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Māori participation in the New Zealand economy

Final report to Te Puni Kokiri

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Preface

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Authorship

This report has been prepared at NZIER by Mark Walton. The comments of Phil Coghini and Hillmare Schulze, of Te Puni Kokiri, are gratefully acknowledged.

8 Halswell St, Thorndon
P O Box 3479, Wellington
Tel: +64 4 472 1880
Fax: +64 4 472 1211
econ@nzier.org.nz
www.nzier.org.nz

Executive Summary

This report presents an update of the 1995/96 Māori social accounting matrix (SAM).[1] As was the case for the original estimates, the 2003 SAM presented in this paper is also intended only to be "illustrative", reflecting the paucity of statistical information relevant to the estimation of Māori involvement in the New Zealand economy. However, a number of new data sources have come to light in recent years, prompting the update that is presented here.

There a number of key findings to be drawn from the estimates which focus on the main means by which Māori contribute to the New Zealand economy: as households and as producers. We find that the savings position of Māori households – that is, the net balance of all household inflows and payments – improved by $138 million between 1996 and 2003. Savings of Māori households were slightly more than $1 billion in 2003, which is in contrast to national households' *dissaving* for the same year of $8.6 billion (Although there are some issues regarding the quality of these estimates, reflecting the quality of the data on which it is based.)

This paper also finds that the value added of Māori businesses more than doubled between 1996 and 2003, increasing by $1.4 billion. This also represents an increase in the contribution of Māori businesses to national GDP (see Table 5) which lifted from 1.23% in 1996 to 1.96% in 2003.

Table 1 Māori contribution to GDP

	1996	2003
Māori contribution to GDP ($m)	1,150	2,563
National GDP ($m)[1]	93,387	130,687
Māori contribution to GDP (%)	1.23%	1.96%

Notes: (1) Includes the components of GDP not allocated to industries, such as GST and bank service charges. The earlier paper referred to the Māori share of national value added, which does not include these unallocated components.

Source: NZIER, Statistics New Zealand

Although some data gaps have been partially filled since the original Māori SAM was derived, the fact remains that measurement of the Māori contribution to the New Zealand economy, particularly via their role as producers, is hampered by a severe shortage of solid, directly relevant data. This situation is likely to prevail unless the data collection agencies make a determined effort to remedy it.

[1] NZIER (report for Te Puni Kokiri), *Constructing a Māori SAM: an illustrative example*, 2002.

Contents

Appendices

Figures

Tables

1. Introduction

This report presents an update of the 1995/96 Māori social accounting matrix (SAM).[1] The original paper labelled the SAM as "illustrative", reflecting the paucity of statistical information that existed at the time. The SAM presented in this paper, for the reference period 2002/03, is no less "illustrative" and is perhaps even more so; two key data components – the Institutional Sector Accounts and the Inter-industry Study – have not been updated since the original SAM was produced.

However, some of the data gaps in the original SAM have been partially filled in recent years. For instance, Statistics New Zealand made available data for selected Māori business organisations from the Annual Enterprise Survey. Furthermore, the Household Income and Outlay account, which provides details about the value of receipts and payments of New Zealand households, is updated on an annual basis. The calculations summarised in this paper thus take advantage of the best data sources currently available.

This paper is arranged as follows. The following section provides an overview of the methodology and data sources used to compile the updated SAM, and contrasts the method with that used earlier. Section 3 presents the updated SAM and provides description of the national accounting flows that the SAM depicts. Finally, Section 4 highlights some of the key flows from the updated SAM. Appendices provide more detail about the data used to update the SAM and present the original SAM from the earlier paper.

2. General methodology

The myriad of flows presented in the updated Māori SAM (see Figure 2) can be grouped into three main classes:

1. The production transactions (i.e. the commodity/industry rows and columns). The figures in these cells relate to the sale of goods and services (the rows) and the inputs required to produce those goods and services (the columns).
2. Transactions involving Māori households (i.e. the HOUSM rows and columns). These transactions relate to the receipts (the rows) and the payments (the columns) by Māori households, including key flows such as receipt of wage and benefit income and payment of income taxes.
3. All other transactions. These transactions relate to the other institutional sectors of the economy (where Māori households are not one of the parties) i.e. producer enterprises, government and financial institutions.

In general, separate data sources and methods were used for each of these groups of transactions (as necessitated by the available data). These are outlined below.

[1] NZIER (report for Te Puni Kokiri), *Constructing a Māori SAM: an illustrative example*, 2002.

2.1 Production transactions

Production flows associated with Māori businesses are based on analysis of annual reports of Māori organisations, Annual Enterprise Survey data, GST sales data and estimates of the Māori commercial asset base. In broad terms, estimates of sectoral output are initially derived from analysis of Te Puni Kokiri's asset base estimates (Te Puni Kokiri, 2001, p2), annual reports and Annual Enterprise Survey data for: Māori Trusts, Māori Trustee Land Assets, major Māori organisations, Iwi Treaty settlements, Māori Trust Boards and Māori self-employed. These initial estimates are then scaled to align with GST sales data of Māori organisations sourced from Statistics New Zealand. In general, this latter step has a greater impact on the distribution of industry activity than on the total level of production. Sectoral inter-industry and value added flows are derived by applying 1996 proportions to these estimates of sectoral output.

It is important to note that the method used to estimate many of the flows of the updated SAM, and particularly those that relate to production, is different from that used for the original SAM. The original SAM, based on the 1995/96 reference year, utilised Statistics New Zealand's Institutional Sector Accounts 1987-98 and the Inter-Industry Study 1996. From these main data sources a national SAM was estimated, which in turn formed the basis for the estimation of the Māori share of each of the relevant transactions. However, neither of these sources have been updated; thus rather than use a national SAM as the starting point for the construction of the Māori SAM, the updated SAM relies on more direct measurement of Māori activity (e.g. using annual report data as direct measures rather than simply for calculation of proportions).

