and time periods. These shortcomings notwithstanding, it is possible to test the hypothesis, common to both the Dutch Disease theory and the MIRAB model, that aid promotes real wage growth. In

table 6.10, OLS estimates of the log-linear relationship between the real level of aid and real wages are given for Kiribati and the Cook Islands. These estimates reveal the existence of a positive and significant relationship between aid and wages in the Cook Islands during the 1980s. In Kiribati, no significant relationship was detected.

Table 6.10 **OLS estimation of the relationship between real aid flows and real wage rates in two MIRAB countries**

Country	Dependent variable [a]	Independent variable [a]	Intercept	Coefficient of aid	n=	Adjusted R^2	Durbin-Watson statistic
Cook Is.	Real wage	Aid	- 2.654	0.360*	12	0.669	1.434
(1979-90)			(- 3.898)	(4.826)			
Kiribati	Real wage	Aid	6.296	0.161	13	0.057	0.723
(1979-91)			5.358)	(1.315)			

[a] Logged. * Significant at the 95 per cent level of confidence (df=10).
Notes: t-values in brackets.
Real wage as defined in the text
Sources: Author's calculations from data shown in appendix 6.3.

Caution must be exercised when interpreting and comparing the results of these regression analyses, as the time-series involved are not identical. In Kiribati, the real wage used is the weighted average of government salary levels (Sinclair 1993, p. 86), deflated by the CPI. In the Cook Islands, the real wage is defined as the net hourly wage earnings (Mataio 1991, p. 146) deflated by the CPI. In Kiribati, the nature of wages used in the regression may partly explain the lack of a significant relationship. While it is accepted that, in that country, government wages reflect those in the formal sector at large (AIDAB 1992a, p. 15), these wages are not entirely market-determined. This is because of an explicit government policy to contain the growth in public service real wages (World Bank 1991, p. 162). Thus, wage increases were only granted to public servants once every two years, on average, between 1979 and 1991 (Sinclair 1993).

It is not known whether a similar containment policy was in operation in the Cook Islands in the 1980s. In that country, the economy-wide real wage fell generally during that period; this, when combined with falling real aid levels, explains the positive and significant relationship detected. However, this correlation may reflect nothing more than the influence of a third variable, such as inflation, on both the dependent and independent variables. If *rising* real levels of aid had been associated with *rising* real wages, rather than the opposite,

the likelihood of a Dutch Disease process taking place would have been stronger. As it is, the econometric evidence must be viewed as inconclusive.

The very rudimentary structure of the financial sector in MIRAB economies, combined with the absence of a separate currency and controls on overseas funds transfers, precludes the operation of an independent interest rate policy. Although, technically, interest rates are set locally, King has shown that both the level and range of interest rates in Kiribati, Tuvalu and the Cook Islands, mostly mirror those of metropolitan countries (1993, p. 13, cited in Fairbairn 1994, p. 9). What differences emerge concern the stability and spread of interest rates, both of which are greater in MIRAB countries than in the reference currency countries (RCCs) of Australia and New Zealand. According to Fairbairn (loc. cit.), these differences reflect country-specific factors such as transaction costs, lack of competition, inadequate collateral, risk premiums, and cultural environment.

The economic implications of the interest rate regime prevailing in MIRAB economies are a matter of debate. Fairbairn (1994, p. 9) remarks that it would be surprising if interest rates levels in RCCs were appropriate for these economies, 'given the many contrasting factors apparent in the economic circumstances of the small island countries and the RCCs'. In particular, he sees wide deposit-lending rates margins as 'blunting the incentive to save and limiting the demand for investment funds.' (loc. cit.) This view is, however, criticised by Arndt (ibid., p. 20), who argues that such margins can be expected to have little effect on either depositors or borrowers in an environment where the demand for credit is largely rationed. Finally, King (1993, p. 14, cited in Fairbairn 1994, p. 10) takes the pragmatic stand that, as long as MIRAB economies share the same economic cycles as RCCs, it is also appropriate that they should share the same interest rate structures.

In terms of the 'Dutch Disease' debate, the crucial issue is whether the interest rate regime would be different in any way, were it not for the ready availability of aid. As with most counter-factual questions, only speculative answers can be provided. As previously mentioned, interest rates would normally be expected to increase during a traditional Dutch Disease episode. This is because the 'spending effect' associated with, say, a natural resource boom leads to an increase in the derived demand for capital, the price of which is then bid up. In addition, interest rates may be driven up by the government's attempts to sterilise the money supply-increasing effects of the boom, through domestic

credit controls. While foreign aic has been reported as producing such effects in other parts of the world (e.g. Yo ınger 1992 for Ghana), there is no evidence that it has done so in MIRAB countr es. Neither is there *a contrario* evidence that, in those countries, foreign aid has served to keep interest rates at a lower level than would otherwise prevail, by adding to the pool of investible resources. In an economy closed to foreign capital inflows, the removal of a large portion of these resources (i.e. aid) would lead tc capital rationing, with only the most profitable projects qualifying for funding If capital markets were competitive, lending interest rates would equal the marginal productivity of capital, and would therefore increase considerably. Such an increase is, however, not conceivable in the extremely open MIRAB ecc nomies; the absence of foreign exchange and capital transfers controls would see investors turn *en masse* to off-shore sources of finance. In the final analysis, it seems probable that an aid-less MIRAB economy would be no more able to escape the pull of international financial centres than its non-MIRAB Sou h Pacific counterparts. As table 6.11 shows, the existence of independent currencies and of relatively low levels of foreign aid in that second group of countries, has not led to significant interest rates differentials with MIRAB countries or RCCs, on the whole.

Table 6.11 **Lending and borrowing interest rates in selected South Pacific countries** (1991, per cent)

Country	Business Loans	Large deposits	Interest spread
Kiribati	13 0	7.4	5.6
Tuvalu	13 0	4.0	7.0
Cook Islands	15 5	8.8	6.7
Fiji	12 4	8.5	3.9
Tonga	13 5[a]	8.5[a]	5.0
Solomon Islands	17 0[b]	8.0[b]	9.0
Western Samoa	9-13	..	n.a.
Vanuatu	8-17	5.5-8	11.5
PNG	13 4	10.1	3.3
Australia	14 0	9.4	4.6
New Zealand	14 2	10.3	3.9

[a] Rates in effect prior to dere gulation in mid-1991. [b] 1989 figures.
Sources: AIDAB 1991a, 1991), 1992b, 1992c, 1994a, 1994b; Fairbairn 1994.

Thus, it may be concluded that aid has not had a significant impact on interest rates in MIRAB economies.

6.6 Conclusion

Upon examination, through the prism of both the international and South Pacific aid literature, of the recent economic record of some MIRAB countries, two general remarks are in order:

(i) in spite of their unique characteristics, MIRAB countries can exhibit many of the problems associated with aid in other developing countries; and
(ii) for all their apparent similarities, these countries' recent economic experiences have often diverged to a considerable extent.

The various findings underlying these remarks are summarised in table 6.12, for convenience. Notwithstanding the existence of several empty cells in the table, it is clear that no uniform conclusion regarding the effects of aid in the economies studied is warranted. While no single country appears to suffer all of the recorded adverse effects of aid, no country can claim to be entirely free from them either. Disregarding Niue and Tokelau, for which little or no data are available, Kiribati emerges as the most likely example of 'aid failure'. This contention is strongly predicated on this country's dismal growth performance, and on fairly strong circumstantial evidence of a Dutch Disease process.

Table 6.12 **Summary of findings regarding the effects of aid in MIRAB economies**

Country	Kiribati	Tuvalu	Cook Islands	Niue	Tokelau
Relationship between:					
Aid and growth	None?	Positive	Positive	n.a.	n.a.
Aid and total saving	None	n.a.	n.a.	n.a.	n.a.
Aid and public expenditure	None	None	Inverse	None	None
Aid and the tax effort	Inverse?	Inverse?	Inverse	Inverse?	n.a.
Evidence of Dutch Disease:					
Tradables sector contraction	Yes	No	No?	n.a.	n.a.
Tradables sector too small	Yes	Yes	Yes	n.a.	n.a.
RER appreciation	Yes	Indeterminate	Yes	No	n.a
Wage increases	No	n.a.	Positive?	n.a.	n.a.

Notes: Question marks denote the result which is most likely, on balance.
n.a. = not applicable (no data were available for that country).

However, as was mentioned in relation to findings of real exchange rate appreciation, tradables sector contraction, and real wage increases, the possibility that aid plays but a fairly minor role in those phenomena, cannot be discounted on the basis of the regression analyses conducted. In Tuvalu and the Cook Islands, Dutch Disease symptoms are also present but, whether too few or too weak, they have not been sufficient to suppress strong economic growth. In all MIRAB countries, data deficiency is the source of much ambiguity. However, so is the counter-factual nature of the problem at hand; in an economy where large aid flows have been a long-standing feature, unravelling their influence from that of other macroeconomic variables can be little more than an exercise in subjectivity.

