

Kotahitanga Te Reo *Wairuatanga*
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Pukengatanga *Rangatiratanga* *Manaakitanga*
Whanaungatanga

THE ASSET BASE, INCOME, EXPENDITURE AND GDP OF THE 2010 MĀORI ECONOMY



Te Puni Kōkiri
REALISING MĀORI POTENTIAL



economics





Authors

This report was prepared by:

Dr Ganesh Nana – BERL Chief Economist

Fiona Stokes – BERL Economist

Wilma Molano – BERL Research Economist

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Peer Reviewers

Drafts of this document and supporting material were reviewed by:

Dr David Hughes
Professor and Regional Economist
Department of Applied Economics and Statistics
Community Development and Extension Program Leader
Clemson Institute for Economic and Community Development
Clemson University

and

Steffi Schuster
Project Manager
National Accounts Unit
Statistics New Zealand

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1. Executive Summary

The Māori economy has many dimensions. This report estimates the size of the Māori economy across some of these dimensions, as well as illustrating the relationships between the Māori economy and the wider New Zealand economy. We present various dimensions to stress the importance that the contribution of the Māori economy cannot be summarised by one number or percentage. Nor can we summarise the participation of Māori in the New Zealand economy in only one figure or data point.

The participation in, and contributions to, an economy of an industry, sector or population group can be described across many dimensions. This report explicitly looks at the Māori economy from the perspective of the:

- Asset base.
- Income, spending and GDP.
- Links to other sectors of the wider New Zealand economy.

We estimate

Asset base

- The asset base of enterprises in the 2010 Māori economy totals at least \$36.9bn. The increase of \$20.4bn from the 2006 estimate of \$16.5bn is a result of several influences, which are illustrated in Figure 1.1.

These influences can be summarised as increases of:

- \$11.6bn associated with more comprehensive data and the adoption of different and more robust assumptions.
- \$3.1bn associated with the 11 percent rise in capital goods prices.
- \$5.7bn associated with real growth from 2006 to 2010 in size of the asset base of the Māori economy of 18 percent (or 4.3 percent per annum).

Figure 1.1 Asset base of 2010 Māori economy compared to earlier estimates



BERL calculations using data from various sources.

Production and GDP

- From the production side of the economy the value added by Māori enterprises in 2010 totalled \$10.3bn.
- In GDP terms, the operating surplus income of Māori enterprises totalled \$3.3bn, while capital spending totalled \$1.4bn.
- In GDP terms, the employment and capital income of Māori households totalled \$10.0bn, while spending amounted to \$16.6bn.

Sector income and outlays

- The Māori enterprise sector recorded gross output of \$22.2bn, resulting in total operating surplus of \$3.3bn and net savings of \$0.2bn. National net savings of the enterprise sector totalled \$10.3bn.
- The Māori household sector recorded total income of \$14.8bn and total outlays of \$20.3bn, resulting in net savings of -\$5.5bn. National net savings of the household sector totalled -\$7.8bn.

This information is the basis of modifications to the BERL computable general equilibrium (CGE) model to be used to project scenarios around the potential benefits and opportunities to the Māori economy of a re-focused science and innovation effort.

2. Introduction

2.1 Purpose

This report presents the outcomes of stage three of a broader research project that explores the asset base for the Māori economy; and the potential, opportunity and value of Māori participation in science and innovation. In this stage, we focus on a comprehensive review of the asset base to inform us of its composition, value and relationship to economic measures such as Gross Domestic Product (GDP), and Social Accounting Matrix (SAM). As such, we have undertaken three distinct tasks:

- Revision of the asset base of the Māori economy.
- Recalculation of the contribution to New Zealand's GDP from the Māori economy.
- Revision of a SAM representing flows within the Māori economy.

2.2 Abbreviations and definitions

The following abbreviations are used in this report:

ANZSIC	Australian and New Zealand Standard Industrial Classification
AES	Annual Enterprise Survey
HLFS	Household Labour Force Survey
CGPI	Capital Goods Price Index
GDP	Gross Domestic Product
GST	Goods and Services Tax
OBEGAL	Operating Balance Excluding Gains and Losses
SAM	Social Accounting Matrix
TPK	Te Puni Kōkiri
SME	Small to Medium Enterprises
PSGE	Post-Settlement Governance Entity
MIO	Mandated Iwi Organisation
ANZSIC	Australian and New Zealand Standard Industrial Classification

Reflecting the brief for this project, we adopt a broad definition of the Māori economy. We wish to capture all entities and enterprises that self-identify as part of the Māori economy. In particular, we do not limit ourselves to collectively-owned assets, or those arising from Treaty settlements. It is our aim to include Māori entrepreneurs active in individually-owned businesses and/or SMEs, as well as the contribution of Māori employees in terms of wages earned.

