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The Impact of Liberalizing Labour Mobility in the Pacific Region

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Preface

This report was prepared for the Pacific Islands Forum Secretariat (PFIS) in Suva, Fiji Islands. The report is one output of an Asian Development Bank (ADB) technical assistance project (TA 6226 REG): “Developing and Implementing the Pacific Plan for Strengthening Regional Cooperation and Integration.” The Commonwealth Secretariat provided funding to the project.

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The report is published in three volumes. Volume 1 is the Executive Summary. Volume 2 is the main report. Volume 3 contains the working papers commissioned for the report—a series of independent studies assessing potential benefits and costs of implementing a variety of possible regional initiatives. Volume 3 has been printed in hard copy in only limited numbers. However, it is available on the websites of ADB (www.adb.org) and at www.pacificplan.org.

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ABSTRACT

Due to the lack of political consensus at the previous General Agreement on Trade on Services (GATS), negotiations on the temporary movement of natural persons (Mode 4) have stagnated. The growth in the economic literature surrounding this important issue has historically been lacklustre; despite the large welfare gains that have consistently been demonstrated to result from relatively small multilateral liberalisations on such transitory movements. This paper implements a CGE model of bilateral migration flows (GMig2) to quantify the benefits of liberalising GATS Mode 4 in the Pacific region. The results indicate that an increase in the labour forces of Australia and New Zealand from elsewhere within the Pacific region would raise welfare in Australia and New Zealand. However the results also shows that while the Pacific Island economies could gain substantially from the movement of unskilled workers, the loss of scarce skilled workers could lead to significant declines in the welfare of those remaining, which could offset any gains from the movement of unskilled labour. Agreements regarding the movement of unskilled labour could therefore potentially provide a significant development policy, which warrants further attention from policy makers.

I. INTRODUCTION

The World Trade Organization's (WTO) Uruguay round heralded a new wave of optimism for developing country members. During this round, the first discussions took place on the *'temporary presence of natural persons (Mode 4)'* under the General Agreement on Trade on Services (GATS). Developing countries hope to capitalise on their abundant labour. Against a backdrop of years of capital and goods market liberalisation, reticent policy makers on both sides of the GATS Mode 4 negotiations remain largely defensive, resulting in little progress being made; paradoxical since the welfare benefits from the future services liberalisation are likely to far outstrip the returns from additional goods market liberalisation. Hertel et al (1999) show that \$300 billion will accrue from a 40% liberalisation of the services sector, compared to only \$70 billion for an equivalent relaxation in both agriculture and manufacturing.

Winters (2001) argues that if individuals moving from developing to developed nations make up a quarter of the wage gap between the two nations, a 5% increase in industrialised countries populations would yield a global welfare gain of approximately \$300 billion. A similar back-of-the-envelope calculation estimates that liberalisation equivalent to a 3% rise in 'rich' countries' labour forces supplied by 'poor' countries on a temporary and rolling basis, with each individual residing abroad for between 3 and 5 years, would raise developing countries annual welfare by \$200 billion (Rodrik, 2004). More systematic approaches based on various modelling scenarios corroborate these computations. Walmsley et al (forthcoming, 2003a, 2003b) find that a 3% liberalisation on the quotas of both the skilled and unskilled from developing to developed nations would yield a global welfare gain of \$150 billion. Indeed simulations from subsequent models based on bilateral migration flows (as opposed to from a global migrant pool) show that a similar lifting of quotas would produce approximately double these gains (Walmsley et al, 2005). Though all of these estimations should be viewed with a degree of caution, not least as relatively minor alterations to any of the crucial underlying assumptions can impact heavily upon the results, the orders of magnitude are clearly astonishing, especially in comparison to the total annual ODA budget. These benefits only represent static gains however failing to account for any dynamic effects, those associated with 'brain circulation' for example. Service providers are likely to return with greater levels experience, in part through learning from doing. Spill over and indirect effects of increased service provision may also increase welfare benefits (Winters 2003). If the above results could be given with certainty they would certainly represent lower bound estimates.

This paper implements a model of bilateral migration flows (GMig2, Walmsley, 2002) to assess comparable scenarios to those previously tested, in the context of the Pacific region. The remainder of this section continues by providing a background, to both GATS Mode 4 and the history of migration in the region. The following section gives a brief synopsis of the model. Section 3 analyses the results and provides a sensitivity analysis. While it is beyond the scope of the paper to discuss in detail relevant policy options some are alluded to in passing and conclusions are drawn in the final section.

1.1 The Potential of GATS Mode 4

Australia and New Zealand represent two of the 'big four' traditional magnets of international immigration alongside Canada and the United States. They are by far the largest economies in the Pacific region¹ and also the wealthiest on a per capita GDP basis ranked 14th and 33rd in the

¹ The region is assumed to comprise of Australia, New Zealand, American Samoa, the Cook Islands, Fiji Islands, French Polynesia, Guam, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, New Caledonia, Norfolk Island, the Northern Mariana Islands, Niue, Palau, Papua New Guinea, Samoa, the Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

world respectively (CIA World Fact book 2004). Both have experienced fairly prolonged and sustained economic growth largely unfettered by the constraints that have consistently hampered the development of their Pacific neighbours. Not only are the Pacific islands geographically remote they also remain on the periphery of the world economy, increasingly dependent on the wider world, on both international institutions and donors.

Though a fair amount of variation exists between the Pacific nations typically they are small isolated communities, endowed with few natural resources, comprising of many smaller islands and atolls which often suffer from a lack of geographical proximity to one another. A direct result of this isolation is that a disproportionate share of total income is spent on communication, administration and transport. A narrow production base exacerbated by the declining terms of trade in Pacific Island agricultural commodities, failures to successfully diversify economically, significant diseconomies of scale (due to incredibly small domestic markets²), and an inability to compete effectively in the global marketplace, have resulted in large trade deficits. Increasingly vulnerable, the Pacific Islanders remain highly susceptible to external shocks. Among the other island nations of the Pacific it is those ex-colonies of France and the United States that are predominantly the richest, ranked in order; Guam (35), French Polynesia (49), New Caledonia (56), Northern Marianas (62), Palau (78), American Samoa (87), Fiji Islands (108), Nauru (116), Cook Islands (117), Wallis and Futuna (137), Niue (138), Vanuatu (148), Tonga (158), Papua New Guinea (160), Micronesia (163), Solomon Islands (175), Marshall Islands (179), Tuvalu (197), Tokelau (198) and Kiribati (210)³. The region is now among the poorest in the world, and despite not suffering from the depths of chronic poverty experienced for example in Sub-Saharan Africa, the region is the highest recipient of overseas aid on a per capita basis.

The countries and territories of the Pacific have experienced high levels of migration, the majority of which has taken place in the last four decades. Internal migration has been significant with large movements toward urban conurbations, which has simultaneously been accompanied by considerable international migration. Traditionally high fertility rates, coupled with rising life expectancy, have resulted in relatively high population growth rates. International migration from the territories of the Pacific is viewed in part as a means of relieving population pressure on the already scarce resources, while increasing both the earning potential of the migrant abroad through higher salaries, and the income of the sending family via remittances. According to Munro and Bedford (1980) certain ethnic groups within the region 'were the first genuine Malthusians', as migration was openly advocated as a means of relieving some pressure on agricultural producers. This is perhaps best exemplified more recently by the relatively recent leasing of land in Asia by Tonga (Connell, 2003).

Aside from natural disasters however, migration is primarily driven by the large disparities in social and economic factors between the sending and host nations. The prospects of superior health and education standards and higher wages stimulate ever-increasing expectations of living standards which fuel spiralling aspirations of moving abroad (Connell, 2003). Migration in the region should be viewed not merely as a response to ailing economies nor simply a development strategy, but more as an intrinsic part of life that many islanders take almost for granted. This is perhaps best demonstrated by the increasing reliance on remittance flows which often contribute substantially to household incomes. This is particularly true of Polynesia⁴, specifically for Tonga and Samoa, where both emigration rates and the level of remittance flows

² All the Pacific nations are below the richest 150 countries in the world as measured by GDP with the exception of PNG (126).

³ Data was unavailable for Norfolk Island.

⁴ Polynesia consists of American Samoa, Tokelau, the Cook Islands, Tonga, Niue, Tuvalu, French Polynesia, Wallis and Futuna, and Samoa.

are substantially higher than elsewhere in the region but also true for Tuvalu where Chambers (1986) notes parents specifically aim to rear effective remittance earners. For some of the smaller island states⁵ remittances have proved historically so vital that Betram and Watters (1985) christened them the Migration, Remittance and Bureaucracy (MIRAB) states.

The migration histories of the other traditional island groupings are quite different to that of Polynesia however. Micronesia⁶ has experienced significant outflows of residents, though in contrast to Polynesian migrants, a large proportion actually return, which not only alters the demographics of the two, but also indicates that different policies may be appropriate for each. The exception to this is the recent Diaspora from the Federated States of Micronesia (FSM), the country in 2004 that had the highest net emigration rate in the world (CIA World Fact book, 2004). Under the United States' Compacts of Free Association those from FSM have unrestricted Access to the United States (Connell, 2003). Melanesia⁷ with the exception of Fiji Islands, has experienced far lower emigration rates, in part due to fewer geographically disadvantages. Fiji Islands has experienced significant departures of Indo-Fijians not least following the coups of 1987 and 2000 (APMRN, 1997). The percentage of total GDP represented by remittances⁸ where data were available, demonstrates Polynesia's reliance on remittances relative to Melanesia's. Remittances are less than 1% of GDP for PNG and the Solomon Islands, just over 3% for Vanuatu but 7% for Samoa and a staggering 41% for Tonga⁹. Moreover in light of the increasing literature on measuring informal remittances (see Freund et al, 2005 for example) these estimates are likely to significantly under estimate the true value of remittance flows.

1.2 Australia, New Zealand and the Pacific Community

The most popular destinations for international migrants from the Pacific region are to other neighbouring Pacific Islands or one of the 'big four', the choice of which usually depends upon the prevailing economic conditions. Chart 1 shows the percentage distribution in the stock of immigrants in these regions from the Pacific Islands for 2001.