Ultimately, the results summarised in table 6.12 above may be of greatest significance when reporting the failure to identify one or more possible sources of aid ineffectiveness. When many such sources seem to be absent, as in the case of the Cook Islands or Tuvalu, the proposition that aid exerts a favourable influence on the economies concerned becomes a more defensible one. At the very least, aid may not be as readily invested with the sinister role that its critics commonly attribute to it.

CHAPTER 7

ONE SECTOR MODEL OF THE MIRAB ECONOMY

7.1 Introduction

In this chapter, a first attempt is made to investigate analytically some of the macroeconomic effects of aid in MIRAB countries. To this end, a one-sector model of the formal economy is constructed, which incorporates some important MIRAB characteristics, in addition to the standard small open economy features. The model is then used for comparative static analysis purposes, both in a short run and long run context. As was seen in chapter 3, one-sector models, often inspired by the Harrod-Domar growth model, are common in the aid literature, especially in its earlier manifestations (e.g. Chenery and Strout 1966; Voivodas 1973; Gupta 1975). More recently, authors have sought to highlight the impact of aid on different sectors of the economy, so that multi-sectoral models have been used with increasing frequency (e.g. Levy 1985; van Wijnbergen 1986; Hill 1988). Notwithstanding this evolution in analytical tools, a one-sector model remains a useful starting point for examining some of the broader economic consequences of aid. In particular, the implications of development assistance for output growth are, arguably, more easily identified within a single-sector model. This is because, in a multi-sectoral framework, the impact of aid is inevitably complicated by inter-sectoral relationships. However, what is gained in clarity is often lost in realism, so that potentially important economic mechanisms are beyond the scope of the analysis based on a single sector. An attempt to remedy this shortcoming is made in the next chapter, in which some of the sectoral effects of aid are captured in a two-sector model. The aim assigned to the present chapter, purposely more modest, is to present a broad-brush investigation of the effects of aid in what might be considered a 'typical' MIRAB economy. In the next section, the assumptions made concerning this economy are introduced and discussed. This is followed, in section 7.3, by the derivation and illustration of the model's results. Then, in the penultimate section, these results are re-examined on the basis of modified labour mobility assumptions.

7.2 Assumptions

The model developed in the next section is a variant of that used by Corden (1984) to analyse macroeconomic policy-making in extremely open economies such as Singapore. Treadgold (1992) has shown how Corden's framework could be adapted to describe the economic circumstances of microstates, of which MIRAB economies form a subset. While Treadgold's concern was the scope for short run macroeconomic stabilisation policies in such countries, his approach can be extended to examine the implications of an aid inflow for economic growth.

A number of assumptions are introduced below, which are designed to simplify the analysis while encapsulating the main economic features of the five economies under consideration. Thus, it is useful to think of the model as describing the economic structure of a composite rather than a specific MIRAB country. Undue reliance upon stylised facts for model-building purposes can lead to conclusions that are equivocal at best, unrealistic at worst. If used sparingly, however, such facts can help ensure the model gives a representation of the economy which is wholistically accurate, without being too cumbersome in its use. In any event, it is the responsibility of the model-builder to evaluate the extent to which a departure from the assumptions underlying the model, would affect its results.

These assumptions are:

(i) *smallness*: the country is a price-taker for both its exports and imports, hence the demand for exports and the supply of imports are perfectly elastic. This assumption is clearly appropriate in the case of the MIRAB economies, whose individual shares in the volume of world, or even regional, trade are minute;

(ii) *openness*: all output is tradable, implying that domestically produced and consumed goods see their price determined in world markets. The assumption that all goods are either exportable or importable is an obvious over-simplification, particularly in the short run. However, an even greater loss in realism would be sustained if the unique good was made non-tradable;

(iii) *one good only*: as long as the terms of trade are exogenously determined [as implied by assumption (i)], exportable and importable goods can be treated as a unique composite good (Corden 1984, p. 28);

(iv) *fixed exchange rate*: this assumption rests upon the fact that all MIRAB countries use a metropolitan country currency as legal tender. When a separate, locally-issued currency is also in circulation, it is interchangeable at par with its metropolitan counterpart (e.g. Cook Island and New Zealand dollars). In all MIRAB economies therefore, the exchange rate regime is akin to a local currency pegged to a unique foreign currency. A similar regime can be found in other South Pacific countries, such as the French overseas territories of New Caledonia and French Polynesia. The fact that, in MIRAB countries, the nominal exchange rate between the two currencies is equal to one and that they share the same name, does not detract from this interpretation. Thus, these economies operate under an exogenously determined—or fixed—exchange rate;

(v) *unrestricted migration outlet*: strictly speaking, such outlets are only available to the three countries with links to New Zealand. In Kiribati and Tuvalu, while emigration outlets exist, they are considerably less accessible and mostly temporary. Nevertheless, their impact on the domestic labour market cannot be overlooked, through supply-side and wage expectations effects (Bertram 1986, p. 811). The implications of relaxing this assumption are examined in section 7.4;

(vi) *perfect capital mobility*: as seen in chapter 6 (see table 6.11), interest rates in MIRAB countries are broadly on par with those in reference currency countries (RCCs). Capital mobility, combined with the existence of close links between island and RCC banks, means that large interest rate differentials cannot emerge. In Tuvalu, for instance, the National Bank of Tuvalu (the only bank) has been guided by rates paid for its Australian denominated deposits in Singapore, Hong Kong and Australia (Fairbairn 1994, p. 9). Given these external references, interest rates in MIRAB countries are a reflection of the marginal productivity of capital in developed countries. It is unlikely, however, that they will also reflect the rate of return on capital in MIRAB economies themselves. As mentioned in chapter 5 (see 5.3.2), these economies are often characterised by a shortage of profitable private investment opportunities. This shortage implies that commercial interest rates probably exceed the private rate of return on capital at the margin (although possibly not the social rate of return). In the model, therefore, it is assumed that perfect capital mobility keeps interest rates constant, while the marginal product of capital varies inversely with the capital-labour ratio;

(vii) *well-behaved, continuous, constant returns to scale production function:* the use of this conventional functional form is designed to

facilitate the analysis. Its properties include, inter alia, positive and diminishing marginal returns, and linear homogeneity; and

(viii) *profit maximisation*: in normal circumstances, the profit motive provides a more accurate description of the behaviour of private sector firms than that of public enterprises. However, given the large range of commercial activities undertaken by MIRAB governments, and given the recent trend towards the corporatisation and privatisation of public enterprises, assigning this motive to the entire supply side of the economy, for the purpose of simplification, appears justified.

7.3 The model

The assumptions outlined above have important implications for the determination of some key macroeconomic variables in the model, such as the price and real wage levels. Specifically:

(i) the only price level which is sustainable in the domestic economy is that prevailing in the rest of the world (i.e. the RCC), converted to local currency:

$$P = e.\,P_f = P_f \qquad (7.1)$$

where P = domestic price level
e = the local currency price of a foreign currency unit (here equal to one)
P_f = world price level

For simplicity, possible sources of inequality between P and P_f, such as transport costs, indirect taxes, or subsidies, are ignored; and

(ii) the real wage level in existence in the local economy is necessarily aligned with that of the migration outlet; given that price levels are identical in both economies, the same alignment will apply to the money wage:

$$\frac{W}{P} = \frac{W_f}{P_f} \Rightarrow W = W_f \qquad (7.2)$$

where W = domestic money wage
W_f = foreign money wage

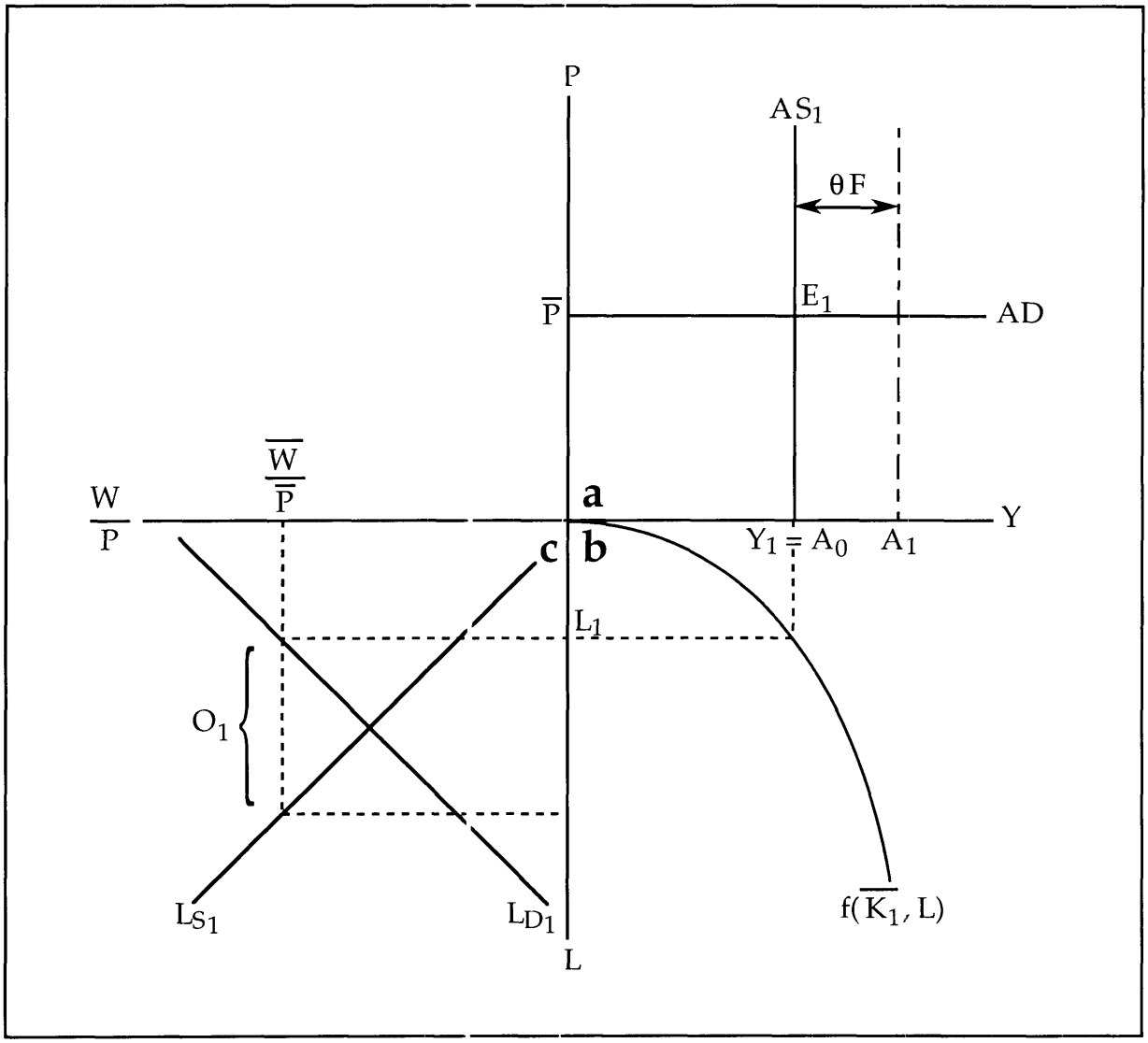
In reality, domestic wages are likely to be lower than metropolitan ones, because of such factors as the financial and psychological costs of migration, and the probability of unemployment in the metropolitan country. Bertram's (1986, p. 814) suggestion that 'the local wage must suffice to "hold" footloose labour, by at least matching the subjectively-perceived opportunity wage' provides a more apt description of the relationship between the two levels of remuneration.

As could be expected under the model's assumptions, the MIRAB economy is largely bound by its external economic environment, as is reflected in the exogenous determination of the domestic price and wage levels. This situation is not dissimilar to that of a relatively small region or state in a large country, which is constrained by, for instance, the level of interest rates or exchange rates determined at the national level (see e.g. Ingram pp. 237-8). The implications of such constraints for the short run impact of aid in the MIRAB economy are now considered.

7.3.1 Short run

Given equations 7.1 and 7.2, and assuming a constant world price and real wage levels ($\overline{P_f}$, $\overline{W_f}$ respectively), the aggregate supply and demand curves for this economy appear as illustrated in panel (a) of figure 7.1. The aggregate demand curve (AD) is drawn horizontally, with an intercept of $\overline{P}$, the domestic price level. At this price—equal to the world price—domestic producers are able to sell any output they choose, either locally or on the world market, hence they face an infinitely elastic demand Conversely, the aggregate supply (AS) function is drawn vertically, with an intercept of Y_1. This level of output is that which profit-maximising producers will prefer when the real wage rate is $\overline{W} / \overline{P}$ (= $\overline{W_f} / \overline{P_f}$), namely that set by overseas labour market conditions. Perfect labour mobility, due to the existence of the emigration outlet, ensures that no producer will be able to obtain labour if unwilling to offer this level of remuneration; equally, none will be prepared to offer more as that would only serve to reduce profit. Thus, the MIRAB economy is a price taker in the metropolitan labour market. Given a constant real wage rate, therefore, and

Figure 7.1 **Macroeconomic impact of an aid inflow in the short run**



given a fixed amount of capital stock $\overline{K_1}$ in the short run, the level of output producers are willing to supply is fixed also, hence the vertical aggregate supply curve.

Once the optimal demand of labour has been determined [in panel (c)], by equating the pre-determined real wage rate with the marginal physical product of labour, that labour is combined with the existing capital stock in a short run production function exhibiting diminishing marginal returns to the variable factor [panel (b)]. The level of real output resulting from this combination of factors is read directly from panel (b) and plotted in panel (a) to identify the horizontal intercept of the aggregate supply curve. Equilibrium obtains at the intersection of AD and AS_1.

In panel (c) of figure 7.1, the supply of labour (L_{S_1}) is conventionally assumed to be positively related to the real wage rate. Labour supply is defined as the amount of labour MIRAB nationals are prepared to offer, either in the home market or overseas. The labour supply curve is drawn in such a way that an excess supply of labour in the domestic economy exists at the prevailing real wage rate. It is through this excess supply of labour that emigration is explained in the model. Specifically, the gap between L_{S_1} and L_{D_1}, measured vertically at $\overline{W} / \overline{P}$, represents the amount of labour in employment overseas (O_1). If this gap increases, emigration must take place; if it diminishes, immigration must ensue (although not necessarily of nationals).

As is immediately apparent from panel (a), the economy's equilibrium output (or real income) is purely supply-determined. In the short run, given an existing stock of capital $\overline{K_1}$, and given the exogenous real wage rate, the only decision variable influencing aggregate supply is the amount of domestic employment, L. Once its optimal size has been determined on the basis of the marginal productivity of labour, the level of output in the economy becomes 'locked in'. Expenditure-changing or switching policies are unable to influence how much is produced because aggregate supply is totally inelastic with respect to the price level. This is due to the fact that, as the same real wage level has to be maintained at all times, any change in the price level will be matched by a change in the nominal wage rate, leaving the real wage, and hence the level of employment and aggregate supply, unchanged. This conclusion is, however, predicated on the assumption of constant relative prices for exportables and importables, that is, constant terms of trade. If terms of trade were to alter, a rise or a fall in output would ensue (see appendix 7.1).

In the long run, output growth is made possible by, *inter alia*, net additions to the existing capital stock $\overline{K_1}$. Should public and/or private investment lead to such additions, marginal labour productivity would rise, prompting producers to hire more workers and hence supply more output, *ceteris paribus*. This possibility is examined in 7.3.2 below.

In order to analyse the domestic demand side of the economy, it is useful to incorporate domestic absorption (A) into the model. Absorption is defined as the total quantity of real resources absorbed in the economy (Williamson 1983, p. 105), and is measured by the sum of three types of final expenditure: private consumption, investment (private and public), and government current expenditure. Thus, absorption can be expressed as:

$$A = C + I + G \tag{7.3}$$

where A = absorption
C = private consumption expenditure
I = investment (private and public)
G = government consumption

At the existing price level $\overline{P}$, absorption must be occurring on the same plane as AD, but not necessarily at a level corresponding to real income (Y_1) . The horizontal distance separating the aggregate demand and absorption is a measure of the trade balance. If a trade balance equilibrium exists—or in the unlikely event that no foreign trade is taking place—the two aggregates will be represented by a single point, namely E_1. Conversely, a trade deficit would see absorption occur to the right of E_1, signifying that more real resources are demanded than are supplied domestically. Finally, a trade surplus would require absorption to be situated to the left of E_1.

With the inclusion of absorption, the model is complete, and may be used to examine the short run (or same period) effects of an aid inflow. An initial equilibrium is assumed at point E_1, characterised by an equality between absorption and real output ($Y_1 = A_0$), thus denoting the existence of a trade balance equilibrium. This situation may be expressed as:

$$AS_1 = Y_1 = AD = A_0 \tag{7.4}$$

The corresponding level of domestic employment is L_1.

If foreign aid is now provided to the country, in the form of an untied grant of F per period, it will provide residents with an equivalent amount of supplementary income with which to absorb resources. As a result, changes will ensue, in some or all of the components of absorption. In the context of a MIRAB economy, at least two of these components will usually be increased by a foreign aid inflow. Public investment, first, as it is the principal conduit for the dispersion of overseas assistance. Government consumption, second, through the expenditure of budgetary aid. Less realistically, private consumption could increase as a result of direct aid-financed gifts to the population (e.g. emergency food aid), thus simultaneously adding in kind to household disposable income and absorption. Household disposable income, it must be noted, cannot be increased by aid through any Keynesian multiplier effect, since full employment output exists in the short run.

While increases in each type of expenditure will differ in terms of their long run repercussions, their short run effect will be identical in this model. Graphically, this effect is represented in figure 7.1 by a rightward movement of the absorption point. To illustrate the amount of real resources now being absorbed, a vertical line with an intercept of A_1 is drawn from this point to the horizontal axis. On that axis, the gap between Y_1 and A_1 is a reflection of the fact that more goods and services are demanded than are produced locally, and that a trade deficit must therefore have opened up. The emergence of this deficit, following an aid inflow, is wholly predictable and, indeed, desirable. It is only through such a deficit that the real transfer of resources that aid aims to accomplish, can be effected.