For this reason, caution should be exercised when comparing the 2003 Māori SAM with that for 1996. Measures of aggregate flows – such as total value added/GDP – are likely to be comparable. However, methodological differences are more pronounced at the sectoral level, and for these reason sectoral comparisons are unlikely to provide meaningful results.

2.2 Household transactions

Transactions involving Māori households are typically derived by applying proportions derived from the Census to the national flows portrayed in Statistics New Zealand's Household Income and Outlay accounts. In general, the methods to used estimate Māori household flows in the updated SAM are similar to those used for the original SAM since the Household Income and Outlay account is a component of the Institutional Sector Accounts (and is in fact the one component that is updated on an annual basis). Thus comparisons between the original and updated households flows are likely to be meaningful.

2.3 Other transactions

The miscellaneous other transactions that make up the SAM – that is, those involving government institutions, producer enterprises or financial intermediaries, and which do not also involve Māori households – are estimated

using a range of methods. For example, government sector transactions are based largely on the Government's financial accounts compiled by Treasury. Again, some caution needs to be exercised when comparing these updated values with those of the 1996 SAM, since the methods employed in the update are fundamentally different from those used originally.

3. SAMs and the national accounts framework

3.1 What is a SAM?

A social accounting matrix is a means of portraying specific details on various economic flows. It consists of rows and columns that represent the payments (or inputs) and receipts (or outputs) of specific institutional units. In a simple SAM these units are likely to include producers of goods and services, households, government and the rest of the world. The level of detail embodied in the SAM is dependent firstly on the purpose for which the SAM is to be used, and secondly (but no less importantly) on the extent to which suitable data is available.

A simplified representation of a New Zealand SAM is shown in Figure 1. As can be noted, the SAM embodies both a functional distinction – separating, for example, production of goods and services from the consumption or investment of those same products – and an institutional distinction, where units that face similar decision making rules may be grouped together. In Figure 1, these "institutional sectors" are producer enterprises, households, government and the rest of the world.

In a SAM, column entries typically represent inputs, payments or outlays, while rows represent outputs, receipts or incomes. Thus the household column represents payments by households, while it's corresponding row represents household income. The intersection of one sector's row with another sector's column represents a transfer of some kind, which may or may not be requited, between the sectors.

The layout of a SAM, and in particular the Māori SAM, is described in more detail in section 3.3.

SAMs have traditionally provided the basis for analysing the impact of government policy in developing economies, either as a stand alone tool, or as the basis for economic models. Institutions such as the World Bank and the International Food Policy Research Institute make extensive use of social accounting matrices in their computable general equilibrium (CGE) modelling and analysis.

As CGE models have become the pre-eminent tool for analysing a range of government policy scenarios, and exogenous shocks to an otherwise stable

economy, so have SAMs become an increasingly important device for providing the basis on which such models are built.[2]

[2] See, for example, J F Francois and K A Reinert (1997) for an account of the role SAMs and CGE models play in trade policy analysis.

Figure 1 A simple SAM

	Commodities	Industries	Factors	Producer enterprises	Households	Government	Investment	Rest of the World
Commodities		Intermediate consumption			Household consumption expenditure	Government consumption expenditure	Gross fixed capital formation	Exports
Industries	Gross output							
Factors		Value added						
Producer enterprises			Operating surplus					
Households			Compensation of employees	Primary income		Current transfers		Foreign remittances
Government	Product taxes	Other indirect taxes		Enterprise taxes	Personal taxes			
Investment				Retained earnings	Household savings	Government savings		Capital transfers from abroad
Rest of the World	Imports				Current transfers abroad	Current transfers abroad	Capital transfers abroad	

Source: NZIER

3.2 The sequence of national accounts

The purpose of this section is to provide an overview of the sequence of the national accounts, since a social accounting matrix has a very strong foundation in that sequence. As can be seen from the Māori SAM presented in Figure 2, the row and column headings of the SAM correspond to the section headings below.

A quote from the *System of National Accounts 1993* itself probably best encapsulates the nature of the System:

> The System of National Accounts (SNA) consists of a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policy making.
>
> The System is built around a sequence of interconnected flow accounts linked to different types of economic activity taking place within a given period of time, together with balance sheets that record the values of the stocks of assets and liabilities held by institutional units or sectors at the beginning and end of the period. Each flow account relates to a particular kind of activity such as production, or the generation, distribution, redistribution or use of income. Each account is balanced by introducing a balancing item defined residually as the difference between the total resources and uses recorded on the two sides of the account. The balancing item from one account is carried forward as the first item in the following account, thereby making the sequence of accounts an articulated whole. The balancing items typically encapsulate the net result of the activities covered by the accounts in question and are therefore economic constructs of considerable interest and analytical significance - for example, value added, disposable income and saving. There is also a strong link between the flow accounts and the balance sheets, as all the changes occurring over time that affect the assets or liabilities held by institutional units or sectors are systematically recorded in one or another of the flow accounts. The closing balance sheet is fully determined by the opening balance sheet and the transactions or other flows recorded in the sequence of accounts.[1]

Thus the emphasis is on the flows – or transactions – that are related either to production, or to the distribution and redistribution of income amongst institutional units.

Traditionally, the SNA is presented in a T-account format (or variation thereof). A social accounting matrix, on the other hand, is essentially a matrix representation

[1] *System of National Accounts 1993,* p.1

of the same information, with one important extension: a SAM allows more detailed inter-sectoral flows to be displayed than can be done in the traditional T-account format. Although the traditional format shows, for example, how much interest each institutional sector has paid and received, it does not show the counterpart to each transaction. As noted (see Figure 1) the SAM format records the payments by each institutional unit in its columns, and the receipts by those units in its rows. Thus, the intersection of a row and column represents a transaction between the corresponding institutional units, a level of detail which is not able to be shown in the T-account format.