⁵ Primarily the Cook Islands, Kiribati, Tokelau and Tuvalu.

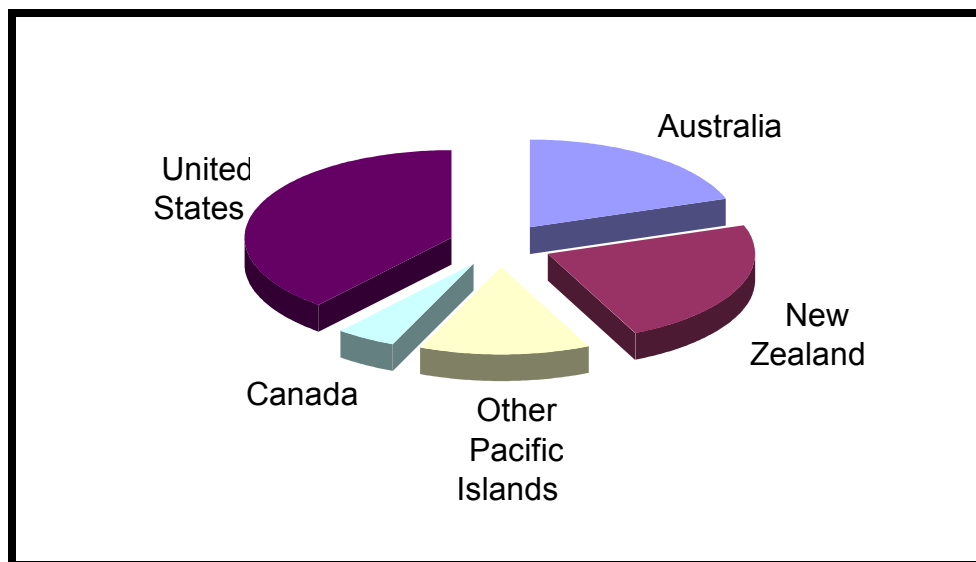
⁶ Micronesia consists of the Federated States of Micronesia, Kiribati, the Northern Marianas, Guam, the Marshall Islands, Palau, and Nauru.

⁷ Melanesia consists of Fiji Islands, PNG, Vanuatu, New Caledonia and the Solomon Islands.

⁸ GDP data is taken from the World Development Indicators while the estimates of remittances were provided by the World Bank.

⁹ Data were unavailable for the other Pacific nations.

Chart 1: Immigrants Stocks of Pacific Islands in most Popular Destinations

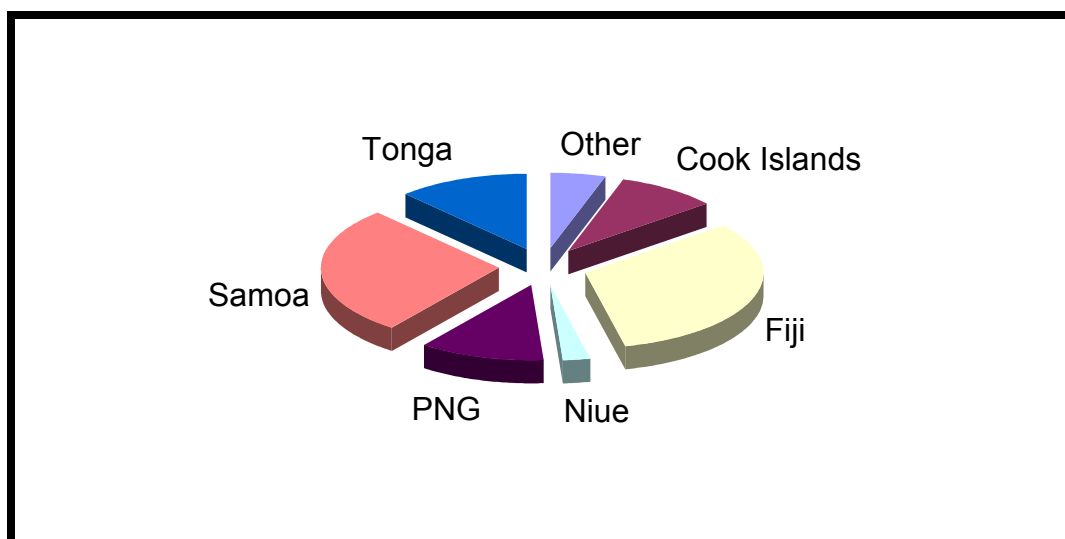


Source: Parsons et al (2005)

Canada, the United States and other Pacific Islands are important destination countries. Australia and New Zealand though together representing only a fraction of the GDP of the North American countries still attract approximately 43% of all Pacific Island migrants (to the most popular destinations), in part due to their proximity. The top eight Pacific nations with the highest immigrant stocks are also those with the highest per capita incomes in the region. These examples demonstrate well the 'gravitational' effects of wealthier countries. Across both Australia and New Zealand, Pacific Islander migrants constitute 4.6% of the total population. This figure masks the imbalance between Australia, where the percentage is just 2.4%, and New Zealand where it is 16.9%. Though relatively small on average the number of Pacific immigrants relative to their domestic populations can be very large. In 2001 the immigrant population residing in Australia and New Zealand from the Cook Islands represented 96.9% of the total home population. The figures are also surprisingly high for Samoa (33.7%), Tonga (24.7%), Tuvalu (10.1%) and Nauru (5.7%)¹⁰. Predictably these are among the nations which constitute the highest percentage of the total Pacific Island migrant stock in Australia and New Zealand, see Chart 2.

¹⁰ Data were unavailable for French Polynesia, Niue, Tokelau and Norfolk Island.

Chart 2: Percentage total Pacific Islanders residing in Australia and New Zealand



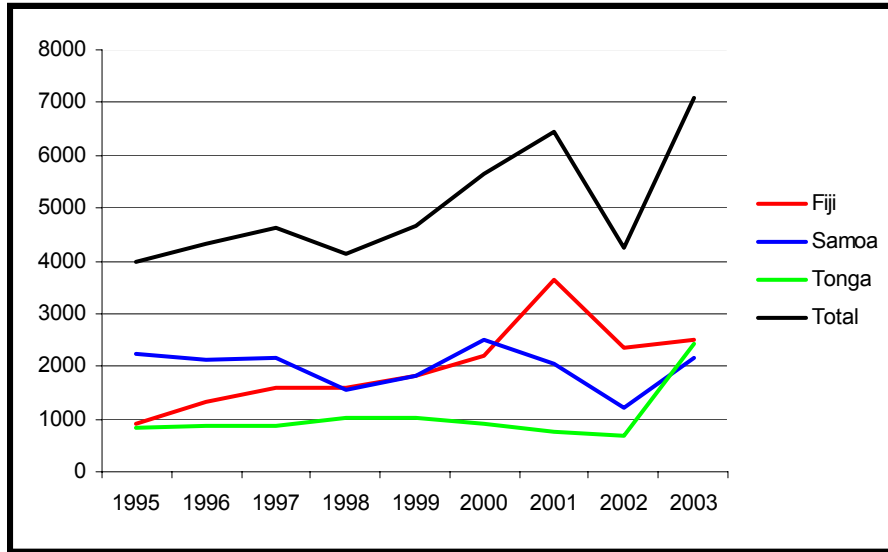
Source: Parsons et al (2005)

Charts 3 and 4 graph the settler arrivals and residence approvals of Pacific Islanders to New Zealand¹¹ and Australia based on nationality and birthplace respectively. At first glance the upward trend for New Zealand from a Pacific Island perspective looks optimistic (see chart 3). Having once flooded into New Zealand in the post-war period as part of a drive to recruit unskilled and medium skilled workers, the numbers of Pacific Islanders has dramatically fallen over the medium term however. The introduction of the points system in 1991 on the one hand, combined with a falling demand for lower skilled workers on the other, has skewed immigrant arrivals away from the more traditional sending region of the Pacific. Immigrants are increasingly received from Pacific Rim nations. In particular East Asia, and primarily Taipei, China, South Korea and People's Republic of China, now represent the three highest countries for applications to New Zealand. Highly skilled professionals from South Africa also represent a major group. In the four years up until 1991 New Zealand received 22,963 residence applications from Pacific nationals, in the four years to 1995 this figure had dropped to only 12,716 (APMRN, 1997). The high of approximately 7000¹² in Chart 3 in 2003 shows this trend is continuing. More recently increased animosity toward the Maori due to them attempting to reclaim New Zealand's resources i.e. an acknowledgement of the Treaty of Waitangi, has spilled over increasing the alienation of Pacific Islanders. In their favour, Pacific Islanders are more likely to pass the newly introduced English proficiency tests, which act as a significant barrier to entry for migrants from Asia. Residents from Samoa, Fiji Islands and Tonga are exempt from the visa waiver system however.

¹¹ Data were only available on three Pacific nations.

¹² Note that this number is only the total of the three largest Pacific Island sending nations.

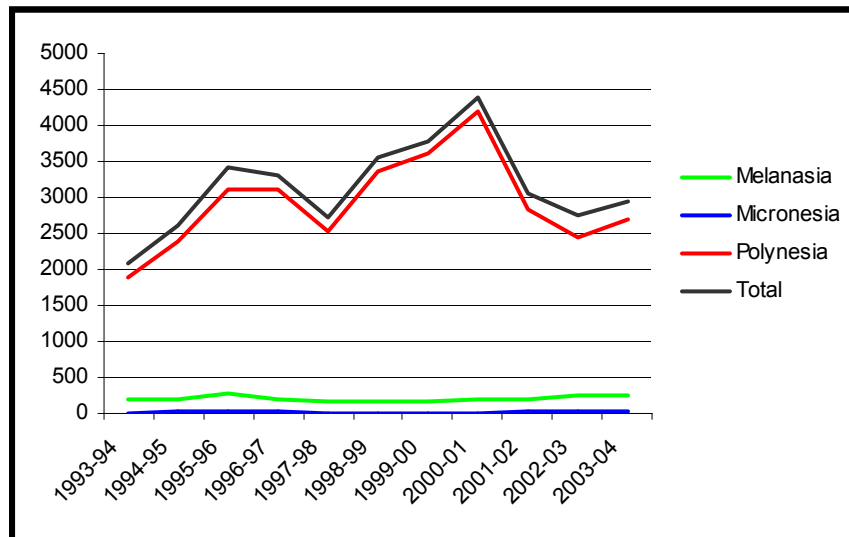
Chart 3: New Zealand, Residence Approvals by Nationality 1995-2003



Source: Statistics New Zealand

The overall migration story of New Zealand largely reflects the patterns observed in Australia, although the latter is on a larger scale involving more migrants from a greater number of source countries. Australia operates a much older points system and in recent history has also experienced increasing numbers of Asian migrants. There has also been a gradual increase (recently) in the overall number of Pacific Islanders into Australia with the vast bulk provided by Polynesia (see Chart 4), though this too is misleading in terms of the longer trends.