There exists a substantial amount of literature on the transfer mechanism (e.g. Kindleberger 1963, ch. 18; Hawkins 1970, ch. 3). It seeks to identify the determinants of the size of the resource transfer relative to the aid (or foreign capital) inflow that caused it. Briefly, if the ensuing trade deficit is smaller (greater) than the inflow of funds, the transfer is said to be under-effected (over-effected). If the two aggregates are identical, the transfer is just-effected. The factors affecting the magnitude of the transfer may be numerous in a complex economy, and it is beyond the scope of this thesis to review them. It is sufficient to note that, in the present model, all three transfer outcomes are possible, that is, the trade deficit could be smaller, equal, or greater than the aid inflow that caused it. For instance, if a cash grant to the government were partly saved, so that a budget surplus existed, the size of the trade deficit would be reduced, *ceteris paribus*. However, given that output is fixed, the emergence of a trade deficit is inevitable in the short run, as long as aid causes an increase in spending.

In terms of the graphical model in figure 7.1, transfers of various magnitudes imply that the gap between output and absorption will be equal to $\theta.F$, with θ a positive constant greater, smaller, or equal to 1. More importantly, the aid inflow has no same-period impact on any of the model's endogenous variables. Both equilibrium output and employment have retained their initial values of Y_1 and L_1 respectively. The number of nationals working overseas has also remained constant (O_1).

From the above, it is clear that, under the model's assumptions, the role of aid in the short run cannot extend to the promotion of output or employment growth. Such result may be directly attributed to the definition of the short run as that period of time for which the capital stock can be regarded as fixed. If the

portion of aid which is invested does not translate immediately into a net capital stock increase, then same-period supply-side effects of aid may safely be ruled out. This scenario, which implies the existence of a time lag between the disbursement of aid monies and the coming on line of aid projects, is a somewhat accurate approximation of the reality in an economy confronted by skill shortages and transport delays.

As a result of output fixity, the effects of aid on the demand side are confined to the balance of trade. Because the increase in absorption which aid allows cannot be met by domestic output growth, foreign resources are needed to make up the shortfall, hence the emergence of a trade deficit. This result is, therefore, wholly in accordance with MIRAB proponents' view of the impact of aid (see 4.2.3).

While the welfare implications of the aid inflow are not explicitly considered in this model, some insights in this area can nonetheless be gained from the results outlined so far. It must be noted, initially, that no increase in output *per worker* ensues as a result of the injection of aid. If it can be assumed that population numbers are constant in the short run, then it follows that income *per capita* is also unchanged. Aid does, however, allow a level of absorption in excess of that which would have existed otherwise. If the increase in absorption is a reflection of higher consumption levels (private and public), it can be inferred that the welfare of the population has improved in the current period. If aid leads to an increase in investment instead, current consumption is foregone in order to raise future consumption levels. Whether intertemporal welfare is maximised by foregoing consumption today depends on the rate of return on investment and on society's rate of time preference. If, for instance, investment opportunities are limited and aid project returns low, or if future consumption is heavily discounted, intertemporal welfare maximisation may require the re-apportioning of aid flows toward the subsidisation of private and public consumption, with capital expenditure only needed to replace the existing capital stock. Alternatively, it may be desirable to 'invest' a majority of aid flows in high-yielding assets such as overseas trust funds. The former strategy would, however, leave the economy drastically exposed to a decline in the provision of aid, while the latter is inherently risky, as Nauru has recently found (see e.g. Shenon 1995). Moreover, both strategies are likely to be strongly opposed by donor agencies and island governments, on the grounds that investment projects carry the promise of self-sustaining growth and, hence, of economic independence, in the long run. Whether such a claim can be justified in the context of this model is examined below.

7.3.2 Long run

In order to consider the long run growth implications of an aid inflow, it is necessary to go beyond the economy's response in the same period as the inflow. The characteristics of that period, namely a fixed stock of capital and a variable labour usage, are conventionally those of a short run situation. This changes to a long run situation if, in the following period, the machinery, equipment, and plant capacity installed in the initial period (some of which is aid-financed) allow the capital stock to record a net growth. Furthermore, capital is not the only factor whose available stock is capable of expansion. From one period to the next, an increase in the amount of labour supplied may be experienced as a result of population growth and/or of rising participation rates. Following the accumulation of one or both factors of production, the economy's productive capacity will increase and, possibly, so will its level of output. Given the small country assumption, any incremental output could be readily sold on world markets or replace imports, so that a deficiency in demand would not represent a constraint on growth, and a higher equilibrium level of income could be reached.

In order to explore the process leading to economic growth following the injection of foreign aid, a general, well-behaved production function (see e.g. Levacic and Rebmann 1982, pp. 233-85) is postulated, of the form:

$$Y = f(K, L) \tag{7.5}$$

For simplicity, no technical progress is assumed. Given constant returns to scale, the function above is homogeneous of degree one, and can be written as:

$$Y = L.\ [F(\frac{K}{L})] = L.\ [F(k)] \tag{7.6}$$

where $k = \frac{K}{L}$ = capital-labour ratio

Equation 7.6 can also be expressed as:

$$\frac{Y}{L} = F(k) \qquad F' > 0 \qquad F'' < 0 \tag{7.7}$$

which is the well-known positive relationship between the capital-labour ratio and per capita income found in the neoclassical growth model (e.g. Solow 1956).

Differentiating equation 7.5 partially with respect to K and L yields the marginal products of each factor in terms of k:

$$MP_K = \frac{\partial Y}{\partial K} = \frac{d}{dk}\,[F(k)] \tag{7.8}$$

$$MP_L = \frac{\partial Y}{\partial L} = F(k) - k \cdot \frac{d}{dk}\,[F(k)] \tag{7.9}$$

As is clear from the two equations above, marginal factor productivity is exclusively a function of the relative, not of the absolute amount of each factor. This is to be expected since any homogeneous function is also homothetic, meaning that the marginal product of each input is solely determined by its relative intensity.

Equation 7.9 also measures the equilibrium real wage since, in a competitive economy, profit-maximising producers hire labour up to the point where its marginal value product is equal to its price (Levacic and Rebmann 1982, p. 285). Hence, the following is true:

$$w = \frac{W}{P} = MP_L \tag{7.10}$$

where w = real wage rate

Equation 7.8 measures the marginal productivity of capital, r. As mentioned in section 7.2, there is no reason to believe that this productivity is reflected in real interest rates in MIRAB economies. Thus, in what follows, it will be assumed that, while nominal interest rates and the price level remain fixed, the rate of return on investment can vary with the capital-labour ratio.

Given that the model's assumptions imply that the real wage rate is exogenously determined under conditions of external labour mobility, it follows from equations 7.9 and 7.10 that the capital-labour ratio (k) will also be exogenously determined. That is, labour and capital will be combined by producers in such a way that a marginal labour productivity of w is achieved. In the event that quantities employed of both factors are increasing, these increases

must be equiproportional for the economy to continue to maximise output at the given real wage rate. For instance, following a doubling of the use of each input, the economy would travel along a straight-line expansion path to a higher isoquant representing twice the original level of output (given CRS and in the absence of technical progress). At the new equilibrium, marginal factor products, and hence the capital-labour ratio, would retain their previous values.