The layout of a SAM has one more distinct advantage over the traditional form, namely that the matrix presentation provides the means by which the flow of transactions between institutional units, and the macroeconomic relationships of those units can be more easily seen. Although the T-account structure is conducive to presenting the flow of transactions, to do so for even a simple economy would take several pages, potentially making the accounts difficult to follow.

As alluded to in the quote from the *System of National Accounts*, the sequence of accounts follows this general structure:[2]

- The sequence begins with the production of goods and services (SAM headings "Commodity supply" and "Industry input/output");.
- This production gives rise to the generation of value added, which along with other fixed asset-based returns, is allocated in the "Allocation of primary income" account.
- Redistribution of this income, by way of taxes and transfer payments, is recorded in the "Secondary distribution of income" account.
- Once all current income transfers are made, residual income can be used to fund current period consumption. This is recorded in the "Use of disposable income" account.
- Any remaining income is considered in the system to be savings, and is used to finance fixed or financial asset investment. This is recorded in the "Capital and finance" account.

These accounts, and their place in the Māori SAM, are described in sections 3.4 to 3.9. References are made throughout to the Māori SAM shown in Figure 2.

3.3 The Māori SAM

The Māori SAM is presented in Figure 2. It should be re-emphasised that, for the reasons outlined in the Introduction (mainly related to paucity of data), that the Māori SAM is intended to be largely illustrative. It is not, by any means, definitive.

[2] Note that the detail of the national accounts presented in this paper is not at the finest level portrayed in S*ystem of National Accounts 1993* due in part to the fact that the System portrays far more detail than is relevant to the New Zealand situation, and due in part to data constraints.

In deciding which level of detail should be presented in the Māori SAM, the fundamental issue to be considered is the balance between presentation of desired detail on the one hand, and ease of use on the other. Overlaying this decision is the restriction placed by the scarcity of accurate data. Ultimately the level of detail embodied in the Māori SAM is a function of all of these issues. The level of detail used in compiling the Māori SAM, and the specific motivation for doing so, is outlined as follows. The actual breakdowns are listed in Table 2.

- 10 industries and commodities. These were selected on the basis that they were considered to be the markets in which Māori are most active, as highlighted, for example, in Te Puni Kokiri (2002).
- 3 factors of production.
- 6 institutional sectors, including explicit representation of Māori households and Māori producer enterprises.[3] The motivation for presenting Māori households and producer enterprises as separate institutional sectors is self evident. It is possible, in theory, to split the government sector into its two constituent components – i.e. central and local – however, the data requirements are prohibitive.
- a "rest of the world" sector.

[3] The term "institutional sector" is taken from S*ystem of National Accounts 1993.* An institutional sector is defined as a units grouped together on the basis of their principal functions, behaviour, and objectives. Refer to *System of National Accounts*, sections 4.17 – 4.12 for further explanation.

Figure 2 2003 Maori SAM

			Commodity supply										Industry input Maori									Non-Maori	Generation of incor	
			AGR	FRS	FSH	MGN	PRP	EDU	HLT	TVR	REC	OTH	AGRI	FRSY	FISH	TRDE	PROP	EDUC	HLTH	TVRA	RECR	OTHR		COMP	OP
Commodity use		AGR											94	2	0		0	0	1	0	0	27			
		FRS											0	0	0		0	0	0	0	0	3			
		FSH											0	0	14		0	0	0	0	0	2			
		MGN											0	0	0		0	0	0	0	0	0			
		PRP											17	0	1		0	3	7	0	7	7			
		EDU											0	0	0		0	11	2	0	0	1			
		HLT											3	0	0		0	0	15	0	0	0			
		TVR											0	0	0		0	0	0	0	0	1			
		REC											0	0	0		0	1	0	0	10	0			
		OTH											389	31	243		292	105	81	0	85	223			
Industry output	Maori	AGRI	886	4	0	0	0	0	0	0	0	30													
		FRSY	1	50	0	0	0	0	0	0	0	5													
		FISH	0	0	347	0	0	0	0	0	0	45													
		TRDE																							
		PROP	0	0	0	0	982	0	0	0	0	0													
		EDUC	0	0	0	0	2	420	0	1	2	30													
		HLTH	0	0	0	0	3	1	305	0	0	8													
		TVRA	0	0	0	0	0	0	0	0	0	0													
		RECR	0	0	0	0	5	0	0	1	129	16													
		OTHR	3	1	0	11	7	1	0	0	5	943													
	Non-Maori																								
Generation of income		COMP											89	2	37		31	297	155	0	27	90			
		OPSU											301	21	82		584	32	56	0	19	608			
		OTAX											26	0	16		75	4	1	0	2	6			
Allocation of primary income	Maori	HOUSM																						5896	
	Non-Maori	HOUSN																							
		FINC																							
	Maori	PRODM																							1
	Non-Maori	PRODN																							
		GOVT																							
Secondary distribution of income	Maori	HOUSM																							
	Non-Maori	HOUSN																							
		FINC																							
	Maori	PRODM																							
	Non-Maori	PRODN																							
		GOVT																							
Use of disposable income	Maori	HOUSM																							
	Non-Maori	HOUSN																							
		FINC																							
	Maori	PRODM																							
	Non-Maori	PRODN																							
		GOVT																							
Capital account	Maori	HOUSM																							
	Non-Maori	HOUSN																							
		FINC																							
	Maori	PRODM																							
	Non-Maori	PRODN																							
		GOVT																							
Finance account		LEND																							
		M/ROW																							
			890	*55*	*348*	*11*	*998*	*422*	*306*	*2*	*135*	*1077*	*920*	*56*	*393*	*0*	*982*	*453*	*318*	*0*	*151*	*971*	*0*	*5896*	*1*

Figure 2 2003 Māori SAM (continued)