Chart 4: Australia, Settler Arrivals by Birthplace 1993-94 to 2003-04



Source: Australian Department of Immigration

For both Australia and New Zealand despite the reasonably large stocks of Pacific Island migrants the recent inflows from the region have been low relative to other nations, specifically those from Asia. These flows still represent very substantial fractions of the total number of

emigrants from the Pacific region however. The reliance of Pacific communities on sending nationals to these countries is going to continue. But their future is far from certain. Clearly any further restrictions on migration between the two sets of countries will likely have major repercussions on the welfare of Pacific Islanders with Tonga and Samoa particularly effected due to the high representation in these states and their increasing reliance on remittance flows. Conversely any reductions in the barriers to migration or a system that would allow freer movement might represent a significant development policy for the island communities and that is the subject to which we now turn.

1.3 The Need for Skill

In December 1988, at the Mid-Term Ministerial meeting in Montreal, WTO members finally decided to include labour mobility in the Uruguay round of GATS. Prior to this developed countries had strongly objected because of a failure to agree on a suitable definition of 'temporary' and a belief that Mode 4 impinged on their sovereignty to determine their own immigration policies. It should be noted that GATS Mode 4 is *not* migration. Furthermore, Mode 4 though commonly treated as synonymous to temporary migration is rather a temporary movement. As such, many of the arguments commonly cited against migration including the erosion of cultural traditions, excessive drains on the public purse and anxieties relating to assimilation, are simply not relevant in the case of Mode 4 (Winters, 2003). Neither necessarily is the 'brain drain' argument appropriate since (at least theoretically) workers return home. It is also an advantage that any wages earned on a temporary scheme will accrue directly to the migrant as wages, or to the migrants' family via remittances.

However despite the inclusion of the cross-border movement of natural persons in the negotiations, little progress was achieved during the Uruguay round. Where some headway was made it was largely in the area of 'commercial presence abroad'. Developing countries were treated most unfavourably, securing little or no market access from developed countries while conceding market access for skilled workers from the richer nations. This reflects the fact that developed countries generally consider Mode 4 to relate to only skilled workers, and the 'North's' superior bargaining power. In fact Mode 4 is a binding, non-discriminatory¹³, multilateral agreement, neither limited to any particular skill level nor able to influence the national immigration policies of individual members. For example it does not prohibit countries imposing stricter regimes for visas for nationals from particular countries Nor is Mode 4 restricted simply to 'North-South' cross-border service provision though this is what we confine our attentions to here since this is the key area in which previous offers have taken place. Winters (2003) identifies within this subset of Mode 4, three types of (North-South) flows; the movements of the skilled from developed to developing countries, that area on which most progress has already been made; the flows of skilled workers from developing to developed nations (that movement akin to arguments concerning the brain drain), and the flows of the unskilled, from developing to developed countries.

Businesses and corporations have long since recognised the profit in sending workers abroad for short periods. It is one way in which the potential of experts can be maximised and costs saved with lower numbers of them. Mode 4 also represents a means to speed up the international movement of corporate workers who often face long waits for obtaining foreign visas. Largely concerning 'intra-corporate transferees' this is the area in which most progress has already been made. As the Pacific Islands have little or no 'commercial presence abroad' however it is of little use to them. Iredale (2000) notes the great reluctance for Pacific

¹³ Under Mode 4 commitments are 'horizontal' and as such apply equally across all sectors. This does not preclude the possibility of the selective deepening of commitments in certain sectors however (Chaudhuri et al 2004)

communities to either send *or* receive skilled labour. Similarly Australia and New Zealand are unlikely to want to send skilled labour to the islands. This is with the possible exception of Papua New Guinea where a sizable cohort currently resides largely working on the extraction of natural resources.

The movement of skilled workers from developing to developed countries, the so-called 'brain drain' has quite justifiably received significant attention from policy makers. The outflow of skilled workers tends to both widen wage gaps and lower the average level of skill, thus reducing total output and the already dwindling tax base. In the Pacific region the movements of the elite have left the remaining stocks of skilled workers severely depleted in many instances. In the decade between 1966 and 1976 half of the total of residents in the Cook Islands that possessed any vocational qualification emigrated (Cook Islands, 1984). A similar crisis occurred again in the mid-nineties. Similarly in Fiji Islands between 1987 and 1995 approximately 75% of administrative and managerial workers and 25% of all professional and technical workers left the country (APMRN, 1997). If their qualifications are unrecognised abroad such highly skilled workers are often employed in lesser skilled jobs, the so-called 'brain waste'. Due to low domestic demand and insufficient capacities to train large numbers of skilled workers, island communities find replacing skilled labour extremely problematic. In Fiji Islands for example the cost of hiring a foreign worker are between double and quadruple that of a domestic worker (APMRN, 1997). Moreover island communities are often hit harder by the loss of this labour, a doctor emigrating from a rural area can represent a substantial loss of the local skilled labour force for instance. This leads in many cases to a critical weakening of service provision in rural areas.

The consequences of the 'brain drain' remain far from certain. It is quite plausible that workers abroad increase their productivity to such an extent that when they return this more than compensates for their loss, the so-called 'beneficial brain drain' (Winters, 2003). This does of course rely on the fact that migrants return, and a migrants' propensity to return varies widely across the region. Micronesians for example are far more likely to return relative to emigrants from Polynesia.

The increased return to education through temporary movement also warrants attention. Commander, Kangesniemi and Winters (2002) conclude that such skill gains are both potentially large enough to offset some or all of the losses from brain drain (skill loss) and that these effects are likely higher with a temporary worker scheme. The limited prospects resulting from the constrained size of the Pacific nation markets however, make migration a very attractive prospect. Acquiring skills are likely to remain a high priority for many. Kiribati and Tuvalu stand out as examples of nations not just in the Pacific but in the world that specifically train people to work abroad.

These potential gains in the context of the Pacific are unlikely to be realised however. The discussion in the literature so far does not generally consider the size of the pool of skilled workers that remain at home. Even if migrants return successfully with vastly improved productivity overall gains are unlikely if the country has had to endure an extended period when they are few or virtually no skilled workers. During this period the country would experience a 'transitory brain drain', a worsening of living standards of both the quality of education, and health care, together with dramatic reductions in wages and output. This is a likely scenario in the Pacific especially in the case of the Cook Islands.

1.4 The Future

Certainly in some occupations there is simply no substitute for unskilled labour. For the Pacific communities this is the resource in which they possess a comparative advantage and relatively

large endowments, and therefore an area in which they seek greater openness and better market access. This is where the differences, the fundamental basis on which trade generates net gains are greatest, and where the successful exploitation of these differences will yield the largest welfare benefits. As in most developed nations both Australia and New Zealand have an increasingly educated and more highly skilled, though aging population. Over time therefore the scarcity of unskilled labour will likely increase; although this is not presently the case as unemployment among the domestic unskilled remains. Nevertheless it is (almost) inevitable that in the coming decades opportunities will arise for the Pacific communities to send more unskilled workers abroad. This would go some way to redress the skill imbalance in all of these economies and provide a source for additional future remittance earnings.

The importance of temporary worker schemes has steadily increased, especially in Australia, but these do not concern unskilled workers. The fears expressed by policy makers in Australia and New Zealand on temporary worker schemes for the unskilled are not dissimilar from those in other developed nations, these include; job instability, the wage erosion of domestic unskilled workers, national security, enforcement, the high costs of administering temporary schemes (including potentially high turnover costs), and the social exclusion of temporary workers, which have all resulted in a lack of political will.

To date only Australia, New Zealand and Fiji Islands have made Mode 4 offers; and of these only the first two are publicly available. Winters (2005) alludes to the fact that no developing country has been known to have made a horizontal offer on lower skilled professionals or workers, and this *would* include Fiji Islands. Australia's initial offers on GATS Mode 4 were on intra-corporate transferees and employees of host based firms only. New Zealand's offer similarly reflected the aims of her points system. The two Oceanic powers rather than committing to any binding multilateral agreements have instead opted to sign bilateral agreements, targeting specific foreign populations for immigration, and raise the number of points needed for entry. The existence of bilateral agreements is surely the biggest hurdle standing in the way of future liberalisation of Mode 4. However, with a greater number of stakeholders actively contributing to the present round of negotiations, optimism must remain.

II. MODEL AND DATA

Mode 4 can be modelled at either extreme from which it can be viewed, i.e. from a perspective of pure labour migration or analogous to greater trade in goods. Here we choose to model with an increase in the population.

We use a standard global applied general equilibrium model, which has been adjusted to take into account bilateral labour flows. The model, termed GMig2, is similar to the model used in Walmsley and Winters (2005). In that model, Walmsley and Winters (2005) hypothesized a global pool to intermediate the flow of labour between countries, which circumvented the problem of the lack of bilateral data on the stocks of migrants. In this model, bilateral labour flows are modelled directly and therefore data is an important aspect of this model. The benefit of this approach is that it allows us to track the bilateral flows of labour, their productivities and their remittances directly.