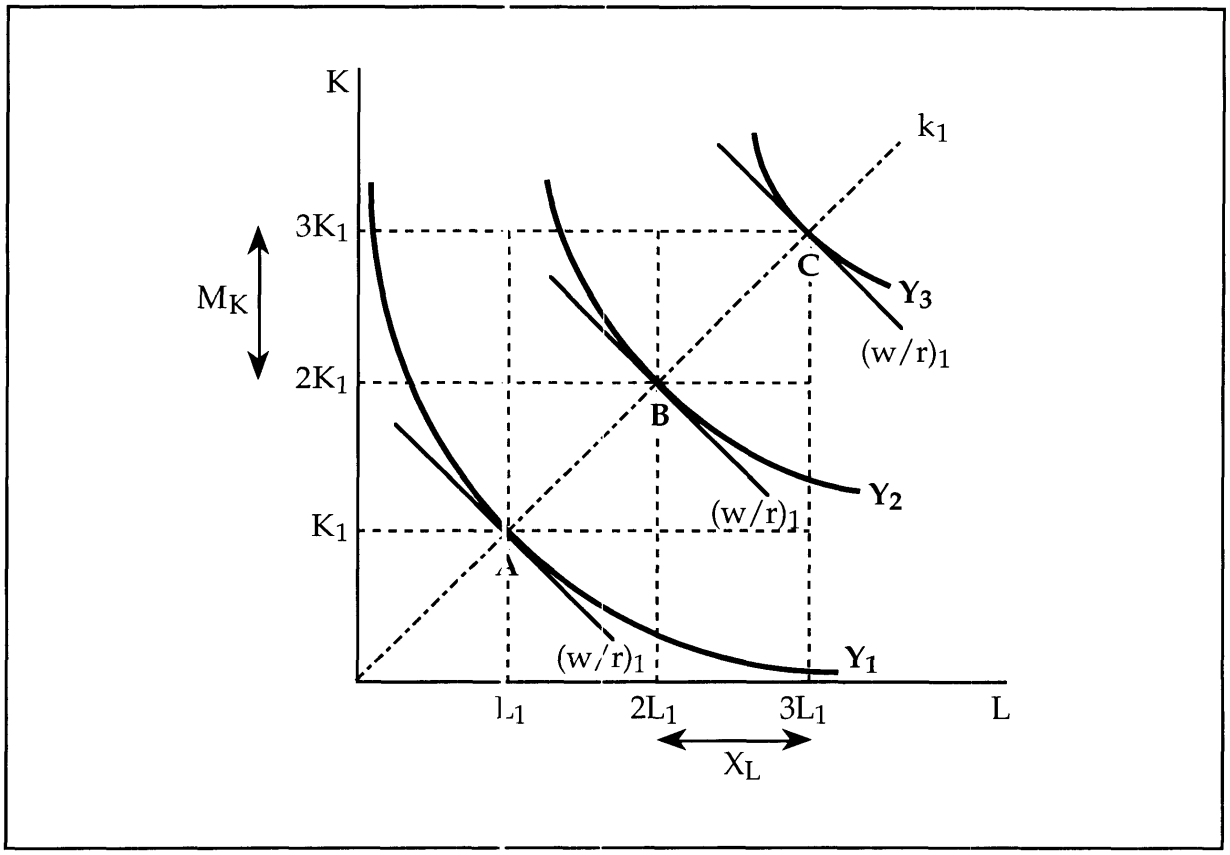
The equiproportionality required by a fixed real wage rate is made possible by external factor mobility. For example, if population growth meant that the supply of labour grew faster than the demand for workers (based on the growth of the capital stock), the surplus workforce would need to be exported, a feasible solution given perfect labour mobility. Alternatively, this workforce could be employed domestically if additional investible resources were imported, to be combined with existing labour in accordance with the required k ratio.

These two alternatives can be illustrated using isoquant analysis. In figure 7.2, the economy's initial use of capital and labour is K_1 and L_1 respectively. Given this level of factor usage, the economy's maximum output level is Y_1, achieved at point A. At that point, the pre-determined marginal product ratio is $(w/r)_1$, and the corresponding capital-labour ratio, k_1. If, as a result of foreign aid for instance, the supply of capital increased two-fold to $2K_1$, the demand for labour would increase in the same proportion, to $2L_1$. If the incremental demand was satisfied, equilibrium would shift to point B, representing a doubling of output also (now equal to Y_2). Both the capital-labour ratio and the marginal product ratio would remain constant throughout.

However, if the increase in labour demanded is exceeded by a simultaneous increase in labour supplied (to $3L_1$, say), the resulting imbalance would require the excess labour, equal to L_1, to be exported (X_L). Alternatively, as mentioned previously, an additional amount K_1 of capital could be imported (M_K), to raise the capital stock up to $3K_1$ and thus restore the k_1 capital-labour ratio. Following this new inflow of capital, the use of all inputs would treble, leading to a trebling of output (Y_3), also, at the new equilibrium point (C). Continued emigration from some MIRAB countries, and the need for capital expenditure to be financed by concessionary rather than commercial flows, suggest that the first of these two scenarios is the more realistic.

In essence, the exogeneity of the real wage in the model results in a production function in which factor substitution is technically possible, but does

Figure 7.2 **Isoquant analysis of changes in factor use in the one-sector long run model**



not occur. Put another way, profit maximisation will always lead to capital and labour being combined in a k_1:1 ratio. This is in the nature of a fixed-proportions (Leontief) production function, with right-angled isoquants originating from the k_1 ray. In contrast to a traditional function of that type, however, factor intensity in this model would be responsive to changes in the exogenous real wage.

Once it has been established that any output growth in the model must take place at the prevailing real wage rate and capital-labour ratio, it is possible to identify the relationship linking the change in output and the aid inflow. Taking the total differential of the production function, it is possible to write:

$$dY = MP_K \,.\, dK + MP_L \,.\, dL \tag{7.11}$$

Assuming for simplicity that all aid is invested, that all investment (I) in the first period is aid-financed, and that the capital stock does not depreciate, it must be the case that:

$$dK = I = F \tag{7.12}$$

For k to remain constant, $\frac{I}{K}$ and $\frac{dL}{L}$ must be equal, therefore:

$$\frac{dL}{L} = \frac{F}{K} \tag{7.13}$$

or

$$dL = L \cdot \frac{F}{K} \tag{7.14}$$

must hold true. Equation 7.14 describes the change in the demand for labour that follows a capital inflow of K. Assuming initially that this increase in demand is satisfied, it is possible to use equations 7.12 and 7.14 to substitute for dK and dL in equation 7.11 and derive an expression for the change in output:

$$\begin{aligned} dY &= MP_K . F + MP_L . (L . \frac{F}{K}) \\ &= (MP_K + MP_L . \frac{L}{K}) . F \\ &= (MP_K + \frac{MP_L}{k}) . F \end{aligned} \tag{7.16}$$

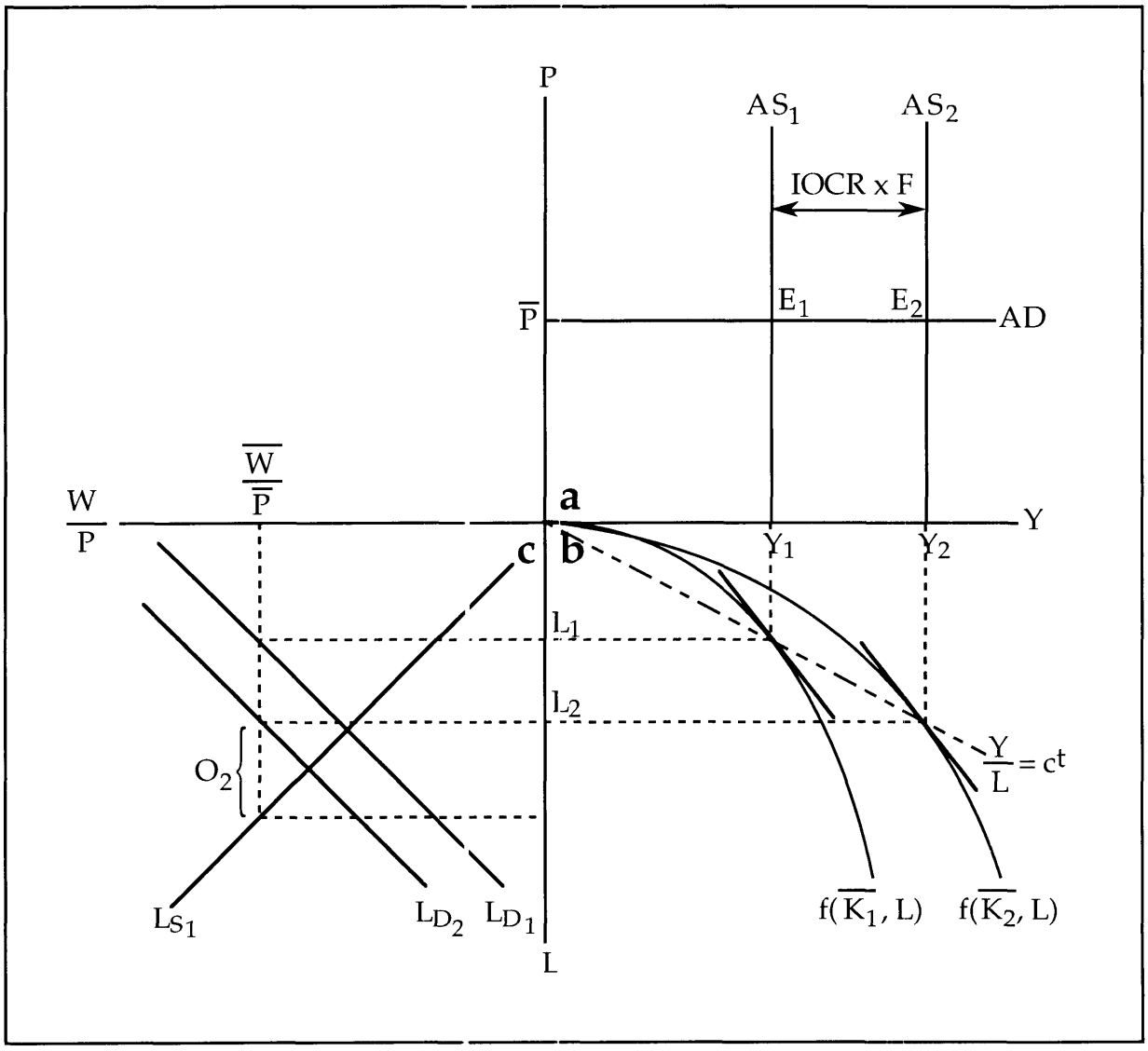
In equation 7.16 above, the term $(MP_K + \frac{MP_L}{k})$ may be interpreted as an incremental output-capital ratio (IOCR), the value of which depends ultimately on the real wage rate. Once this rate is known, the optimal capital-labour ratio, and hence the marginal product of capital, are automatically determined. It can be shown that the relationship between this IOCR and k is an inverse one (see appendix 7.2). Thus, the factor intensity which characterises the economy prior to the injection of aid will influence the impact this inflow has on output. If aid is invested in an environment where capital is relatively scarce (k is low, IOCR is large), its impact on output will be greater than if capital is already relatively plentiful. However, a low capital intensity requires the combination of relatively large amounts of labour with each unit of capital, so that the supply of labour needs to be commensurate with this requirement.