3. Māori asset base

We estimate the asset base of the 2010 Māori economy to total at least \$36.9bn.

This figure comprises:

- \$5.4bn of assets attributable to the enterprises of nearly 12,920 Māori self-employed.
- \$20.8bn of assets attributable to the enterprises of 5,690 Māori employers.
- \$10.6bn of assets of Māori Trusts, Incorporations, Organisations, Boards, PSGEs, MIOs and Iwi/Rūnanga holding companies.

3.1 Employer and self-employed enterprises

The estimated assets for enterprises related to Māori self-employed and employer enterprises are listed in Table 3.2.

Data sources used to calculate these estimates include:

- Statistics New Zealand 2006 Census Data.
 - Number of self-employed, employers and employees by industry, by ethnicity.
 - Mean average incomes of employers and self-employees industry, by ethnicity.
- Statistics New Zealand Household Labour Force Survey (HLFS) (June 2010 and previous).
 - Growth in number of self-employed, employers and employees.
 - Growth in total employment by industry.
- Statistics New Zealand Annual Enterprise Survey (AES) (2009 and previous).
 - Total assets by industry (by top-level ANZSIC categories).
- Statistics New Zealand Business Demography Statistics (2009 and previous).
 - Employment count by detailed ANZSIC categories.
- Statistics New Zealand Capital Goods Price Index (CGPI) (June 2010 and previous).

3.1.1 Method

The general method for estimating assets held in enterprises associated with Māori employers builds from information on the average value of assets per employee ¹, multiplied by the number of employees in these enterprises. This calculation is undertaken at the disaggregated industry level.

The number of employees is derived from the number of Māori employers multiplied by the average employee to employer ratio in each industry ².

An adjustment is made to incorporate the difference in value of assets held in Māori enterprise compared to those in other enterprises. This difference is measured by proxy using the mean income of Māori employers compared to the mean income of all employers. Again, this adjustment is undertaken at the disaggregated industry level.

¹ This can be viewed as a proxy for the capital-labour ratio.

² This can be viewed as a proxy for the size of the enterprise.

Consequently, the generalised formula followed for assets held by enterprises related to Māori employers in each industry can be stated as:

$MA_j = AE_j * MEM_j * AEE_j * [MEM_{Mj} / EMI_j]$	
where MA_j = Māori assets in sector j	
AE_j	= assets per employee in sector j
MEM_j	= number of Māori employers in sector j
AEE_j	= average employees per enterprise in sector j
MEM_{Mj}	= mean income of Māori employers in sector j
EMI_j	= mean income of all employers in sector j

A similar process, and formula, is used for enterprises associated with self-employed Māori except that the AEE term is eliminated (implicitly held at a value of one).

Assets in enterprises associated with Māori employers and self-employed Māori can be summarised as the number of:

- Māori employers, multiplied by the ratio of employees to employers, multiplied by total assets per employee, multiplied by the ratio of the income of Māori employers to the income of all employers.
- Māori self-employed (without employees), multiplied by the total assets per employee, multiplied by the ratio of the income of self-employed Māori to the income of all self-employed persons.

These calculations were undertaken at the Division level of the ANZSIC ³, with exceptions noted below in sub-section 3.1.3.

3.1.2 Specific data sources

Asset per employee (AE)

This calculation was derived using Statistics New Zealand's AES. The AES provides data on the total assets of enterprises for each industry at the ANZSIC Division level of disaggregation. However, this survey has no information on the ethnicity of those active in these enterprises. Latest AES data was available for the 2009 financial year. Data from Statistics New Zealand's CGPI was used to inflate the AES asset totals to 2010 prices.