The data base used with the Bilateral Labour Migration Model (GMig2) is based on the GTAP 6 Data Base (Dimaranan and McDougall, 2005) and is augmented with the bilateral migration data base developed by Parsons, Skeldon, Winters and Walmsley (2005) (henceforth PSWW)

and remittance data from the World Bank. These data were used to estimate bilateral wages and remittances in the model.¹⁴

A number of assumptions are made in creating this data base and in the model itself, which are outlined here.¹⁵ We assume:

- participation rates are the same as their home region;
- labour has the same characteristics as their home region, in terms of skilled/unskilled labour splits;
- wages of migrants ($W_{i,r,c}$) are equal to the home wage ($HW_{i,r}$) plus a proportion (beta) of the difference between host and home wage ($HW_{i,c} - HW_{i,r}$):

$$W_{i,r,c} = HW_{i,r} + \text{BETA} \times (HW_{i,c} - HW_{i,r})$$

Where: BETA is the proportion of the difference obtained by a person of labor type i migrating from region r to region c (= 0.75);

- a constant remittance to income ratio to determine bilateral remittances in the data base. In the model we assume that remittances remain a constant proportion of income;
- all other income (from capital, land etc) accrues to permanent residents;
- that foreign and domestic labour are perfect substitutes;
- the quantity of skilled and unskilled labour within a region is fixed and only changes with the movement of capital from one region to another;
- that there is excess demand for the quota spaces and hence any change in quotas will be filled by the labour exporting region; and
- a revolving door, where temporary workers continually enter and return to their home countries. Unless otherwise stated, no changes in productivities are assumed upon their return home.¹⁶

These results are the comparative static short run impacts of these policies. That is, they show how much better (or worse) off the residents of each region are in the short run, before capital has had time to respond to changes in the rates of return.

Charts 5 and 6 show the shares of foreign labour in Australia and New Zealand respectively, contained in the data base. Both charts show that Europe is the largest provider of foreign labour to both Australia and New Zealand. New Zealand is also a large supplier of foreign labour to Australia, primarily due to their geographical proximity and ties through the Closer Economic Relations agreement. South East Asia and the rest of the world are also large suppliers of labour. As mentioned above the Pacific Islands are not an important source of foreign labour for Australia, in New Zealand however, the Pacific Islands represent the second largest source of foreign workers, followed by Australia and the rest of the world.

¹⁴ Further information on the methods used to create this database and model are available from the Walmsley et al. (2005).

¹⁵ Further work is still being undertaken on the GMig2 model and database to get better data on many of these aspects and /or test their importance.

¹⁶ This assumption may be unrealistic given that many temporary labour schemes are designed to increase skill levels and/or productivity.

Chart 5: Percentage Total of Foreigners Living in Australia

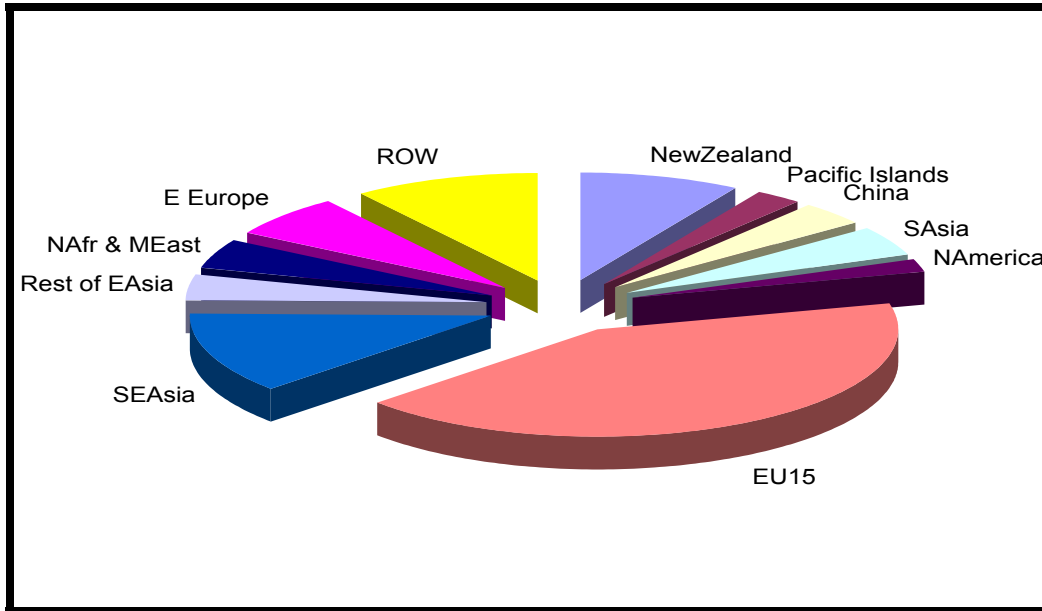
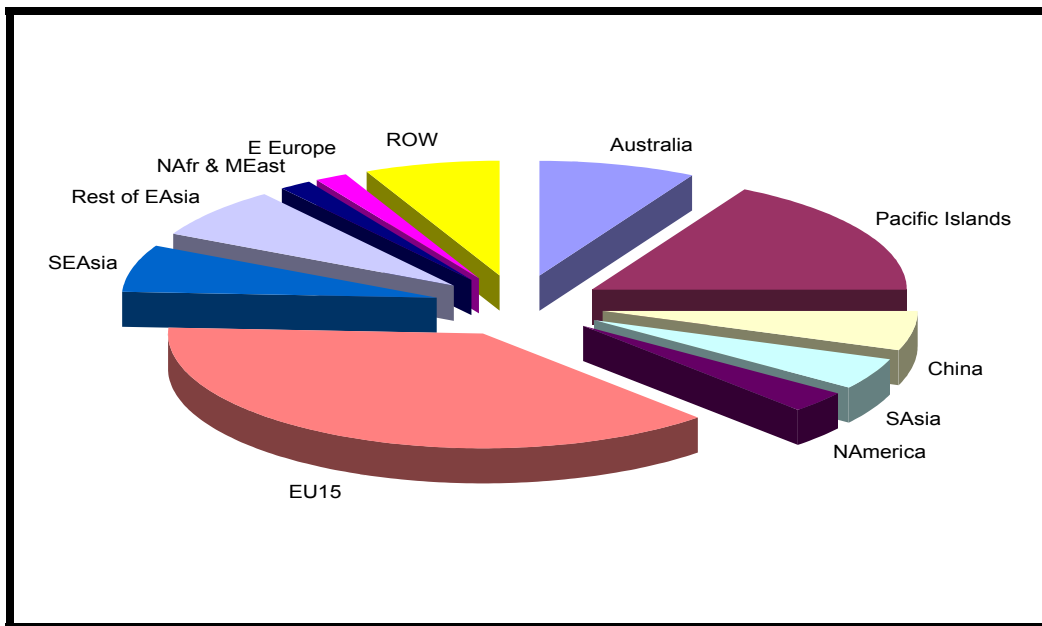


Chart 6: Percentage Total of Foreigners Living in New Zealand



III. EXPERIMENTS

The purpose of this paper is to examine how increases in the flows of temporary labour to Australia and New Zealand from the major labour exporting countries would affect both Australia and New Zealand, the Pacific Islands and other labour exporters. Quotas on Australia and New Zealand's temporary movement of natural persons were increased by 1% of the labour forces. The increased quotas were filled by increases in the labour from the Pacific Islands.

Table 1 shows the stock of Pacific Island migrants in Australia and New Zealand prior to the shock and the stocks after the Australian and New Zealand labour forces have been increased by 1 and 3%. There are currently only about 111 thousand migrant workers from the Pacific Islands in Australia and New Zealand. As mentioned above in terms of numbers Australia and New Zealand have similar numbers of migrants from the Pacific Islands, however as a percentage of the labour force, New Zealand is an important importer of Pacific Island labour. After the 1% increase in migrant labour quotas from the Pacific Islands, this number doubles to 232 thousand. This increase of 1% in the Australian and New Zealand labour force amounts to declines in the Pacific Island's skilled and unskilled workers of 21% and 2% respectively.¹⁷ While the Pacific Islands could afford to send 2% of their unskilled labour force, a loss of 21% of their skilled labour force could have a significant effect. Temporary migration schemes however often assist with capacity building efforts in the labour exporting economy. We also investigate the impact of an increase in the productivities of returning workers.

Table 1: Stock of Pacific Island Migrants by skill in Australia and New Zealand
(Numbers of people)

	Skilled		Unskilled		Total	
	Australia	New Zealand	Australia	New Zealand	Australia	New Zealand
Initial	2350	2773	48946	57739	51296	60512
1%	41201	8966	111096	71546	152297	80512
3%	118903 ^a	21352 ^a	235396	99160	354299	120512

^a The skilled labour forces in Australia and New Zealand were not increased by 3% since this would have significantly reduced the skilled labour force in the Pacific Islands.

These results were compared with those when quotas were filled by alternative labour exporting country sets, including developing economies, developed economies and those of South East Asia. Under these assumptions the increased quotas are supplied according to the labour force shares, hence the extent to which Pacific Islanders fill these places is diminished, particularly in Australia.

Further sensitivity analysis was conducted to examine the impact of varying the magnitude of the increase in quotas. Specifically, the 1% increase in unskilled labour was compared with the case where the unskilled labour force was increased by 3%. A 3% increase in the quotas of Australia and New Zealand leads to over 335 thousand unskilled migrants from the Pacific Island economies. This amount to 8.7% of the Pacific Island economies unskilled labour force. We also examine smaller increases in the flow of skilled workers between the Pacific Islands and Australia/New Zealand.

¹⁷ The reason for this large difference is that while the Pacific Island's has a reasonably large population of approximately 7m, only 5% of its labour force is skilled as compared to approximately 30% of Australia and New Zealand's labour forces. Hence skilled labour is a very scarce resource in the Pacific Island economies.

IV. RESULTS

In this section we examine the results of the alternative experiments outlined above. In the first section we examine the macro implications and hence the impact on welfare, in section b) the sectoral implications. Section c) compares the results with those obtained when the labour forces are increased by 3% in Australia and New Zealand. In section d) we compare the results with the case where other economies supply the increased quotas: South East Asia, developing and developed economies.