As is clear from the results derived above, factor proportions in the MIRAB economy are determined by the real wage rate in existence in the metropolitan labour market. In that market, the marginal product of labour can be expected to

be relatively high, due to the high degree of capital intensity which prevails in a developed economy. As shown in the model, the same degree of capital intensity, as reflected in a high value of k and a low value of the IOCR, is necessarily in force the MIRAB economy, which may explain why foreign aid has not been as productive as expected.

Using equation 7.16, dY can be directly inferred from F, and the new equilibrium level of output can be determined. This long run equilibrium is illustrated in figure 7.3, in a diagram similar to that used for the short run. The growth process depicted in this diagram may be summarised thus:

Figure 7.3 **Macroeconomic impact of an aid inflow in the long run**



(i) following an injection of aid (F), the capital stock increases from $\overline{K_1}$ to $\overline{K_2}$, which leads an increase in short run marginal labour productivity, at all levels of employment;
(ii) the increase in labour productivity leads to an upward shift of the demand for labour curve (L_{D_1} to L_{D_2});
(iii) the shift in the L_D curve allows more workers to be profitably hired, until the marginal product of the last worker equals $\overline{W} / \overline{P}$ once again (at L_2); and
(iv) with more workers employed, and each worker as productive as before on average ($\frac{Y_1}{L_1} = \frac{Y_2}{L_2}$ = constant), output increases by an amount (IOCR × F), to Y_2.

As can be verified in panel (c) of the diagram, the increase in the demand for labour has led to a reduction in the amount of overseas employment, now equal to O_2 only, implying that some of the nationals previously employed overseas have been repatriated. This conclusion, however, pre-supposes a stable supply of labour curve. If, as previously suggested, a growing population, or a rising participation rate, causes more hours of labour to be offered at each real wage rate, the L_S curve would shift outward also. In this event, the size of the overseas workers contingent would depend upon the relative magnitude of the shifts in L_{D_1} and L_{S_1}. If, for instance, the supply of labour grew proportionately more than the demand for labour, net emigration would ensue, resulting in an increase in the number of nationals overseas (compared with the initial number, O_1). Nevertheless, in these circumstances, aid would help to reduce such population outflow, by allowing domestic employment to 'absorb' more labour than in the absence of aid. This role of aid will be fulfilled more effectively when capital intensity in the recipient economy is low, as can be shown by rewriting equation 7.14 as:

$$dL_D = \frac{F}{\overline{k}} \tag{7.17}$$

where dL_D = change in labour demanded (*ceteris paribus*)

It follows from this expression that, the lower the capital-labour ratio, the greater the increase in the domestic demand for labour caused by the investment of F.

It is clear that, in this model, the contribution of aid to output and employment growth is dependent upon factor intensity, itself pre-determined by the foreign real wage rate. The more labour-intensive the production process in the recipient economy, the greater the impact of aid on production and domestic employment. However, given external labour mobility, aid cannot lift the average level of output per resident worker above the level dictated by overseas conditions. From this, it may be inferred that domestically generated income per capita will only be increased by aid to the extent that it causes the ratio of domestic employment to resident population to rise. Thus, on the basis of the two criteria outlined above, it may be tentatively concluded that aid is ineffective in promoting economic independence, or self-sustaining growth. Its main benefit, in this model, is to allow domestic employment opportunities to expand further than would otherwise be possible. While such a role is not one conventionally assigned to foreign aid, it may nonetheless be regarded as desirable in countries thought by some (e.g. Ward 1989) to be in danger of depopulation.

7.4 Imperfect labour mobility

A crucial element of the analysis presented in section 7.3 above is the assumed existence of perfect international labour mobility. This mobility rests upon the unrestricted access of MIRAB workers, wherever they may live, to both the domestic and metropolitan labour markets. As previously stated, the implications of this assumption for the MIRAB economy are two-fold:

(i) the real wage rate, and hence the capital-labour ratio, are exogenously given; and
(ii) at this real wage rate, no disequilibrium can develop in the labour market.

It is clear that, should the mobility assumption be relaxed, these two results could no longer automatically hold true. It is necessary, therefore, to consider the implications of imperfect labour mobility on the impact of aid in MIRAB countries. Two types of imperfect mobility are of particular relevance in relation to these countries. First, it may be the case that labour mobility is *assymetrical*, that is, that workers who have emigrated to the metropolitan labour market are

no longer available to the MIRAB economy[1]. The absence of significant return migration has been documented in the context of both MIRAB (e.g. Matheson 1986, p. 96, p. 112 on Niue; Loomis 1990, p. 73 on the Cook Islands) and non-MIRAB countries (e.g. Ahlburg 1991, p. 1 on Tonga and Western Samoa), and has been attributed to the progressive severance of migrants' ties with their country of origin (ibid. p. 8). Assymetrical labour mobility, then, can provide a more realistic representation of the pattern of migration in Niue, the Cook Islands and Tokelau. Second, labour may be imperfectly mobile because of the lack of an unrestricted migration outlet. As previously noted, this is the situation which confronts both Kiribati and Tuvalu. It is inappropriate, under such circumstances, to assume that the real wage rate in these two economies is fully determined by overseas conditions. In the rest of this section, the implications of assymetrical labour mobility and zero labour mobility are examined in turn.

The implications of assymetrical labour mobility are best identified by assuming that, initially, no emigration outlet is available. Then, in period 1, an outlet appears, characterised by a real wage rate equal to $\overline{W} / \overline{P}$, which becomes a *de facto* binding minimum wage in the MIRAB economy. At this level of remuneration, therefore, an excess supply of labour exists, which leads to the emigration of O_1 workers[2]. This is the situation described in figure 7.4. It is now assumed that, having emigrated, these workers do not wish to return home, irrespective of the real wage rate on offer in the MIRAB economy. Furthermore, it is assumed that this economy is not able to replace departed nationals with expatriate workers. Under these two assumptions, the curve describing the supply of labour to the MIRAB economy assumes a kinked shape, as represented by curve L_{S_2}. Underlying this shape is the fact that, following the emigration of O_1 workers in period 1, the supply of labour in period 2 is limited to L_1 over a range of real wage values. Only when the domestic real wage exceeds its previous $\overline{W} / \overline{P}$ value is it possible to attract more workers into the labour force. These workers should not, however, be confused with returning migrants; rather, they are new entrants into the formal sector labour force, who have given up their leisure.

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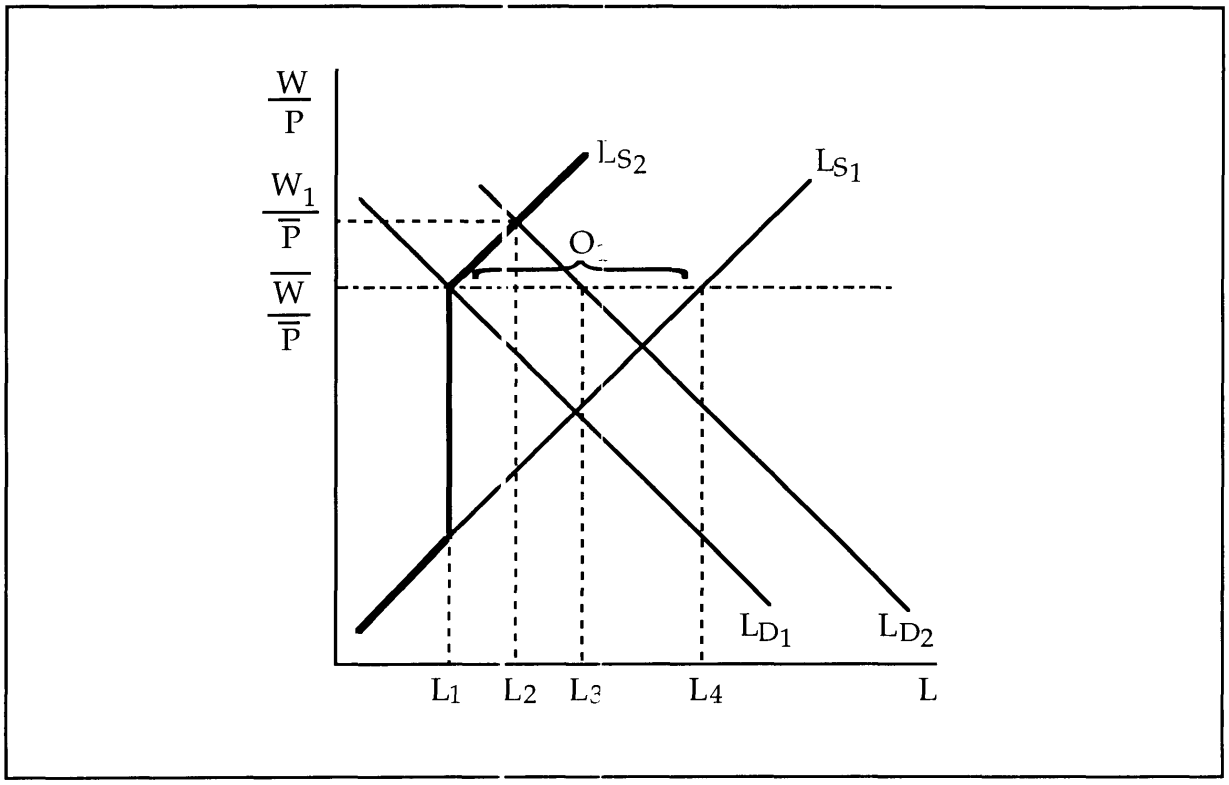
[1] The absence of return migration of workers does not preclude all return migration. If, as sometimes happens, islanders living overseas choose to retire 'back home', no increase in the MIRAB economy's supply of labour will result, however.