Employee numbers are derived from Statistics New Zealand Business Demography Statistics. This Survey provided employee count numbers by industry at the ANZSIC Division level for March 2009. However, this survey has no information on the ethnicity of the employees. Appropriate growth rates in employment using data from Statistics New Zealand HLFS was applied to the March 2009 figures to generate employee numbers by industry for March 2010.

Number of Māori employers and self-employed Māori

This data was derived from Statistics New Zealand 2006 Census information, which explicitly identifies ethnicity of individuals, their labour force status ⁴, and the industry in which they are active. This information is collated at the relevant ANZSIC Division level.

This 2006 data was updated to 2010 using information from the HLFS. Growth in the number of employers and self-employed, at the all industry level, was used for this purpose.

3 We use the 1996 version of this classification. The Division level separately identifies 17 industry categories across the economy. The process described here is used for 13 of these 17 categories. Details for the remaining 4 categories are noted in the following sub-section.

4 In terms of labour force status, 'self-employed' is explicitly defined as self-employed without employees, while 'employers' are denoted employers with employees.

Average employees per enterprise

Previous studies have assumed a value of 3.0 employees per enterprise across all industries for this measure. That is, previous estimates of the asset base of the Māori economy have assumed that the average Maori enterprise employs three employees, irrespective of industry.

However, 2006 Census data suggests that the value of 3.0 is a very conservative assumption. By comparison, the average ratio for all enterprises of employees to employers across all relevant industries⁵ was calculated at 9.5. Consequently, using a ratio of 3.0 implicitly assumes that the average Māori enterprise is significantly smaller than the average for other enterprises.

Table 3.1 Employee per enterprise by industry

	Calculated	2006 Census
Agriculture, Forestry and Fishing	3.6	3.1
Manufacturing	16.8	14.6
Construction	5.5	4.8
Wholesale Trade	14.1	12.2
Retail Trade	9.3	8.0
Accommodation, Cafes & Restaurants	10.4	9.1
Transport and Storage	16.3	14.1
Communications	30.6	26.5
Finance and Insurance	27.2	23.6
Property and Business Services	9.2	8.0
Education	97.5	84.5
Health and Community Services	27.7	24.0
Cultural, Recreational & Pers Services	16.3	14.1
Not Elsewhere Included	10.0	8.6
Total	12.2	10.6

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

For this study, we use 2006 Census data to provide a more refined estimate. The 2006 Census data distinguishes by industry, different employees per enterprise ratios. Further, HLFS figures indicate a noticeable increase in this ratio from 2006 to 2010. To incorporate this influence HLFS growth figures were applied to employer and employee numbers by industry to generate 2010 ratios. To combine the superior coverage of the Census data, with the timeliness of the HLFS information, the ratio we adopt in each industry is the average of the 2006 Census ratio and the ratio updated using 2010 HLFS data. The ratios used are listed in Table 3.1 under the column 'calculated'.

The assumption therefore, is that the average Māori enterprise in each industry is the same size (in terms of employees) as the average of other enterprises in that industry. We believe this is a more neutral assumption, as well as one grounded in data, as opposed to a conservative assumption using an arbitrary figure of 3.0.

⁵ That is, all industries excluding government administration & defence, mining & quarrying, and electricity, gas & water.

Mean income

This data was sourced directly from 2006 Census information. Personal income, disaggregated by ethnicity, labour force status and industry was used ⁶.

3.1.3 Special industries

Exceptions to the process noted above involved four of the 17 industries. These four are:

- Mining and quarrying.
- Electricity, gas and water.
- Government administration and defence.
- Finance and insurance industries.

For the first three, we assume there are no assets in enterprises associated with Māori employer or self-employed Māori in these industries. We have excluded government administration and defence from these calculations as this is not an industry in which assets can be invested by private entrepreneurs. We also exclude the mining and quarrying and the electricity, gas and water industries as they are capital (asset) intensive sectors with high initial set up costs. Consequently, we believe these are also not readily accessible to individual entrepreneurs.

In the case of the finance and insurance industry an alternative method is adopted. An alternative is necessary because the total assets figure obtained from the AES data includes banking sector loans. As a result this measure cannot be used to derive the value of assets underpinning enterprises in this industry. Consistent with previous approaches, we assume the mean annual individual income derived by Māori employers and self-employed Māori in this industry is equivalent to a 10 percent return on total assets. The relevant formula for enterprises associated with Māori employers in this industry is:

$$MA = MEM * AEE * [10 * MEMI]$$

where MA_j = Māori assets in the finance and insurance industry

MEM_j = number of Māori employers in the finance and insurance industry

MEMI_j = mean income of Māori employers in the finance and insurance industry

A similar formula applies for enterprises associated with self-employed Māori, except that the AEE term is eliminated (implicitly held at a value of one).