4.1 Macroeconomic Effects

The welfare changes of labour from country r residing in country s are displayed in Tables 2A to 2C. As a consequence of the increased flow of skilled and unskilled migrant workers from the Pacific Islands into Australia and New Zealand, the welfare of Australians and New Zealanders residing in Australia and New Zealand rises by 302.61m and 26.5m respectively (Table 2A). This is due to the fact that the increased labour endowment in Australia and New Zealand has increased the returns to capital (Table 3 and 4) and tax revenues, which offsets the fall in wages. Most of the gains come from the increase in quotas on unskilled labour (Table 2B).

Table 2A: Bilateral Welfare Changes for 1% Shock to Unskilled and Skilled labour

(Millions of US\$)

Home Region ¹⁹	Host Region ¹⁸				Total Welfare of Home Region
	Australia	New Zealand	Pacific Islands	Other	
Australia	302.61	-0.85	1.77	0.00	303.53
New Zealand	-6.88	26.55	0.94	0.00	20.61
Pacific Islands	1386.10	168.07	-488.02	0.00	1066.14
PRC	-2.89	-0.63	0.50	1.70	-1.32
South Asia	-1.40	-0.18	0.03	-4.12	-5.67
North America	-2.55	-0.66	16.49	-4.02	9.26
EU 15	-44.08	-7.14	5.05	-12.66	-58.83
South East Asia	-8.23	-0.61	3.87	0.70	-4.28
Rest of East Asia	-3.99	-1.13	2.53	-11.16	-13.76
North Africa and Middle East	-1.12	-0.10	0.15	0.82	-0.25
Eastern Europe and Former Soviet Union	-4.92	-0.20	3.73	-1.74	-3.13
ROW	-6.35	-0.65	0.77	-2.62	-8.85
Total Welfare of Host Region	1606.28	182.46	-452.19	-33.10	1303.44

¹⁸ Host region is the region where the person is residing. Hence the host region of an Australian who lives in the United Kingdom is the United Kingdom.

¹⁹ Home region is the region where people are permanent residents or in this database the region of birth. Hence the home region of an Australian who lives in the United Kingdom is Australia. Hence \$1386.10m is the welfare gained by Pacific Islander's living in Australia from the increase in Australia and New Zealand's quotas equal to 1% of their labour force and supplied by workers from the Pacific Islands only. This positive reflects the increase in numbers of Pacific Islander's in Australia earning the Australian wage. On the other hand, \$4.88m is the welfare loss of New Zealander's living in Australia when Australia and New Zealand increase their quotas, and these are supplied by workers from the Pacific Islands. This negative reflects the fall in wages that these workers will endure (note there is no change in the number of workers as New Zealand did not supply more labour to Australia).

Table 2B: Bilateral Welfare Changes for 1% Shock to Unskilled Labour

(Millions of US\$)

Home Region	Host Region				Total Welfare of Home Region
	Australia	New Zealand	Pacific Islands	Other	
Australia	199.84	-0.38	0.07	0.00	199.53
New Zealand	-4.88	17.90	0.04	0.00	13.07
Pacific Islands	775.05	104.13	22.03	0.00	901.21
PRC	-4.20	-0.76	0.10	0.96	-3.90
South Asia	-1.95	-0.21	0.01	-3.78	-5.94
North America	-1.52	-0.35	0.97	-3.92	-4.82
EU 15	-24.86	-3.36	0.26	-6.50	-34.46
South East Asia	-9.47	-0.57	0.13	0.19	-9.73
Rest of East Asia	-3.98	-0.91	0.22	-3.83	-8.51
North Africa and Middle East	-1.44	-0.11	0.01	0.67	-0.86
Eastern Europe and Former Soviet Union	-4.19	-0.15	0.12	-1.02	-5.24
ROW	-7.01	-0.55	0.06	-1.82	-9.33
Total Welfare of Host Region	911.39	114.67	24.02	-19.06	1031.02

PRC = People's Republic of China, ROW= rest of world.

Existing foreign workers in Australia and New Zealand, including those from the Pacific Islands, lose (Table 2A) as these wages fall (Table 3 and 4) and since they do not own capital the rise in returns to capital does not compensate for this loss in labour income. The EU loses most due to the large proportion of workers it already sent to Australia (42% of migrants in Australia are from the EU) and New Zealand (37%).²⁰

²⁰ Note that when only the quotas on skilled labour are increased the welfare of some migrants, e.g. People's Republic of China in Table 2C, rises by 1.3%. This is due to the fact that China supplies mostly unskilled labour to Australia and New Zealand. The increase in quotas on skilled workers causes the wage of unskilled to rise and hence the gains to existing unskilled Chinese workers living in Australia and New Zealand are greater than the losses made by existing skilled migrants as their wages decline.

Table 2C: Bilateral Welfare Changes for 1% Shock to Skilled Labour

(Millions of US\$)

Home Region	Host Region				Total Welfare of Home Region
	Australia	New Zealand	Pacific Islands	Other	
Australia	102.77	-0.47	1.70	0.00	103.99
New Zealand	-2.00	8.64	0.90	0.00	7.54
Pacific Islands	611.05	63.94	-510.06	0.00	164.93
PRC	1.30	0.13	0.40	0.73	2.57
South Asia	0.55	0.03	0.02	-0.33	0.27
North America	-1.04	-0.32	15.52	-0.10	14.07
EU 15	-19.23	-3.77	4.79	-6.16	-24.37
South East Asia	1.24	-0.04	3.74	0.51	5.46
Rest of East Asia	-0.01	-0.22	2.32	-7.33	-5.24
North Africa and Middle East	0.32	0.01	0.14	0.16	0.62
Eastern Europe and Former Soviet Union	-0.74	-0.05	3.60	-0.71	2.10
ROW	0.66	-0.10	0.71	-0.80	0.48
Total Welfare of Host Region	694.88	67.79	-476.21	-14.04	272.42

PRC= People's Republic of China, ROW = rest of world.

Table 3: Percentage Changes in Real Factor Returns and Real GDP due to Unskilled Labour

I Regions	II % change in Real Wage of Skilled Labour	III % change in Real Wage of Unskilled Labour	IV % Change in Rental Price of Capital	V % Change in Real GDP	VI % Change in Terms of Trade
Australia	0.20	-0.41	0.23	0.27	-0.01
New Zealand	0.18	-0.44	0.21	0.26	-0.03
Pacific Islands	-0.01	1.26	-0.23	-0.52	0.36
PRC	0.00	0.00	0.00	0.00	0.00
South Asia	0.00	0.00	0.00	0.00	0.00
North America	0.00	0.00	0.00	0.00	0.00
EU 15	0.00	0.00	0.00	0.00	0.00
South East Asia	0.00	0.00	0.00	0.00	0.00
Rest of East Asia	0.00	0.00	0.00	0.00	0.00
North Africa and Middle East	0.00	0.00	0.00	0.00	0.00
Eastern Europe and Former Soviet Union	0.00	0.00	0.00	0.00	0.00
ROW	0.00	0.00	0.00	0.00	0.00

Table 4: Percentage Changes in Real Factor Returns and Real GDP due to Skilled Labour

I Regions	II % change in Real Wage of Skilled Labour	III % change in Real Wage of Unskilled Labour	IV % Change in Rental Price of Capital	V % Change in Real GDP	VI % Change in Terms of Trade
Australia	-0.56	0.13	0.17	0.21	-0.02
New Zealand	-0.65	0.09	0.11	0.16	-0.02
Pacific Islands	18.69	-1.93	-2.57	-4.00	0.65
PRC	0.00	0.00	0.00	0.00	0.00
South Asia	0.00	0.00	0.00	0.00	0.00
North America	0.00	0.00	0.00	0.00	0.00
EU 15	0.00	0.00	0.00	0.00	0.00
South East Asia	0.00	0.00	0.00	0.00	0.00
Rest of East Asia	0.00	0.00	0.00	0.00	0.00
North Africa and Middle East	0.00	0.00	0.00	0.00	0.00
Eastern Europe and Former Soviet Union	0.00	0.00	0.00	0.00	0.00
ROW	0.00	0.00	0.00	0.00	0.00

PRC= People's Republic of China, ROW = rest of world.

The gain to Pacific Islanders located in Australia and New Zealand gain significantly due to the fact that they are supplying the increased quotas. The welfare of the permanent residents of the Pacific Islands however, falls considerably (-\$488m). This is due to the substantial rise (18.7%) in real skilled wages²¹ in the Pacific Islands from the loss of 27% of their skilled labour force (Table 4), which is not completely offset by increased remittances sent back home by the temporary workers. The increase in quotas on skilled labour reduces welfare by 500m (Table 2C), while the loss of unskilled labour actually raises the welfare of permanent residents by 22m (Table 2B).

The welfare loss of the Pacific Islands permanent residents is dwarfed by the gains enjoyed by the migrant labour in Australia and New Zealand, leading to an overall positive change in welfare for Pacific Islanders, however as indicated above at great expense to Pacific Islanders at home.

At this point the reader is reminded of two assumptions made in the model. First, returning migrants do not experience an increase in productivity as a result of their temporary work abroad. However temporary worker schemes are often linked with capacity building and hence returning migrants are expected to experience increased productivities. Table 5 shows the impact of increasing the productivity of returning skilled and unskilled labour. The increase in productivity is determined by assuming that returning Pacific Islanders continue to gain 50% of

²¹ In this paper we assume that the skilled labour market is subject to market forces which would raise the real wage by 18%, even though 40% of skilled workers are employed by the Government sector.

the difference between their productivities abroad and at home²² and that 80% of temporary workers return home. This leads to a 32% increase in the productivity of skilled temporary workers, which is equivalent to a 6% increase in productivity of the skilled workforce. The increase in productivity of unskilled is much larger, primarily because wage differentials (on which productivity is assumed) are much larger. The increased productivities of skilled and unskilled returning migrants raise the welfare of Pacific Islanders. These gains also offset the loss of skilled labour and hence overall welfare is positive. However most of the gains are from returning unskilled workers with higher productivities. Returning skilled workers do not offset the initial loss resulting from more temporary workers moving abroad²³.