			Allocation of primary income						Secondary distribution of income						Use of disposable income						Capital account						Finance account	
			Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori		Maori	Non-Maori			
			HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	LEND	E
Commodity use		AGR													72									0				
		FRS													5									8				
		FSH													0									0				
		MGN													0									0				
		PRP													583									0				
		EDU													73									0				
		HLT													212									0				
		TVR													29									0				
		REC													168									0				
		OTH													6105						298			909				
Industry output	Maori	AGRI																										
		FRSY																										
		FISH																										
		TRDE																										
		PROP																										
		EDUC																										
		HLTH																										
		TVRA																										
		RECR																										
		OTHR																										
	Non-Maori																											
Generation of income		COMP																										
		OPSU																										
		OTAX																										
Allocation of primary income	Maori	HOUSM	0	0	195	682	45	0																				
	Non-Maori	HOUSN	0			0																						
		FINC	536			20																						
	Maori	PRODM	0	0	100	5	6	50																				
	Non-Maori	PRODN	0			0																						
		GOVT	0			0																						
Secondary distribution of income	Maori	HOUSM	6790						333	437	138	0	0	2968														
	Non-Maori	HOUSN							83			0																
		FINC							127			6																
	Maori	PRODM				649			0	0	7	0	0	0														
	Non-Maori	PRODN							0			0																
		GOVT							1871			109																
Use of disposable income	Maori	HOUSM							8262								59											
	Non-Maori	HOUSN																										
		FINC																										
	Maori	PRODM										540																
	Non-Maori	PRODN																										
		GOVT																										
Capital account	Maori	HOUSM													2216						0	0	0	0	0	30		
	Non-Maori	HOUSN																			0			0				
		FINC																			0			0				
	Maori	PRODM																540			0	0	0	0	0	0		
	Non-Maori	PRODN																			45			0				
		GOVT																			0			0				
Finance account		LEND																			2242			-378				
		M/ROW	0			0			0			0																
			7326	*0*	*295*	*1356*	*51*	*50*	*10676*	*437*	*144*	*656*	*0*	*2968*	*9463*	*0*	*59*	*540*	*0*	*0*	*2585*	*0*	*0*	*540*	*0*	*30*	*0*	

3.4 Production and consumption of goods and services[1]

In the Māori SAM, the production and consumption of goods and services is represented in the "Commodity supply/use" and "Industry input/output" rows and columns.

3.4.1 Commodity supply/use

The commodity supply column records the supply of goods and services to the New Zealand economy. This comprises:

- Domestic supply: shown broken down by supplying industry, in the intersection of the "Commodity supply" column and "Industry output" row.
- Imported goods and services: shown in the intersection of "Commodity supply" and M/ROW.
- Taxes levied on the sale of goods and services (shown in the intersection of the "Commodity supply" and GOVT entry of the "Allocation of primary income" row. The most obvious example is GST.

The commodity use row, on the other hand, records the use of all commodities by the New Zealand economy. This comprises:

- Intermediate consumption: that is, the use of goods and services by producers as intermediate inputs; shown in the intersection with the "Industry input" column.
- Household consumption expenditure: shown in the intersection with the HOUSM & HOUSN entries of the "Use of disposable income" column. This shows virtually all household purchases, with the exception of housing.
- Government consumption expenditure: shown in the intersection with the GOVT entry of the "Use of disposable income" column.
- Gross fixed capital formation: recorded in the intersection with the "capital account" column, this shows the employment of goods as fixed assets in the production process. Gross fixed capital is shown by institutional sector; the HOUSM entry, for example, shows Māori residential building.
- Exports, shown in the E/ROW column.

[1] It should be remembered when reading the sections regarding the various accounts that comprise the SAM that its columns represent inputs, payments or outlays, while rows represent outputs, receipts or incomes.

Table 2 Key to Māori SAM headings

Commodity	AGR	Agricultural and horticultural produce
	FRS	Unprocessed timber
	FSH	Unprocessed fish
	MGN	Trade margin
	PRP	Property investment services
	EDU	Education services
	HLT	Health services
	TVR	Television and radio services
	REC	Cultural and recreational services
	OTH	All other goods and services
Industry	AGRI	Agriculture
	FRSY	Forestry
	FISH	Fishing
	TRADE	Retail and wholesale trade
	PROP	Property investment
	EDUC	Education
	HLTH	Health
	TVRA	Television and radio
	RECR	Culture and recreation
	OTHR	All other industries
Factors	COMP	Compensation of employees
	OPSU	Operating surplus
	OTAX	Other indirect taxes (i.e. non-product specific taxes)
Institutions	HOUSM	Māori households
	HOUSN	Non-Māori households
	FINC	Financial intermediaries
	PRODM	Māori producer enterprises
	PRODN	Non-Māori producer enterprises
	GOVT	Government
Other	LEND	Net lending
	M/ROW	Imports and other payments to the rest of the world
	E/ROW	Exports and other receipts from the rest of the world

Source: NZIER

3.4.2 Industry input/output

The industry input column, and industry output row, show the various inputs to, and outputs of, the production process, respectively. The intersections with commodity supply and use are described above. The remaining entry – that is, the intersection between the "Industry input" column and the "Generation of income" row – represents the use of the so-called "factors of production" in the production process:

- Compensation of employees (COMP): payments for the use of labour by way of wages and salaries, overtime and bonus payments, etc.
- Gross (of depreciation) operating surplus (OPSU): the surplus from production before taking account of interest, dividend and rental flows (which tend not to be directly related to the production of goods and services). This in effect represents the return to the owners of entrepreneurial, physical and financial capital employed by the business, plus depreciation.
- Other indirect taxes (OTAX): taxes other than those levied on goods and services (described above). Other indirect taxes cover general business-related taxes, and include rates.

Collectively, these payments comprise value-added, and are alternatively known as factor incomes (for reasons discussed below).

3.5 Generation of income

As noted above the entries of the "Generation of income" row show the use of the factors of production by each industry. The "Generation of income" column shows how the payments to those factors are distributed to the owners of those factors, distribution which is discussed in the next section.