Assets in enterprises associated with Māori employers and self-employed Māori in this industry can be summarised as the number of:

- Māori employers, multiplied by the employee per enterprise ratio, multiplied by 10, multiplied by the mean annual income of Māori employers in the industry.
- self-employed Māori, multiplied by 10, multiplied by the mean annual income of self-employed Māori in the industry.

Apart from these modifications to the method and associated formula, the data used for the calculations for the finance and insurance industry are the same as noted earlier in sub-section 3.1.2.

⁶ We note that *The Māori Commercial Asset Base 2007* report used median incomes. The more correct variable to use is mean income.

Table 3.2 Assets related to Māori employer and self-employed enterprises (2010 \$m)

	Self-employed	Employers	Total	Māori assets as % of total
Agriculture, Forestry and Fishing	1,534	3,238	4,772	4.3
Manufacturing	250	1,767	2,017	3.3
Construction	397	1,040	1,438	6.7
Wholesale Trade	93	675	768	2.9
Retail Trade	98	660	758	3.6
Accommodation, Cafes & Restaurants	22	289	311	5.0
Transport and Storage	366	2,439	2,806	7.7
Communications	323	1,958	2,282	9.7
Finance and Insurance	112	1,484	1,597	3.1
Property and Business Services	1,525	4,583	6,108	3.8
Education	41	950	991	8.8
Health and Community Services	39	286	325	2.8
Cultural, Recreational & Pers Services	269	877	1,145	7.8
Not Elsewhere Included	370	589	959	5.8
Total	5,440	20,837	26,277	4.6

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

3.2 Māori entities

The estimated assets for Māori entities are listed in Table 3.4. The data sources used to generate these estimates include:

- Annual Reports/ Internal Organisation Reports / Interviews / Personal Communications.
 - Activity, asset holdings and income of Māori Trusts, Incorporations, Organisations, Boards, PGSEs, MIOs and Holding Companies.
- Māori Land Court.
 - Size of land holdings and values of Māori Trusts and Incorporations.
- Te Puni Kōkiri (TPK).
 - Main activity, value of assets, income, expenditure and rohe of Top 30 Māori entities.
- Charities Commission data
 - Value of assets, income, expenditure, main activity and rohe of charitable organisations active in the Māori economy.

3.2.1 Method

As a starting point, information and data from earlier work was combined. Along with a search of published information, the operations of large Māori entities were investigated and, where available, income and asset data obtained.

This information was checked using data supplied and compiled by Te Puni Kōkiri as part of an independent survey of the Top 30 Māori entities. Identification of the Top 30 was established through the collation of reports and the Ministry's own knowledge of the Māori economy built

up through earlier work. The survey data was obtained by a combination of searching public reports and personal communications with key players in these entities.

The data received from Te Puni Kōkiri confirmed the data generated by BERL.

This examination was supplemented by Land Court data on the land holdings of Māori Trusts and Incorporations. This data is incomplete but, variously, provides information on Trust names, size (hectares) of land held and rohe. For some records, it also provides information on the value of the land.

This information was combined with previous studies, including detailed studies on the Māori economy in Taranaki and Waiariki, paper records of earlier databases, and personal communications. This involved a line-by-line check of records from published reports and information from Te Puni Kōkiri and the Land Court. The primary objective of this line-by-line check was to eliminate duplicate entries, noting in particular the potential effect of name changes or variant spellings.

At the conclusion of this process we confirmed the identification of records for 5,906 organisations or enterprises. However, only a relatively small proportion of these entries were complete, in terms of providing information on main activity, size of land holding (where relevant), and value of asset.