Table 5: Welfare of Pacific Islanders in the Pacific Islands with an Increase in Productivity of Returning Migrants

	Total	Skilled Labour		Unskilled Labour	
		Productivity	Loss	Productivity	Loss
Pacific Islands	18.84	124.80	-522.17	395.70	20.51
Productivity increase of migrants ^a		32.01		627.05	
Equivalent Productivity increase of Labour force		6.27		9.95	

^a Assumes: 50% of gains are taken back by migrant and 80% of migrants return.

The second assumption which readers are reminded of is that the quotas are assumed to be filled. It could be argued that an increase in the real wages of skilled workers in the Pacific Islanders of 18% might provide a large enough incentive to skilled Pacific Islanders that they choose not to move to Australia and New Zealand. This argument is more likely to apply if movement was permanent; since temporary workers are likely to return home with higher productivity and hence even higher wages.

The permanent residents of People’s Republic of China and South East Asia gain from increased trading opportunities with Australia and New Zealand, while the more skilled labour intensive countries – Europe, East Asia and North America lose.

Real GDP rises in Australia and New Zealand due to the greater access to labour endowments, both skilled and unskilled (columns V, Tables 3 and 4). The rental price of capital rises reflecting the increased demand for capital which accompanies the abundance of skilled and unskilled labour.

Real GDP in the Pacific Islands falls, particularly with the movement of skilled labour to Australia and New Zealand. The scarcity of skilled labour raises the real wage of skilled labour by a phenomenal 18% and reduces the returns to capital and hence the rental price also falls significantly (2.57% in Table 4). The rise in unskilled real wages on the other hand is relatively small, only 1.26%, and has a much smaller impact on the returns to capital and Real GDP.

²² Remember that a Pacific Islander living in the USA will gain 75% of the difference in productivities between a Pacific Islander working at home and an American person working in America. Hence when they return we assume they keep 50% of this difference.

²³ This experiment assumes that the temporary flow of labour is continuous. As workers move home with higher productivities they are immediately replaced with other temporary workers such that the labour supply in the Pacific Island’s is permanently lower. This is the revolving door feature referred to above.

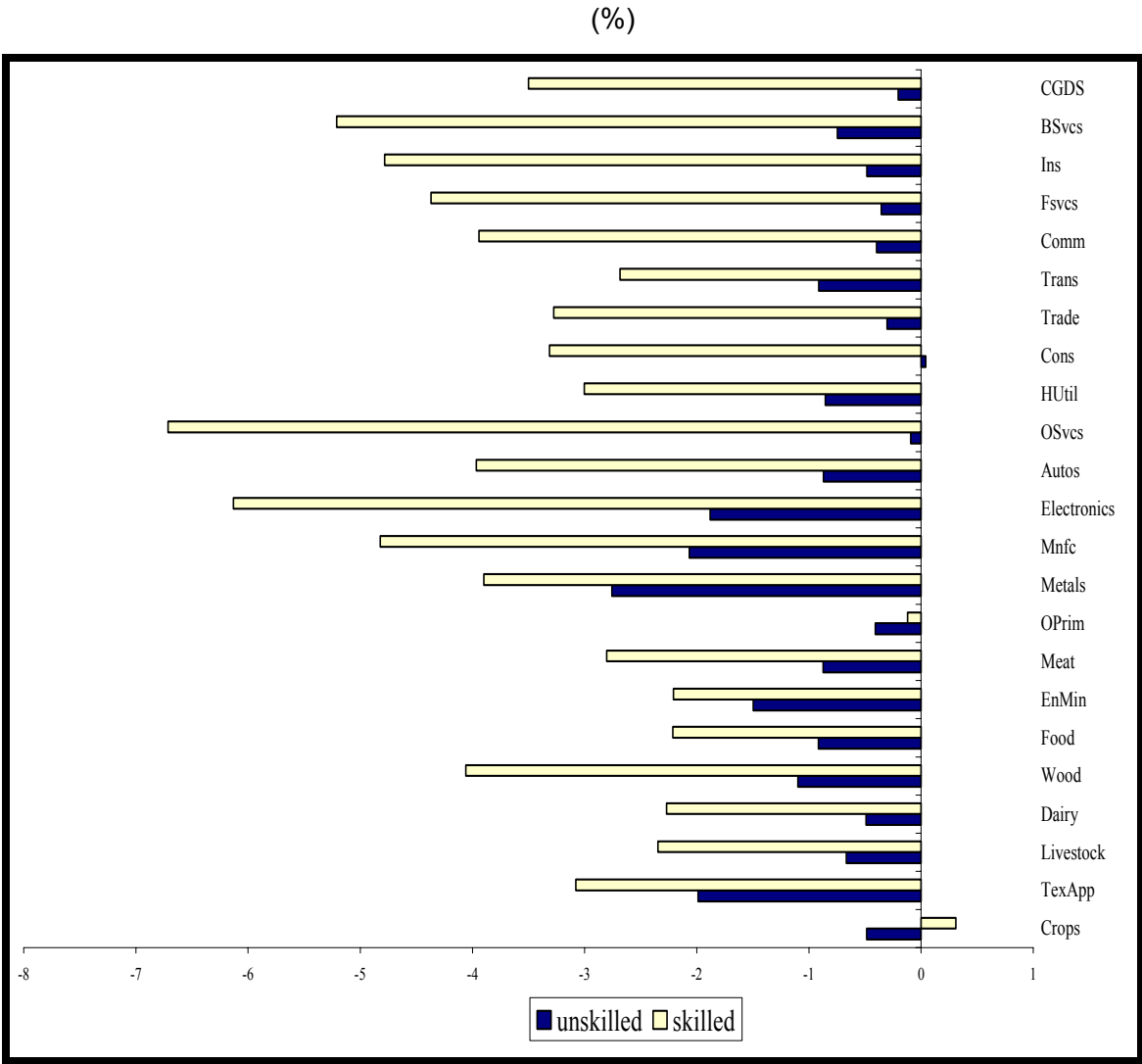
Given that the increased quota amounts to only 2% of the Pacific Islands unskilled workforce, this rise in the real wages of unskilled workers might not occur at all if the movement of unskilled labour merely reduces the level of unemployment in the Pacific Islands.

Alongside the improvement in the real wages of skilled workers (18%), the Pacific Islands also experiences a 1 percent improvement in terms of trade as the price of its exports rises relative to imports. This is due to a real exchange rate appreciation resulting from the substantial rise in skilled wages.

4.2 Sectoral Output

Charts 7 and 8 illustrate the effects of the liberalization on the sectoral output of the Pacific Islands and Australia respectively²⁴.

Chart 7. Impact of Increased Unskilled and Skilled Labour Movement on Sectors of Pacific Island Economies



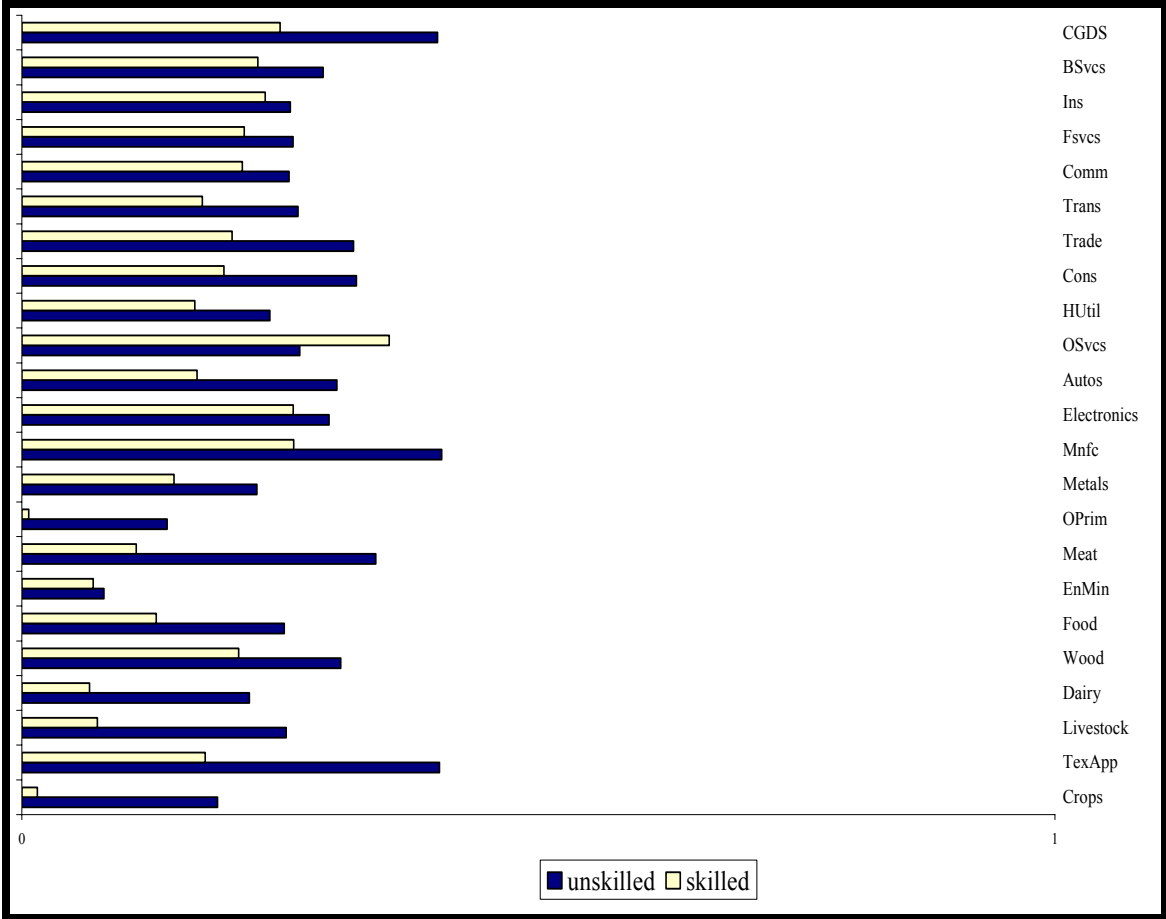
²⁴ The effects on New Zealand are similar to those on Australia. The effects on the other regions are mostly negative and insignificant.