[2] It is assumed that this emigration cannot be prevented by the importation of supplementary capital with which to 'absorb' the excess supply of labour. This assumption may be justified on the grounds that, even if this capital was imported in period 1, it could only come 'on line' in period 2, by which time emigration would have already occurred.

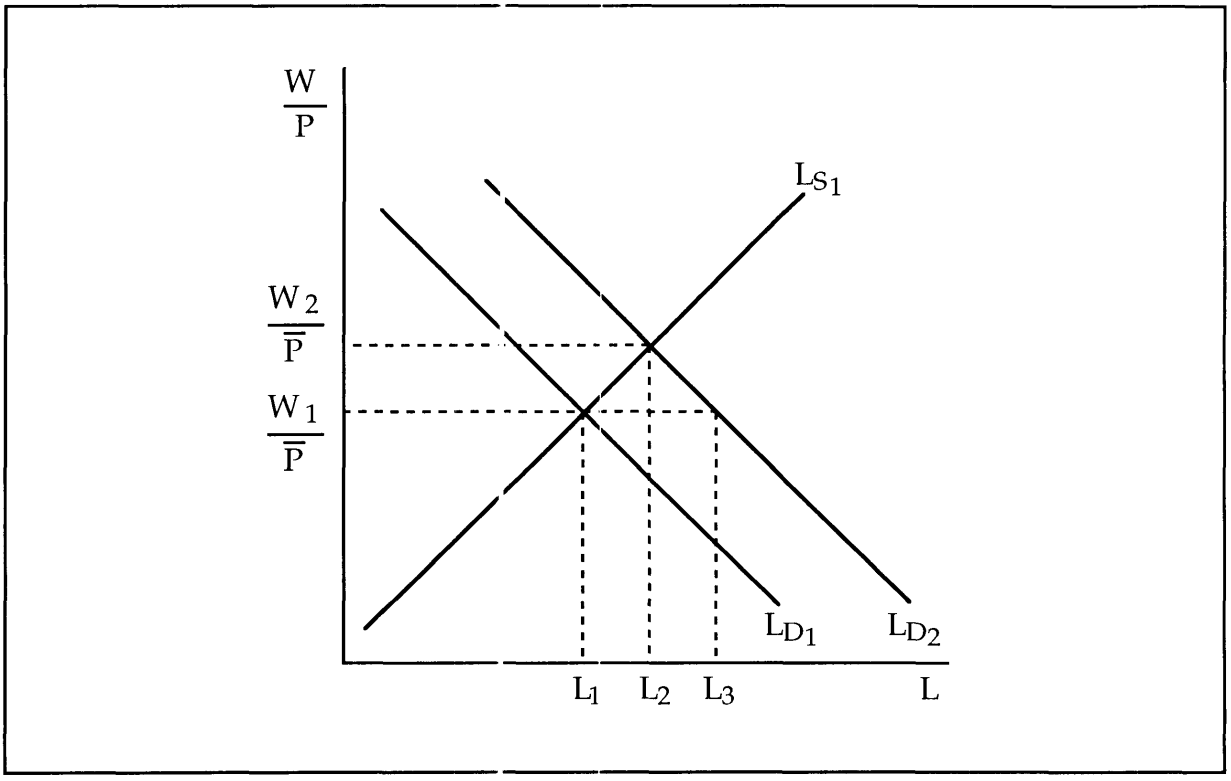
Figure 7.4 **Labour market in a MIRAB economy with assymetrical labour mobility**



Given the new labour supply curve L_{S_2}, and assuming once again that aid-financed additions to the capita stock have increased labour productivity and, hence, the demand for labour, it is possible to examine the macroeconomic repercussions of this capital expansion. As can be verified immediately from the diagram, the domestic real wage must now exceed its overseas counterpart. At this higher real wage $W_1/\bar{P}$, labour market equilibrium obtains for L_2 workers. The amount of domestic employment in period 2 is greater than in period 1 (L_1), but smaller than it would be under the perfect mobility assumption (L_3). Given that the net addition to the capital stock has been of the same magnitude as before (F), it must be the case that a smaller increase in employment has led to a rise in the capital-labour ratio (since, by definition, an increase to L_3 yielded a constant ratio). This, in turn, implies an increasing average level of output per worker, by virtue of the production function postulated in the model (equation 7.7). If the total population has remained unchanged (since the departure of O_1 workers and their families), it may be concluded that income per capita has increased also. Moreover, the total level of output would increase, by comparison with the post-emigration, pre-aid level.

When the MIRAB economy lacks an emigration outlet, so that zero international labour mobility prevails, the foreign real wage rate becomes redundant to the model. The macroeconomic implications of this second hypothesis are, once again, best captured by examining the changes occurring in the labour market. In figure 7.5, an initial equilibrium is seen to obtain, in this market, for a domestic real wage rate of $W_1/\overline{P}$, and a labour force L_1. Since, in the absence of terms of trade or exchange rate movements, the price level remains fixed at all times in the economy, any changes in the real wage must

Figure 7.5 **Labour market in a MIRAB economy with zero labour mobility**

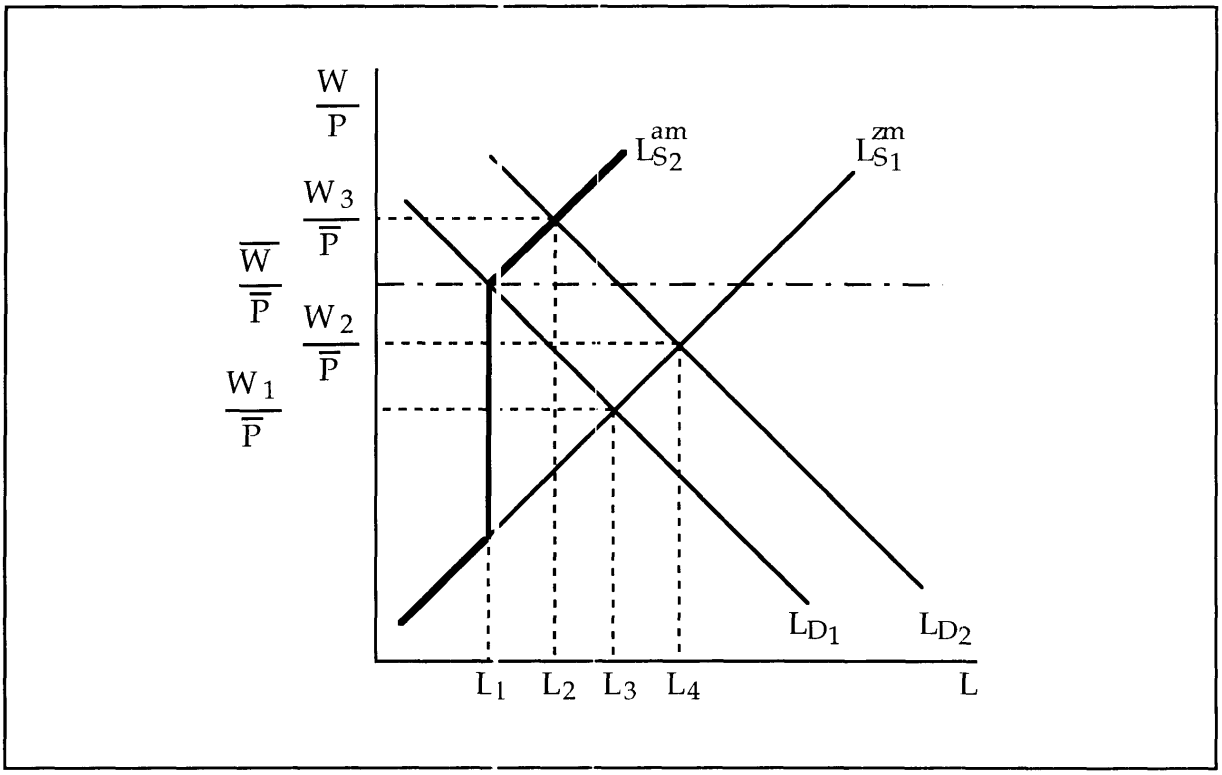


originate with the money wage, which is assumed to be fully flexible. As before, the investment of an amount F of aid leads to an upward shift in the demand for labour curve, from L_{D_1} to L_{D_2}. This, in turn, raises the equilibrium real wage to $W_2/\overline{P}$, and domestic employment to L_2. As long as the supply of labour curve is upward-sloping, the proportional increase in the domestic labour force will be smaller than that which would have taken place at a constant real wage rate such as $\overline{W}/\overline{P}$. Since F, the net addition to the capital stock, has remained unchanged, it must be the case that the capital-labour ratio has increased by comparison with the perfect labour mobility scenario (i.e. the initial long run

model: see 7.3.2). From this, it may be concluded that a rise in average output per worker and, barring population growth, income per head, have taken place.