3.2.2 Records with confirmed asset values

As listed in summary Table 3.3, 418 records included information on main activity and the related value of assets. These records totalled \$9.5bn in asset value. These included:

- 86 organisations in the agriculture sector, with assets totalling over \$1.5bn.
 - Amongst this group 78 were identified with records totalling over 194,500 hectares and a value of \$788m.
 - Eight records with asset values were confirmed as totalling \$761m, although hectare areas were unable to be accessed or confirmed for this sub-group.
- 81 organisations in the forestry sector, with assets of nearly \$2.1bn.
 - Amongst this group 79 were identified with a total of more than 460,600 hectares.
 - A further two records where hectare areas were not able to be accessed, although their values are included in the \$2.1bn figure.
- 68 organisations in the fishing sector, of which 61 had a confirmed asset value of \$1.0bn. Asset values for the remaining seven records were unable to be accessed or confirmed and are not included in any total.
- 176 organisations in the services sector, with assets totalling nearly \$3.2bn.
 - These assets include a combination of cash, shares and property.
 - Some of these entities are active in the provision of social services (e.g. housing, health and education) to Māori and non-Māori, as well as broadcasting activities.
 - Entities identified from the Charities Commission data by name, main activity, main beneficiary as active in the Māori economy are also included here.
 - A proportion of this number includes investments held by iwi holding companies with interests across several industries that could not be readily disaggregated to the relevant industries.
- Organisations identified across other industries with confirmed asset values are also summarised in Table 3.3. Some figures are suppressed for confidentiality purposes.

Table 3.3 Summary records of database of Māori entities

Industry	Number of records		Total value of assets with confirmed values \$
	Total	With confirmed asset value	
Agriculture	131	86	1,548,981,959
Forestry	210	81	2,071,693,367
Fishing	68	61	1,034,826,158
Processing	3		573,492,645
Mining	3		4,625,577
Energy	8		270,372,433
Property Development	11	6	808,041,326
Services	176	176	3,156,473,990
Unknown	5,294	0	0
Total	5,906	418	9,468,507,456

BERL calculations using data from various sources (some entries suppressed for confidentiality reasons). Totals may differ from sum of components due to rounding.

3.2.3 Records where asset values were imputed

There was a total of 5,488 records where asset values were unable to be directly estimated or confirmed. As noted above, values for seven records in the fishing industry were unable to be further determined.

Of the 129 records in forestry with no recorded value:

- 126 had confirmed areas totalling 188,400 hectares. These were assigned a value based on a \$ per hectare figure of 30 percent of the average in the identified rohe ⁷ calculated from the other observations in the database. This resulted in a further \$170m added to total asset values.
- The remaining three records were unable to be valued.

This left 5,352 records (outside the forestry and fishing sectors) with values unable to be confirmed.

Of these:

- 110 records had insufficient associated information (in particular, no land area data) for values to be attributed.
- There were 5,242 records totalling more than 888,600 hectares to be valued. These holdings were valued assuming a \$ per hectare figure of 30 percent of the value in agriculture holdings in their respective rohe ⁸. This resulted in a further \$981m added to total asset values.

The 30 percent assumption is conservative, and is based on our knowledge of the likely composition and state of these assets. In particular, these assets are likely to be a combination of:

- Small holdings with minimal to average infrastructure connections (drainage, fencing, transport) leased to neighbouring operators.
- Holdings with economic activity present, but at low levels of productivity due to management, scale and infrastructure constraints.
- Holdings lying idle.

⁷ Average values across rohe for forestry asset holdings range from \$2,100 to \$3,400 per hectare.

⁸ Average values across rohe for agriculture asset holdings range from \$1,040 to \$5,110 per hectare.

Some of these holdings will have minimal economic value, due to their physical situation and/or land or soil type, while others will have potential value but lack development or associated infrastructure.

3.3 Summary

Adding these imputed estimates to those confirmed results in the value of total assets of Māori entities as listed in Table 3.4. The classification of industries is modified in this table in order to be consistent with ANZSIC categories.

Table 3.4 also provides a breakdown by type of Māori entity. This breakdown by type should be viewed as indicative, due to the incompleteness of some data records. Further, we note in previous reports such a breakdown has separately identified Māori Trusts, Māori Trust Boards, Treaty settlements, and Māori organisations. Strict comparability with earlier breakdowns is not possible given the changes in structures (e.g. the establishment of PSGEs and MIOs, as well as the inclusion of Treaty settlement proceeds in holding companies and other organisations), and different methodology for data collection and collation.