Chart 7 shows that output in the Pacific Islands drops dramatically across all sectors. Most of these losses can be attributable to the loss of skilled labour, particularly in the “high technology” industries, where the concentrations of skilled labour are highest. Production by the ‘Other Services’ falls considerably as a result of this. The loss of unskilled labour affects mostly the agricultural industries and other labour intensive manufactures. Sectors that are traditionally more land and unskilled labour intensive suffer the smallest decreases. Other Primary and Crops experience the smallest drops in output, with less than half a percent for Other Primary and 0.1% for Crops. Electronics and Manufacturing, which are affected by both the loss of skilled and unskilled labour, are some of the biggest losers with decreases of more than six percent in total.

In contrast, output in Australia and New Zealand increases in all sectors, although the magnitude of the increases are usually much smaller than the decreases experienced by the Pacific Islands (Charts 7 and 8). Australia gains most heavily in the Electronics sector, while New Zealand does best in Manufacturing, Other Services, and Capital Goods. Both countries see large improvements in their Textiles sector output. Again most of the gains are the result of increases in unskilled labour.

Chart 8. Impact of Increased Unskilled and Skilled Labour Movement on Sectors of Australia

(%)



4.3 Skilled Labour

As mentioned above an increase in Australia and New Zealand's skilled labour force of 1% is equivalent to a fall in the Pacific island's skilled labour force of 21%. In this section we examine the impact of alternative shocks. Table 6 shows that reducing the quota to an increase of 0.2% of the Australian and New Zealand skilled workforce reduces the losses to the Pacific Island economies considerably, from \$510 million under the previous experiment to \$93 million. The skilled labour force in the Pacific Island economies would fall by just over 4%, much less than the previous case where 21% of the Pacific Island's skilled labour force moved. As less skilled labour moves abroad the welfare losses diminish considerably. It is interesting to note that the movement of just 1% of the Pacific Island's skilled labour force would offset all gains made from sending 2% of its unskilled labour force.

Table 6: Sensitivity Analysis: The Impact of Alternative Changes in Skilled Labour Quotas on Welfare

% Increase in Australia and New Zealand's Skilled Labour Forces (shock)	1%	0.20%	0.10%	0.05%	0.01%	0.005%
% of Pacific Islander's skilled worker population	-21.56	-4.31	-2.16	-1.08	-0.22	-0.11
Welfare of Pacific Islanders in Pacific Islands (Millions of US\$)	-510.06	-93.27	-46.16	-22.96	-4.57	-2.29

4.4 Unskilled labour

In the case of unskilled labour the gains to the Pacific Islander's living in the Pacific Islands increases as the quota is further increased to 2 and 3% respectively (Table 7). Similarly the gains to Australia and New Zealand also increase as more unskilled labour is obtained from the Pacific Islands.

Table 7: Sensitivity Analysis: The Impact of Alternative Changes in Unskilled Labour Quotas on Welfare

% increase in Australia and New Zealand's unskilled labour forces (shock)	1%	2%	3%
% of Pacific Islander's unskilled worker population	-1.94%	-3.88	-5.82
Welfare of Pacific Islanders in Pacific Islands (Millions of US\$)	22.03	41.46	58.82
Welfare of Australian's in Australia	199.84	402.18	605.87
Welfare of New Zealander's in New Zealand	17.9	36.23	54.88

4.5 Alternative Labour Exporters

In the following sections we examine the case where Australia and New Zealand increase their quotas on the temporary movement of labour, however this new labour is supplied by South East Asia (only), South East Asia and the Pacific Islands, all developing countries, all developed countries and finally according to the current shares.

Pacific Islands Versus South East Asia

In this section we examine the welfare implications of expanding quotas by 1% to persons from South East Asia and compare this with the case where the quotas are increased for persons from Pacific Island economies only and for the case where both S.E Asian and Pacific Islander's fill the 1% increase in quotas.

In the case where quotas are increased for South East Asian persons only the gains to Australia and New Zealand are slightly less than the Pacific Island case (Table 8). The reason for this is that the wages of Pacific Islander's are marginally smaller and hence more gains are made from cheaper labour. Of course the gains are now obtained by S.E Asian labour in Australia and New Zealand. The remaining residents of S.E Asia also gain as a result of the movement of labour. Almost all of the gains are made from the movement of unskilled labour, however unlike the Pacific Islands the loss of skilled labour does not result in an overall decline in welfare, but a small positive change.

In the second case we have assumed that quotas would be opened to both Pacific Island economies and S.E Asia and these economies would supply the labour in accordance with their existing shares. As expected the Pacific Island's supplies a large portion (74.7%) of New Zealand (74%) increased quota for unskilled labour, but in absolute numbers they send more unskilled labour to Australia (11,274). This unskilled labour represents a small proportion of the Pacific Island's unskilled labour supply (0.55%, Table 8). In terms of skilled labour the numbers of people are relatively small (Table 9) however they represent a reasonable percentage of the Pacific Island's labour supply (2.45%, Table 8).

In this case the impact on Australia and New Zealand is similar to that in the other cases. The Pacific Island's lose less from the skilled labour; however they also lose some of the gains made from supplying unskilled labour. South East Asia on the other hand gains from sending both, albeit also more from unskilled labour.

Table 8: Comparison of Welfare Results from Alternative Sources of Labour

			Host Region					
Quotas filled by:	Home Region		Australia	New Zealand	Pacific Islands	South East Asia	Other	Total Welfare of Host Region
Pacific Islands Only	Unskilled	Australia	199.84	-0.38	0.07	0.00	0.00	199.53
		New Zealand	-4.88	17.90	0.04	0.00	0.00	13.07
		Pacific Islands	775.05	104.13	22.03	0.00	0.00	901.21
	Skilled	Australia	102.77	-0.47	1.70	0.00	0.00	103.99
		New Zealand	-2.00	8.64	0.90	0.00	0.00	7.54
		Pacific Islands	611.05	63.94	-510.06	0.00	0.00	164.93
South East Asia Only	Unskilled	Australia	190.67	-0.41	0.00	0.01	0.00	190.28
		New Zealand	-5.11	16.69	0.00	0.00	0.00	11.59
		Pacific Islands	-2.55	-2.01	0.22	0.00	0.00	-4.34
	South East Asia	693.43	99.11	0.00	147.68	0.01	940.23	
	Skilled	Australia	91.08	-0.44	0.00	0.02	0.00	90.66
		New Zealand	-1.98	8.36	0.00	0.00	0.00	6.39
Pacific Islands		0.68	0.30	0.47	0.00	0.00	1.46	
South East Asia	1.24	-0.04	3.74	0.51	5.46	0.00		
South East Asia and Pacific Islands	Unskilled	Australia	192.08	-0.39	0.02	0.00	0.00	191.72
		New Zealand	-5.07	17.62	0.01	0.00	0.00	12.57
		Pacific Islands	138.41	77.26	4.55	0.00	0.00	220.22
		South East Asia	566.00	24.66	0.04	111.41	0.00	702.10
		% change in labour force	1%	1%	-0.55%	-0.02%		
	Skilled	Australia	91.55	-0.45	0.16	0.02	0.00	91.28
		New Zealand	-1.98	8.97	0.08	0.00	0.00	7.07
		Pacific Islands	37.84	28.74	-52.84	0.00	0.00	13.74
		South East Asia	483.12	30.00	0.35	26.73	-0.01	540.19
			% change in Labour force	1%	1%	-2.45%	-0.17%	

Table 9: Share of Quotas supplied by Pacific Islands and South East Asia

			Host Region	
Home Region			Australia	New Zealand
Unskilled	Pacific Islands	No of people	11274	10314
		% of quota	18.14%	74.70%
	South East Asia	No of people	50876	3493
		% of quota	81.86%	25.30%
Skilled	Pacific Islands	No of people	2361	2765
		% of quota	6.08%	44.65%
	South East Asia	No of people	36489	3428
		% of quota	93.92%	55.35%

All Developing Countries

Under this scenario we consider the implications of Australia and New Zealand increasing their quotas on skilled and unskilled and allowing these quotas to be filled by all developing countries. This scenario represents a North-South liberalization of Mode 4. The developing labour exporting regions comprise the Pacific Islands, People's Republic of China, South Asia, South East Asia, North Africa and the Middle East, Eastern Europe and the Former Soviet Union, and the Rest of the World.

Once again looking first at welfare changes in Tables 10A and 10B, it can be seen that Australia and New Zealand again experience significant welfare gains, although the sizes of the gains are smaller than in the scenario where the increased labour was imported from the Pacific Islands only.

The gains to the Pacific Islands are reduced as they supply less of the unskilled labour, just 0.25% of their labour force as compared to 1.94% when only they filled the quotas. It is also not surprising that they lose considerably less from skilled labour.

Migrants from South East Asia, ROW, People's Republic of China and Eastern Europe gain considerably as a result of the increased quotas (Tables 10A and B). These are also the countries with the highest shares of the unskilled quotas: 30, 20, 11 and 13% respectively of Australia's quotas. While most countries gain more from unskilled labour than from skilled, Eastern Europe gains more from the increase in skilled labour quotas (Tables 10A and B); this is due to the fact that Eastern Europe supplies almost 30% of the increased skilled labour quota as opposed to only 13% of the unskilled.

Most of the remaining residents of the labour exporting countries gain, at least from the increase in quotas on unskilled labour (Table 10A). The results are more mixed from skilled labour movement (Table 10B).