3.6 Allocation of primary income

The allocation of primary income account shows:

- The distribution of the factor incomes (that is, compensation of employees, operating surplus and other indirect taxes) amongst the owners of the factors. This distribution is recorded in the intersection with the "Generation of incomes" column. The Māori SAM (Figure 2) shows, for example, that:
  - Compensation of employees is earned entirely by households, since households in effect "own" the labour force for which compensation is paid.
  - Operating surplus is split across the various sectors. The payment to households is the surplus that accrues to working proprietors (mainly small business owners), who, on account of their unlimited liability status, are not considered to be separate institutional units from the household of which they are a part. Payments to the other institutional units – producer enterprises, financial intermediaries and government – represent retained earnings.
- The payment and receipt of property incomes – that is, income that relates to the ownership of financial assets or land – comprising mainly interest, dividends and land rentals. Domestic payments and receipts of property income is recorded in the intersection of the "Allocation of primary income" row and column.[2] International property income flows are recorded in the E/ROW column (property income receipts) and M/ROW row (property income payments).

[2] The intersection of the row and column of the same account – in this case the allocation of primary income account – effectively represents a transfer of those flows – in this case property incomes - between institutional sectors.

- The final entry in the allocation of primary income account – that is, the diagonal row of numbers in the intersection of the "Allocation of primary income" column and "Secondary distribution of income" row – is the account's balancing item i.e. the balance on primary incomes.[3] The represents the surplus available to each institutional sector from all production-related and property incomes, after allowing for production expenses and property income payments.

3.7 Distribution of secondary income

After opening with the balance on primary incomes, the secondary distribution of income account records current transfers between institutional sectors. These comprise:

- Payments by households of:
  - transfers to other (New Zealand) households: gifts, charity payments, etc;
  - transfers overseas, largely consisting of gifts;
  - pension fund contributions and non-life insurance premiums to financial intermediaries (insurance companies, etc);
  - personal income tax to government.
- Payments by financial intermediaries of:
  - pension fund benefits and non-life insurance claims to households;
  - non-life insurance claims to producer enterprises;
  - corporate income tax and non-life insurance claims to government.
- Payments by producer enterprises of:
  - corporate income tax to government;
  - non-life insurance premiums to financial intermediaries.
- Payments by government of:
  - social benefits to households: unemployment, sickness and domestic purposes benefits and other forms of government provided income support;
  - non-life insurance premiums to financial intermediaries;
  - overseas transfers.
- Payments by the rest of the world (as recorded in the E/ROW column) of:
  - transfers to households;
  - income tax to the New Zealand government.

The final item in the secondary distribution of income account is its balancing item, gross disposable income, represented by the diagonal row of numbers in the intersection of the "Secondary distribution of income" column and the "Use of disposable income" row. These values represent the balance available for "disposal" after taking account of all current income receipts, and the outlays described thus far. This balance provides the starting point for the use of disposable income account.

[3] As noted in the quote from *System of National Accounts 1993* in section 3.1, each account is typically linked to the next via its balancing item such that the balancing item of one account is typically the first entry in the following account. The diagonal entry for each institutional sector represents the value of the balancing item for that particular sector.

3.8 Use of disposable income

The use of disposable income account shows how current period incomes are used to finance current period expenditure on goods and services, with the balance being regarded as savings (or dissavings in the case of negative savings). As noted in the discussion regarding the production and consumption of goods and services, the intersection of the "Use of disposable income" column and "Commodity use" row represents the consumption expenditure of the respective institutional sector.

The balancing item of the account, recorded in the intersection of the "Use of disposable income" column and the "Capital account" row is gross (of depreciation) savings, which is used to finance the purchase of physical or financial assets (as recorded in the capital and finance accounts).

3.9 Capital and finance

The capital account, opening with savings, shows the purchase of fixed (physical) assets. This includes:

- The construction of residential building, and the refurbishment of existing homes, by households.
- The purchase of fixed assets by producer enterprises and government.

It also shows, in the intersection between the "Capital account" row and column, any transfers between the institutional units of fixed assets.

The balancing item net lending, shown in the "Finance account" row (depicted LEND), shows the extent to which each institutional sector is able to finance its combined current and capital expenditure from its collective incomes. A positive value in the LEND row indicates that after taking account of all current period incomes and corresponding outlays, that sector has a net positive surplus which it is able to invest in financial assets – which is equivalent to saying that it is the amount which is available to lend to the institutional sectors which have negative net lending (i.e. net borrowing).

Finally, the value in the intersection of the E/ROW column and the "Finance account" row represents the extent to which New Zealand must borrow from the rest of the world to finance its combined current and capital expenditure. A positive value – which is the case in Figure 2 – represents the rest of the world's net lending to New Zealand i.e. our borrowing from the rest of the world.

4. Summarised findings

This section presents summarised findings of the 2003 Māori SAM presented in Figure 2. The focus is on the main means by which Māori contribute to the New Zealand economy, namely as households and producers. Summary results for each of these sectors are produced in turn.

4.1.1 Maori households

In general, the major sources of incomes for Māori households are the same as the were in the 1996 SAM.

Table 3 Maori households' summary

$ million

	1996	2003
Primary income		
Compensation of employees	4280	5896
Operating surplus	434	508
Property income received	780	922
Less		
Property income payments	355	536
Balance on primary income	*5139*	*6790*
Secondary distribution of income		
Net household transfers	249	354
Net pension fund benefits	-1	11
Government benefits	2312	2968
Transfers from rest of world	10	10
Less		
Income taxes	1366	1871
Balance on secondary incomes	*6342*	*8262*
Use of disposable income		
Household consumption	5465	7247
Savings	*877*	*1015*

Source: NZIER

Compensation of employees – that is, salaries and wages – remains Māori households' most significant source of income, growing about 38% between 1996 and 2003. Government benefits grew at a slightly lower rate over the same period (28%) suggesting that Māori households' dependence on government support may be decreasing.