Table 3.4 Assets of Māori entities (2010 \$m)

Trusts, Incorporations, Boards, MIOs, PGSEs, Holding companies	Total	Trusts and Incorporations	Runanga/Iwi organisations	MIO
Agriculture	2,530	2,465	65	0
Forestry	2,242	287	1,954	0
Fishing	1,035	0	22	1,013
Total Agriculture, Forestry and Fishing	5,807	2,752	2,041	1,013
Mining	5	5	0	0
Manufacturing	573	573	0	0
Electricity	270	225	45	0
Property and Business Services	808	157	651	0
Education	278	23	256	0
Health and Community Services	66	5	60	0
Cultural, Recreational & Pers Services	2,813	229	2,584	0
Not Elsewhere Included	0	0	0	0
Total	10,620	3,970	5,637	1,013

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

We combine the information on Māori entities with those for Māori employers and self-employed. This yields the asset base of the 2010 Māori economy by broad industry grouping, as listed in Table 3.5.

Table 3.5 Asset base of 2010 Māori economy (2010 \$m)

	Māori Asset Base 2010 \$m			
	Self-employed	Employers	Trusts, Incorporations, Boards, MIOs, PGSEs, Holding Companies	Total
<i>Agriculture</i>			2,530	
<i>Forestry</i>			2,242	
<i>Fishing</i>			1,035	
Total Agriculture, Forestry and Fishing	1,534	3,238	5,807	10,579
Mining	0	0	5	5
Manufacturing	250	1,767	573	2,591
Electricity	0	0	270	270
Construction	397	1,040	0	1,438
Wholesale Trade	93	675	0	768
Retail Trade	98	660	0	758
Accommodation, Cafes & Restaurants	22	289	0	311
Transport and Storage	366	2,439	0	2,806
Communications	323	1,958	0	2,282
Finance and Insurance	112	1,484	0	1,597
Property and Business Services	1,525	4,583	808	6,916
Government	0	0	0	0
Education	41	950	278	1,269
Health and Community Services	39	286	66	391
Cultural, Recreational & Pers Services	269	877	2,813	3,958
Not Elsewhere Included	370	589	0	959
Total	5,440	20,837	10,620	36,897

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

3.4 Comparison with earlier estimates

The \$36.9bn figure for the 2010 year includes the effects of measurement and conceptual changes on earlier estimates, as well as growth of the Māori economy. Other estimates for the Māori asset base are listed in Table 3.6

Table 3.6 Comparison of estimates of Māori asset base

Year reference	2006 (A)	2006 (B)	2006 (C)	2010 (D)	2010 (E)
Māori self-employed		4,178	4,178	5,440	5,440
Māori employers		6,163	15,826	6,699	20,837
Sub-total	10,460	10,341	20,004	12,139	26,277
Māori entities	5,990	5,990	5,990	9,469	10,620
Total	16,450	16,331	25,994	21,608	36,897

(A) TPK (2007), Māori Commercial Asset Base.

(B) and (C) BERL (2008), Māori Commercial Assets 2006 Experimental Series – report to Te Puni Kōkiri.

(D) estimated using assumptions and method consistent with (1) and (2)

(E) estimates as per section 3 of this report.

Note the large difference between the two estimates for 2006 listed in columns referenced (B) and (C).

As explained in the BERL (2008) report, the difference in estimates arises from differing views as to the average size of businesses with Māori employers. The use of an arbitrary ratio of 3 for the number of employees per employer in such businesses results in the figure listed under column referenced (B). Note this is broadly consistent with that listed under the column referenced (A), which also adopts the arbitrary ratio of 3.

The figures listed in the column referenced (C) provide an estimate assuming that the average size of businesses with Māori employers is the same as other businesses in the same industry. That is, the ratio of the number of employees per employer is applied according to 2006 Census data for the industry, as listed in Table 3.1 and discussed in sub-section 3.1.2.

The figures listed in column referenced (D) are presented for comparative purposes. These figures for 2010 are calculated assuming the ratio of employees per employer in Māori businesses to be 3.0 for all industries. Further, the estimate for Māori entities omits the addition of imputed values for some assets as described in sub-section 3.2.3.

The difference between the (A) and (D) figures, having been derived using similar methods and assumptions, represents the nominal growth in the asset base of the Māori economy between 2006 and 2010. This equates to a 31 percent increase. Eliminating the effects of price inflation as measured by the CGPI, results in real growth of this asset base of 18 percent over these years.