Table 10A: Welfare Results from Removal of Unskilled Labour, Supplied by Developing Economies

Home region	Host Region									
	Australia	New Zealand	Pacific Islands	PRC	South Asia	South East Asia	North Africa and Middle East	Eastern Europe and Former Soviet Union	ROW	Other Developed
Australia	186.16	-0.39	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New Zealand	-5.19	16.80	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific Islands	48.36	41.77	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRC	81.39	16.49	0.01	7.17	0.00	0.08	0.01	0.00	0.01	0.02
South Asia	38.31	4.65	0.00	0.00	54.39	0.01	0.13	0.00	0.01	0.00
North America	-1.63	-0.36	0.13	0.00	0.04	0.03	0.05	0.01	0.05	-1.87
EU 15	-26.82	-3.46	0.03	0.00	0.09	0.05	0.09	0.03	0.17	-3.36
South East Asia	198.14	13.35	0.02	0.00	0.00	42.67	0.04	0.00	0.01	0.00
Rest of East Asia	-4.17	-0.93	0.03	0.00	0.02	0.01	0.01	0.00	0.01	2.66
North Africa and Middle East	28.96	2.40	0.00	0.00	0.00	0.01	33.83	0.00	0.01	0.00
Eastern Europe and Former Soviet Union	98.41	3.75	0.02	0.00	0.03	0.04	0.19	-2.80	0.04	0.01
ROW	148.83	13.26	0.01	0.00	0.02	0.02	0.06	0.02	7.03	-0.01
Total Welfare of Host Region	790.76	107.33	2.15	7.18	54.60	42.93	34.42	-2.73	7.35	-2.55
% of Labour Force	1.00	1.00	-0.25	0.00	0.00	-0.01	-0.01	-0.01	0.00	0.00

PRC = People's Republic of China, ROW = rest of world.

Table 10B: Welfare Results from Removal of Skilled Labour, Supplied by Developing Economies

Home Region	Host Region									
	Australia	New Zealand	Pacific Islands	PRC	South Asia	South East Asia	North Africa and Middle East	Eastern Europe and Former Soviet Union	ROW	Other Developed
Australia	91.84	-0.45	0.06	0.00	0.00	0.01	0.00	0.00	0.00	0.00
New Zealand	-2.00	8.75	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pacific Islands	13.05	12.89	-20.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PRC	18.23	3.98	0.01	-3.36	0.00	0.00	0.00	0.00	0.00	-0.01
South Asia	12.60	1.53	0.00	0.00	12.79	0.00	0.04	0.00	0.00	0.00
North America	-1.03	-0.30	0.57	0.00	0.04	0.12	0.11	0.02	0.24	-1.31
EU 15	-19.01	-3.59	0.18	0.00	0.12	0.17	0.24	0.14	0.66	-5.63
South East Asia	161.43	13.25	0.14	0.00	0.01	10.27	0.05	0.00	0.01	-0.01
Rest of East Asia	-0.05	-0.20	0.08	0.00	0.02	0.03	0.02	0.01	0.04	-1.94
North Africa and Middle East	15.41	1.47	0.00	0.00	0.00	0.01	1.90	0.00	0.00	0.00
Eastern Europe and Former Soviet Union	162.24	6.25	0.13	0.00	0.04	0.09	0.46	-8.90	0.15	0.00
ROW	137.66	17.60	0.03	0.00	0.03	0.03	0.07	0.02	-44.22	-0.01
Total Welfare of Host Region	590.38	61.17	-19.05	-3.35	13.05	10.73	2.90	-8.71	-43.12	-8.90
% of Labour Force	1.00	1.00	-0.96	-0.01	-0.01	-0.06	-0.02	-0.03	-0.02	0.00

PRC = People's Republic of China, ROW = rest of world.

All Developed Countries

The final simulation considers North-North liberalization, where quotas on workers from developed countries are increased by 1%. The developed countries in this simulation are considered to be roughly the following regions: the EU 15, the Rest of East Asia, and North America. Note that movement between Australia and New Zealand is not included because of the CER agreement which already allows for the free movement of labour between these countries.

The results from this scenario are shown in Tables 11A and 11B, for unskilled and skilled labour respectively. In this scenario the permanent residents of Australia and New Zealand have the largest welfare gains of all the simulations. This is due to the fact that the skilled and unskilled labour from Europe, North America and the Rest of Asia are also the most productive and hence add considerably to the effective labour force. The wages of the skilled and unskilled in Australia and New Zealand also decline the most when labour from developed economies fills the increased quotas.

Table 11A: Welfare Results from Removal of Unskilled Labour, Supplied by Developed Economies

	Host Region							Total Welfare of Home Region
	Australia	New Zealand	Pacific Islands	North America	Europe	Rest of Asia	Other Developing	
Australia	271.73	-0.63	0.00	0.00	0.09	0.00	0.00	271.19
New Zealand	-6.77	30.09	0.00	0.00	0.09	0.00	0.00	23.41
Pacific islands	-3.43	-3.21	0.13	0.03	0.05	0.00	0.00	-6.43
PRC	-5.81	-1.27	0.00	0.25	0.85	0.59	1.29	-4.12
South Asia	-2.70	-0.36	0.00	0.10	0.98	0.01	-1.92	-3.89
North America	50.26	12.66	0.01	-93.27	1.32	0.01	0.00	-29.02
Europe	846.31	128.73	0.00	0.42	-1307.09	0.00	-0.01	-331.65
South East Asia	-13.13	-0.96	0.00	0.43	1.37	0.06	1.65	-10.58
Rest of East Asia	104.52	28.05	0.00	0.35	0.81	-166.43	0.00	-32.69
North Africa and Middle East	-1.99	-0.18	0.00	0.09	2.78	0.00	0.31	1.01
Eastern Europe and Former Soviet Union	-5.80	-0.25	0.00	0.27	4.15	0.01	-3.42	-5.04
ROW	-9.72	-0.92	0.00	1.29	9.55	0.04	-2.07	-1.83
Total Welfare of Host Region	1223.46	191.75	0.15	-90.03	-1285.06	-165.70	-4.19	-129.62
% of Labour Force	1.00	1.00	0.00	0.00	-0.05	-0.01	0.00	

PRC = People's Republic of China, ROW = rest of world.

Migrant labour from Europe gains the most as they supply between 72-92% of the increased quotas in Australia and New Zealand. The remaining residents in Europe however lose considerably as a result of the loss of both skilled and unskilled labour, unlike the developing economies where some gains could be made. Another important difference with the developing economies is that the losses were less from the movement of skilled labour than from unskilled.

This result reflects the relative abundance of skilled labour in these developed economies. Residents in North America and the Rest of Asia also lose, but to a lesser extent. The Pacific Island's gain only marginally from this policy, as a result of trade ties.

Table 11A: Welfare Results from Removal of Skilled Labour, Supplied by Developed Economies

	Host Region							Total Welfare of Home Region
	Australia	New Zealand	Pacific Islands	North America	Europe	Rest of Asia	Other Developing	
Australia	132.68	-0.68	0.00	0.00	0.11	0.00	0.00	132.12
New Zealand	-2.56	14.71	0.00	0.00	0.04	0.00	0.00	12.21
Pacific islands	0.95	0.46	0.57	-0.01	-0.01	0.00	0.00	1.96
PRC	1.69	0.21	0.00	-0.08	-0.28	0.03	-0.85	0.71
South Asia	0.71	0.05	0.00	-0.03	-0.32	0.00	-1.13	-0.73
North America	37.08	6.45	0.01	-80.97	0.69	0.03	-0.02	-36.73
Europe	658.79	73.66	0.00	0.31	-1097.61	0.02	-0.06	-364.90
South East Asia	1.62	-0.05	0.00	-0.06	-0.20	0.04	1.16	2.51
Rest of East Asia	35.57	7.29	0.00	-0.02	0.00	-92.99	-0.01	-50.15
North Africa and Middle East	0.41	0.01	0.00	-0.02	-0.56	0.00	-0.74	-0.90
Eastern Europe and Former Soviet Union	-0.94	-0.07	0.00	0.02	0.27	0.02	-2.35	-3.04
ROW	0.87	-0.14	0.00	-0.27	-1.47	0.02	-3.11	-4.10
Total Welfare of Host Region	866.88	101.90	0.58	-81.13	-1099.35	-92.82	-7.12	-311.05
% of Labour Force	1.00	1.00	0.00	0.00	-0.07	-0.01	0.00	

PRC = People's Republic of China, ROW = rest of world.

V. CONCLUSIONS

This paper provides further evidence of the potential gains to be made by both labour exporting and importing regions from negotiations under GATS Mode 4. Here we examine the impact on welfare, Real GDP and wages of Australia and New Zealand increasing their quotas on skilled an unskilled labour from the Pacific Island economies by 1% of their labour force. The results show that Australia and New Zealand would gain considerably from increasing these quotas through GATS Mode 4. Although most of the negotiations have focussed on the mobility of skilled labour, this paper provides further evidence that the gains to developing economies from Mode 4 are greatest when applied to unskilled labour. This result is consistent with other findings, such as Walmsley and Winters (2005).

The paper also found that Australia and New Zealand's choice of sending partner amongst developing economies does not affect the welfare gains accruing to them. The gains made by Australia and New Zealand were similar regardless of whether labour came from the Pacific Islands, South East Asia or a combination of developing economies. Of course the choice of sending region had a considerable impact on the welfare of the sending economies themselves.

The Pacific Island economies gained substantially from sending unskilled labour to Australia and New Zealand under GATS Mode 4. In the case of skilled labour, however, the loss of scarce skilled labour was shown to have a significant negative impact on the permanent residents remaining in the Pacific Islands and significantly increased the wages of the remaining skilled workers.

However, when Mode 4 was linked to capacity building efforts and it was assumed that 80% of skilled and unskilled workers would return with increased productivities the results for the permanent residents remaining in the Pacific islands was more positive, albeit again most of the gains were from increases in the productivities of unskilled workers.

Finally, this paper also examined the case where the quotas were met by an increase in labour from developed economies. In this case, the gains made by Australia and New Zealand were much greater than when labour was supplied by developing economies. However Europe, North America and the rest of Asia, the three sending economies, all lost significantly as a result of the lost labour supply, particularly from the loss of unskilled labour.

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