Of the outgoings of Māori households, income tax payments grew roughly in line with the increase in compensation of employees, lifting by 37%. Māori household

consumption – that is, household expenditure – also grew significantly between 1996 and 2003, increasing by nearly 33%. Overall, the savings position of Māori households – that is, the net balance of all household inflows and payments – improved by $138 million. Māori savings in 2003 of slightly more than $1 billion is in contrast to national households' *dissaving* for the same year of $8.6 billion; in other words, the population as a whole spent $8.6 billion more than it earned in a period during which the Māori share of the population saved $1.0 billion. (Note that there is reason to be cautious about the quality of estimates of savings. Savings is calculated as a residual item, and thus has the potential to contain the accumulated errors of all the components on which it is based.)

4.1.2 Maori businesses

Table 4 presents estimates of sectoral value added of Māori producer enterprises.

Table 4 Maori sectoral value added
$ million

	1996	2003
Agriculture	317	417
Forestry	17	23
Fishing	102	135
Property investing	29	690
Education	90	333
Health	120	212
Cultural and recreational services	15	49
Other production	459	704
Total	1150	2563

Source: NZIER

As noted earlier, changes in available data necessitated a change in the method used to derive sectoral activity, and thus comparisons between 1996 and 2003 are not always valid. There are several points that should be made, however. First, we believe that the quality of the updated estimates of Māori production are likely to be an improvement over those for the original SAM. This is because a number of specifically-Māori data sources – such as GST turnover of Māori business from Statistics New Zealand – were available for the construction of the 2003 SAM and which were not available earlier. Second, there are a number of sectors for which changes in the method of estimation were relatively minor, thus allowing direct comparison between 1996 and 2003. These are the agriculture, forestry and fishing sectors (i.e. the sectors for which relatively comprehensive data sources existed for both years). Finally, we believe comparisons between 1996 and 2003 at the aggregate level have greater validity since is seems that methodological changes have affected the distribution of the Māori activity between sectors as much as the total level of activity.

Notwithstanding issues of comparability between the two SAMs, Table 4 shows that value added of Māori businesses more than doubled between 1996 and 2003, increasing by $1.4 billion. This also represents an increase in the contribution of

Māori businesses to national GDP (see Table 5) which lifted from 1.23% in 1996 to 1.96% in 2003.

Table 5 Māori contribution to GDP

	1996	2003
Māori contribution to GDP ($m)	1,150	2,563
National GDP ($m)[1]	93,387	130,687
Māori contribution to GDP (%)	1.23%	1.96%

Notes: (1) Includes the components of GDP not allocated to industries, such as GST and bank service charges.

Source: NZIER, Statistics New Zealand

Appendix A : The illustrative Maori SAM 1996

Figure 3 The illustrative Māori SAM 1996

			Commodity supply										Industry input Maori										Non-Maori	Generation of income		
			AGR	FRS	FSH	MGN	PRP	EDU	HLT	TVR	REC	OTH	AGRI	FRSY	FISH	TRDE	PROP	EDUC	HLTH	TVRA	RECR	OTHR		COMP	OPSU	OTAX
Commodity use		AGR											72	1	0		0	0	1	0	0	4	9466			
		FRS											0	0	0		0	0	0	0	0	0	986			
		FSH											0	0	11		0	0	0	0	0	0	675			
		MGN	1546	0	100	-16097	0	0	0	0	0	14451	0	0	0		0	0	0	0	0	0	0			
		PRP											13	0	1		0	1	4	1	1	1	3727			
		EDU											0	0	0		0	3	1	0	0	0	435			
		HLT											2	0	0		0	0	8	0	0	0	407			
		TVR											0	0	0		0	0	0	3	0	0	615			
		REC											0	0	0		0	0	0	0	1	0	128			
		OTH											296	24	185		12	28	46	11	11	29	85975			
Industry output	Maori	AGRI	674	3	0	0	0	0	0	0	0	23														
		FRSY	1	38	0	0	0	0	0	0	0	4														
		FISH	0	0	264	0	0	0	0	0	0	34														
		TRDE																								
		PROP	0	0	0	0	41	0	0	0	0	0														
		EDUC	0	0	0	0	0	113	0	0	0	8														
		HLTH	0	0	0	0	1	1	172	0	0	5														
		TVRA	0	0	0	0	0	0	0	14	0	9														
		RECR	0	0	0	0	1	0	0	0	17	2														
		OTHR	1	0	0	5	4	0	0	0	2	480														
	Non-Maori		8761	1999	538	15999	6148	4465	5933	796	1474	138890														
Generation of income		COMP											68	2	28		1	80	88	6	4	12	38946			
		OPSU											229	16	63		24	9	32	4	3	447	41059			
		OTAX											20	0	12		3	1	0	-1	0	1	2583			
Allocation of primary income	Maori	HOUSM																						4280	434	
	Non-Maori	HOUSN																						34954	5962	
		FINC																							-764	
	Maori	PRODM																							392	
	Non-Maori	PRODN																							34326	
		GOVT	151	5	0	0	41	85	313	27	223	8729													1535	2620
Secondary distribution of income	Maori	HOUSM																								
	Non-Maori	HOUSN																								
		FINC																								
	Maori	PRODM																								
	Non-Maori	PRODN																								
		GOVT																								
Use of disposable income	Maori	HOUSM																								
	Non-Maori	HOUSN																								
		FINC																								
	Maori	PRODM																								
	Non-Maori	PRODN																								
		GOVT																								
Capital account	Maori	HOUSM																								
	Non-Maori	HOUSN																								
		FINC																								
	Maori	PRODM																								
	Non-Maori	PRODN																								
		GOVT																								
Finance account		LEND																								
		M/ROW	440	29	6	92	46	37	4	50	3	25434												0	0	0
			11574	*2074*	*909*	*0*	*6281*	*4701*	*6423*	*887*	*1721*	*188068*	*700*	*43*	*299*	*0*	*41*	*122*	*180*	*23*	*20*	*493*	*185002*	*39234*	*41885*	*2620*

Figure 3 The illustrative Maori SAM (1996) (continued)