In contrast to the long run model examined in section 7.3.2, the effect of an aid inflow under imperfect labour mobility is to increase average labour productivity in the recipient economy. In regard to this result, it does not matter whether the relaxation of the assumption concerning the perfect international mobility of labour is partial (assymetrical mobility or AM) or total (zero labour mobility or ZM). However, this does not mean that these alternatives to the original model produce results that are identical. As the diagrammatical comparison of the two variants in figure 7.6 confirms, the real wage rate will always be higher, and domestic employment lower, under the AM variant than under the ZM variant. Such inequalities, which imply higher average labour productivity under AM, will hold true as long as the foreign real wage ($\overline{W}/\overline{P}$) exceeds the highest ZM equilibrium real wage ($W_2/\overline{P}$). If this condition is not satisfied, the foreign real wage is not binding, and the AM variant is subsumed

Figure 7.6 **Comparison of the assymetrical and zero labour mobility hypotheses**



into the ZM one. Another result inferred from the diagram is that the increase in the capital-labour ratio allowed by aid, will be higher in the ZM than under the

AM variant. This can be verified from the diagram by observing, initially, that the change in employment is the same in both cases (L_2-L_1 = L_4-L_3), but that the initial values differ (L_1 < L_3). Thus, it must be the case that the proportional change in employment is greater under the AM than under the ZM hypothesis. Given that the proportional increase in the capital stock is assumed to be identical in both cases (F/K), it follows that the capital-labour ratio will increase more under the ZM then under the AM hypothesis[3].

This result is noteworthy in that it confers aid with a greater ability to raise the productivity of labour when zero labour mobility, as opposed to assymetrical labour mobility, prevails. Relating this result to particular countries means that aid can be expected to be more effective in Kiribati and Tuvalu than in Niue, Tokelau and the Cook Islands, other things being equal. Barring population growth, the impact of aid on income per capita in each group of countries is positive. It is, however, not possible to determine, from the diagram, whether the magnitude of this effect is greater in the first or the second group, as it depends crucially on population numbers (*after* emigration, for countries with assymetrical mobility) and on the actual increase in the average output per worker.

7.5 Conclusion

In this chapter, a one-sector model of a typical MIRAB economy was built, and used for comparative static analysis purposes. By incorporating some of the main characteristics of MIRAB countries into the assumptions of the model, it became possible to explore the theoretical implications of these characteristics for the macroeconomic impact of aid. After results were derived and discussed in terms of the initial model, the implications of relaxing the assumption of perfect international labour mobility were explored, in an attempt to increase the degree of realism of the analysis.

Upon examination of the initial model, the main conclusion is that, while aid can and does lead to output and employment growth in the long run, it is powerless to increase average labour productivity in the recipient country, when perfect external labour mobility is assumed. According to the model, the source

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[3] On the other hand, the terminal value achieved by the ratio will be higher under the AM variant, as reflected in a higher real wage rate.

of such powerlessness lies in the exogeneity of the real wage rate, to which a MIRAB country cannot but adjust by varying its labour usage. This means that, in the event of an aid-financed expansion in the capital-stock, the marginal product of labour and, hence, the capital-labour ratio must be restored to their pre-aid value. Accordingly, any increase in the average productivity of labour is precluded. However, the provision of aid does yield some beneficial effects, both in the short run and in the long run. In the short run, aid can finance public and private consumption levels in excess of those achievable otherwise. In the long run, aid allows the expansion of domestic employment beyond what is allowed by the initial capital stock. Furthermore, the model reveals this long run effect to be stronger, the less capital-intensive the recipient economy. In the long run also, aid can lead to an increase in income per capita, although this effect is necessarily made weaker by constant labour productivity.

When the perfect mobility of labour assumption is relaxed, aid comes undoubtedly closer to fulfilling traditional expectations of it as 'primer' of a self-sustaining growth process. This is due to the fact that, in both cases of imperfect mobility, it is able to raise average output per worker and income per head above the level warranted by domestic capital resources alone. This positive effect rests upon the ability of aid to increase the capital-labour ratio when labour mobility is less than perfect, something which was beyond its capacity in the original model. If, as suggested by conventional development theory, increasing per capita income is accompanied by higher saving rates and hence greater domestic resource mobilisation, it could be concluded that aid did indeed have the capacity to accelerate the advent of self-sustaining growth in MIRAB countries.

The model presented in this chapter is far removed from a comprehensive or detailed depiction of the socio-economic realities of MIRAB countries. As such, its aim is not to capture the effects of aid in these countries in their entirety. Rather, it is an attempt to identify those effects that follow from a few assumptions regarding key economic variables. Underlying this approach is the belief that, once the implications of a few, purposely stylised, assumptions have been identified, the consequences of their relaxation are more easily explored. Such relaxation can reflect some uncertainty about the nature of the phenomena hypothesized or, as is the case in this chapter, can be designed to improve the degree of realism of the analysis. From this analysis, it emerges that aid does have some beneficial impact on the kind of dependent economy which has been modelled here. At worst, aid can help prevent excessive depopulation by expanding domestic employment opportunities; at best, it can raise the standard

of living of the resident populat on, as well as improve the economy's capacity for self-sustaining growth.

The second, and most optimistic, of these conclusions, is in direct contrast to the view that capital accumulation represents a largely ineffective use of aid funds in MIRAB or small island developing countries (e.g. Tisdell 1990, ch. 10; Maitra 1992, p. 8; Bertram 1993, pp. 248-49). Tisdell, for instance, contends that 'one cannot rely to any great extent on aid intended for productive investment and capital accumulation as a means for raising per capita income in [small island developing nations] to target levels' (1990, p. 147). His view is based in part on what he considers to be a dearth of natural resources in atoll economies, and in part on the existence of low returns on investment. Regarding the latter, he points to the establishment of overseas trust funds in Kiribati and Tuvalu as a reflection of these countries' expectations of higher returns on funds invested abroad than at home (ibid., p. 148).

Both of Tisdell's arguments may be challenged, to some extent. First, the existence of trust funds may be viewed in a different light: given the continuing willingness of aid donors to finance almost the entirety of Kiribati's and Tuvalu's capital expenditure program, the existence of trust funds does not necessarily signal a lack of high-return investment projects. There is no reason to believe that the project evaluation criteria applied by aid agencies are not as stringent in atoll economies as in other developing countries. From this perspective, therefore, the existence of trust funds may be regarded as nothing more than the prudent portfolio investment of surplus funds. Second, a lack of natural resources does not describe fully the situation of some small island countries if marine resources are taken into consideration. By all accounts, the fish stocks alone, found in these countries' EEZs, can amount to a valuable and plentiful resource. Its non-exploitation by island countries, at present, is due to a lack of capital and expertise. Since foreign aid is capable of providing both, there is no *a priori* reason why it should be ineffective. A similar argument could be applied to the realisation of the tourism potential of some island countries.

Tisdell is equally pessimistic with respect to the ability of aid-financed technology transfers to raise per capita income in small island economies (1990, p. 149). He bases his opinion on the belief that the technology transferred is often inappropriate and displaces indigenous technologies. However, results presented in this chapter point to another possible reason for the lack of impact of technology transfers on income per capita. Even if such transfers, or capital

accumulation, result in an increase in marginal labour productivity, the link which exists between the real wage rate in the islands and in the metropolitan economy (in the case of perfect external labour mobility) precludes any increase in average output per worker. Once this link is broken, aid and technology which raise the productivity of labour can in principle lead to increases in output per worker and income per capita.

Ultimately, even critics of project aid recognise that it is not about to be replaced by overt income supplements to island populations, or even by informal sector subsidisation. This, they attribute to aid donors' aversion for rents and handouts, and to the 'puritanical belief in the Western world that reward should be for effort' (Tisdell 1990, p. 148). Indeed, if there is any trend emerging, in the allocation of aid to MIRAB countries, it is one of decreasing direct 'handouts', such as budgetary aid. Thus, the question of how capital accumulation through project aid can benefit the recipient economy must continue to be asked. To this question, the results derived in this chapter can provide some answers.