			Allocation of primary income						Secondary distribution of income						Use of disposable income						Capital account						Finance account		
			Maori		Non-Maori				Maori		Non-Maori				Maori		Non-Maori				Maori		Non-Maori						
			HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	HOUSM	HOUSN	FINC	PRODM	PRODN	GOVT	LEND	E/ROW	
Commodity use		AGR													55	516			0					0	3			1456	*11574*
		FRS													4	33			0					8	325			718	*2074*
		FSH													0	0			0					0	4			218	*909*
		MGN													0	0			0					0	0			0	*0*
		PRP													445	2062			0					0	0			27	*6281*
		EDU													56	524			3508					0	0			173	*4701*
		HLT													161	1510			4317					0	0			17	*6423*
		TVR													22	208			0					0	0			38	*887*
		REC													128	1196			9					0	0			258	*1721*
		OTH													4653	43569			8591		298	4094	250	909	13118	2032		23938	*188068*
Industry output	Maori	AGRI																											*700*
		FRSY																											*43*
		FISH																											*299*
		TRDE																											*0*
		PROP																											*41*
		EDUC																											*122*
		HLTH																											*180*
		TVRA																											*23*
		RECR																											*20*
		OTHR																											*493*
	Non-Maori																												*185002*
Generation of income		COMP																											*39234*
		OPSU																											*41885*
		OTAX																											*2620*
Allocation of primary income	Maori	HOUSM	0	0	222	497	62	0																				0	*5493*
	Non-Maori	HOUSN	0	0	4171	0	11938	0																				0	*57026*
		FINC	355	3596	500	20	7473	1017																				606	*12803*
	Maori	PRODM	0	0	100	5	6	50																				0	*553*
	Non-Maori	PRODN	0	0	1973	0	4903	1901																				112	*43215*
		GOVT	0	0	1339	0	898	0																				0	*15965*
Secondary distribution of income	Maori	HOUSM	5139						235	308	225	0	0	2312														10	*8228*
	Non-Maori	HOUSN		53429					59	1232	3630	0	0	8233														190	*66774*
		FINC			1606				226	4226	0	6	623	400														284	*7371*
	Maori	PRODM				31			0	0	7	0	0	0														0	*38*
	Non-Maori	PRODN					15070		0	0	631	0	0	0														0	*15701*
		GOVT						12078	1366	14351	724	42	3659	1101														306	*33627*
Use of disposable income	Maori	HOUSM							6342								59												*6401*
	Non-Maori	HOUSN								46457							1372												*47829*
		FINC									2154																		*2154*
	Maori	PRODM										-10																	*-10*
	Non-Maori	PRODN											11419																*11419*
		GOVT												21131															*21131*
Capital account	Maori	HOUSM													877						0	0	0	0	0	30		340	*1247*
	Non-Maori	HOUSN														-1790					0	0	0	0	0	155		1782	*148*
		FINC															723				0	58	0	0	0	0		0	*781*
	Maori	PRODM																-10			0	0	0	0	0	0		0	*-10*
	Non-Maori	PRODN																	11419		45	618	0	0	0	33		13	*12128*
		GOVT																		4706	0	0	0	0	34	0		0	*4740*
Finance account		LEND																			904	-4622	531	-928	-1355	2490		2980	*0*
		M/ROW	0	0	2892	0	2866	919	0	200	0	0	0	450														0	*33468*
			5493	*57026*	*12803*	*553*	*43215*	*15965*	*8228*	*66774*	*7371*	*38*	*15701*	*33627*	*6401*	*47829*	*2154*	*-10*	*11419*	*21131*	*1247*	*148*	*781*	*-10*	*12128*	*4740*	*0*	*33467*	*901518*

Appendix B : Data sources and methodological notes

B.1 Previous methodology

Industry outputs

- AGR: an approximate average of the result from two methods: (i) rate of return applied to asset base (BERL, 1997) and (ii) Maori share of agricultural land (BERL, 1997) applied to total output (II96)
- FRS: Maori share of forestry income (TPK & newspaper report) applied to national output (II96)
- FSH: Maori share of quota (TPK) applied to national output (II96)
- PRP: Maori value of fixed assets in "business and commercial" production (BERL, 1997) * rate of return (annual reports, TPK) split across sectors using a mix.
- EDU: proportions (based on Ministry of Education statistics re enrolment in Maori Medium Programmes and Wananga) applied to national output (II96)
- HLT: proportion of Vote Health to Maori (2001 briefing to Minister) applied to 2002 Budget
- TVR: Te Mangai Paho annual report 2001
- REC: Maori value of fixed assets in "business and commercial" production (BERL, 1997) * rate of return (annual reports, TPK) split across sectors using a mix.
- OTH: mostly owner-occupied dwellings (Maori share of owned homes (Census) * national OOD (II96), also other (Maori value of fixed assets in "business and commercial" production (BERL, 1997) * rate of return (annual reports, TPK) split across sectors using a mix) and cutting rights (based on 80% of Maori forestry land (BERL, 1997) leased to non-Maori loggers).

Industry inputs

- intermediates: based on inter-industry proportions indicated by the Inter-industry Study 1996 (SNZ).
- value added: as above

Generation of income

- COMP (4280; compensation of employees to Maori households): Census employment * national accounts COE
- OPSU/HOUSM (434; operating surplus earned by Maori from OOD): proportion of ownership (Census) * national OOD operating surplus

- OPSU/PRODM (392; operating surplus earned by Maori from business ownership) – simply sum of all PRODM operating surplus (from industry inputs) *minus* OOD operating surplus

Allocation of primary income (essentially reshuffle of property income between borrowers and lenders; mostly comprises interest and dividends in general).

- HOUSM/FINC (355; payment of property income e.g. mortgage interest): Maori proportion of total outstanding mortgages (Household Savings Survey 2001) * total interest paid by households (ISA)
- HOUSM/HOUSM-Secondary distribution of income (5139; balancing item of allocation of primary income): residual of HOUSM column i.e. income generated from production (COMP + OPSU) *plus* property income receipts *minus* property income payments.
- FINC/HOUSM (222; (i) interest received by Maori households = 100 and (ii) earnings attributed = 122): (i) Maori share of interest income (Census) * national interest receipts (ISA) and (ii) assumed equal to ½ * Maori population proportion (16%).
- FINC/PRODM (100; interest received by Maori businesses): assumed value
- PRODM/HOUSM (497; entrepreneurial income of Maori): Maori proportion of self-employed income (Census) * total entrepreneurial income (ISA – HHIO)
- PRODM/FINC (20; interest paid by Maori businesses) – assumed value.
- PRODM/PRODM (5; property income transfers between Maori business): dividends only, based on Land Court annual report (1998) analysis.
- PRODM/PRODM-Secondary distribution of income (31; balance item of allocation of primary income): residual of PRODM column.
- PRODN/HOUSM (62; (i) interest = 17 and (ii) dividends = 44): (i) Maori share of property income * national interest from producer enterprises to households (ISA) and (ii) Maori share of property income (Census) * national dividends to NZ households (ISA) *minus* PRODM/PRODM dividends (only 5).
- GOVT/PRODM (50; property income flow from govt to Maori businesses): assumed value (relative to size of total GOVT/PROD flow of 1951).

Secondary distribution of income (transfers between institutions, including tax and benefit flows)

- HOUSM/HOUSM (235; transfers between Maori households): assumed value based on Maori percentage of population * national inter-household transfers (ISA).
- HOUSM/HOUSN (59; transfers from Maori households to non-Maori households): as above

- HOUSM/FINC (226; (i) pension fund contributions = 160 and (ii) Maori household payments of insurance ex service charge): (i) Maori share of superannuation income * national flow (ISA) and (ii) Maori share of house ownership (Census) * national flow (ISA)
- HOUSM/GOVT (1366; mostly payment of income tax by Maori households): Maori share of total income (Census) * total income tax paid (ISA)
- HOUSM/HOUSM-Use of disposable income (6342; residual of HOUSM column): balance on secondary distribution of income
- HOUSN/HOUSM (308; transfers from non-Maori households to Maori households): assumed value based on Maori percentage of population * national inter-household transfers (ISA).
- FINC/HOUSM (225; (i) pension fund benefits = 123 and (ii) insurance claims to Maori households = 102): (i) Maori share of superannuation income * national flow (ISA) and (ii) Maori share of house ownership (Census) * national flow (ISA)
- FINC/PRODM (7; insurance claims to Maori businesses): Maori share of total production * national claims paid (ISA)
- PRODM/FINC (6; Maori business insurance premiums ex service charge): Maori share of total production * national premiums paid (ISA)
- PRODM/GOVT (42; tax paid by Maori businesses): Maori share of total production * national business tax paid (ISA)
- PRODM/PRODM-Use of disposable income (-10; residual of PRODM column): balance on secondary distribution of income.

Use of disposable income

- HOUSM/Commodities: Maori population share (adjusted from income) * national HCE (ISA) (except PRP which uses Maori OOD share)
- HOUSM/HOUSM-Capital account (877; residual of HOUSM column): balance on use of disposable income i.e. savings
- PRODM/PRODM-Capital account (-10; residual of PRODM column): balance on use of disposable income i.e. savings

Capital account

- HOUSM/OTH (298; Maori household gross fixed capital investment i.e. in OOD): Maori share of OOD * national household investment (ISA)
- HOUSM/PRODN (45; net purchases of land): Maori share of OOD * national net purchases of land (ISA)
- HOUSM/LEND (904; net lending): residual of HOUSM column
- PRODM/FRS (8; gross fixed capital formation, use of forestry products): Maori share of CFK * national GFKF (ISA).
- PRODM/OTH (909; gross fixed capital formation, other goods and services): Maori share of CFK * national GFKF (ISA). Could simply apportion more

recent GFKF from national accounts (across Maori/non-Maori and commodities) using these proportions.

- PRODM/LEND (-928; net lending) residual of PRODM column

Rest of the world

- E/ROW/HOUSM-Secondary distribution of income (10, current transfers from ROW): remittance from overseas to Maori households, assumed value
- E/ROW/HOUSM-Capital account (340, capital transfers from ROW): Maori share of population * national capital transfers from ROW (ISA)

B.2 Revised & updated methodology

Industry outputs: all estimates of industry output in the updated SAM are based on the same method, namely analysis of data relating to each of Māori Trusts, Māori Trustee Land Assets, major Māori organisations, Iwi Treaty Settlements, Māori Trust Boards, Māori self-employed and Māori employers. These institutions are assumed to represent the population of all Māori producers, with analysis of each involving sectoral allocation of production. Data sources utilised include: Te Puni Kokiri's *The Māori Commercial Asset Base 2001* (2003); annual reports of major Māori organisations (including Te Ohu Kai Moana, Crown Forestry Rental Trust, Waikato Raupatu Lands Trust, Te Runanga o Ngai Tahu; Poutama Trust; and Te Whanau o Waipareira Trust); Annual Enterprise Survey (SNZ); Population Census 2001 (SNZ); and GST sales data (SNZ).

Industry inputs: intermediates and value added based on output and existing inter-industry breakdowns. This methodology is unchanged from that used previously, except that breakdowns are now being applied to updated output estimates.

Household flows: household flows are estimated by apportioning Household Income and Outlay account flows (which represent all New Zealand households), generally using population Census data. This method is largely the same as that used previously; the only distinction is that the update relies solely on the use of the Household Income and Outlay account, whereas the previous method utilised the complete set of Institutional Sector Accounts (which are no longer being updated).

Other flows: other flows are estimated using a range of methods. Small values from the 1996 SAM are often held constant in the absence of any data to the contrary. As noted above, estimation of these flows in the earlier SAM utilised the Institutional Sector Accounts.

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