The difference between (A) and (C) is a result of the change in assumption concerning the ratio of employees to employers in businesses with Māori employers. This difference results in a 58 percent increase in the 2006 estimate.

The wider coverage incorporated in our 2010 numbers, including imputing some asset values, adds a further eight percent⁹ to the (A) total.

The total increase from the 2006 estimate of \$16.5bn (column A) to the figures presented in this report (column E) is \$20.4bn. This can be divided into the influences outlined as illustrated in Figure 3.1.

9 Being the difference between (E) and (C), less the difference between (D) and (A).

Figure 3.1 Asset base of 2010 Māori economy compared to earlier estimates



BERL calculations using data from various sources.

These influences can be summarised as increases of:

- \$11.6bn associated with more comprehensive data and the adoption of different and more robust assumptions
- \$3.1bn associated with the 11 percent rise in capital goods prices
- \$5.7bn associated with real growth from 2006 to 2010 in the size of the asset base of the Māori economy. This is an increase of 18 percent (or 4.3 percent per annum).

4. Gross Domestic Product (GDP)

GDP is defined as the total market value of all final goods and services produced in a country (or an economy) in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports.

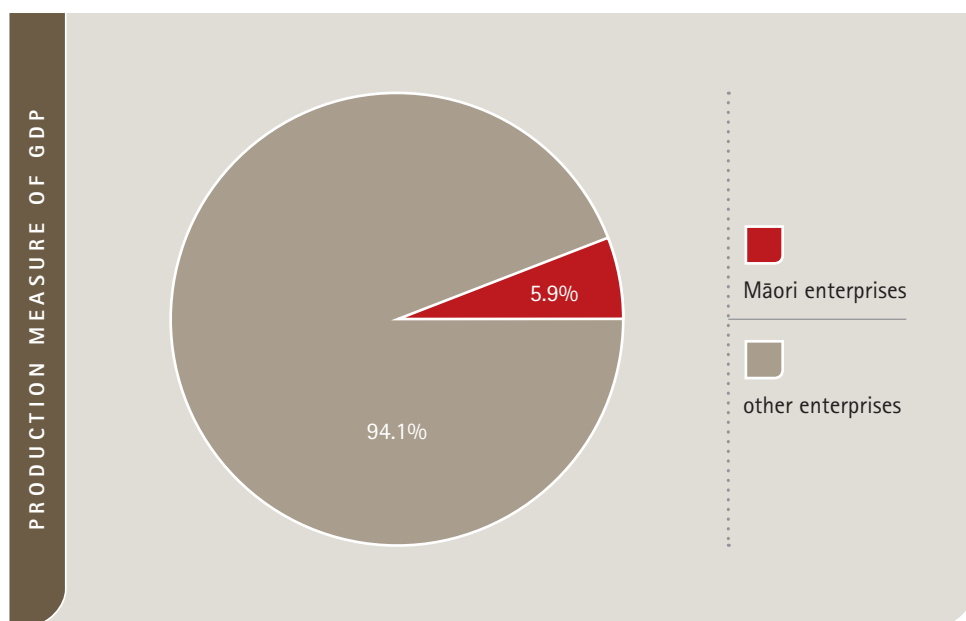
GDP can be calculated from three different dimensions:

1. The production account through the value added of individual industries or enterprises.
2. The expenditure on final demand.
3. The income of sectors.

Each of these dimensions provides a glimpse of the varying participation of Māori in both the Māori economy and the national economy.

4.1 Māori enterprises

Figure 4.1 Composition of value added from production dimension



BERL calculations using data from various sources.

Table 4.1 summarises GDP figures from the production account. Key points are:

- Māori enterprises are estimated to have generated more than \$10.3bn in value added in New Zealand.
- The \$10.3bn represents 5.9 percent of the total value added arising from all enterprises in New Zealand. This proportion provides a sound indication of the size of Māori enterprises relative to the total production activity of the New Zealand economy.
- Including other elements of GDP, Māori enterprises generated value added equivalent to 5.5 percent of New Zealand's GDP. This proportion is consistent with those used in earlier reports.¹⁰ It provides an indication of the size of Māori enterprises relative to overall GDP including non-production elements of GDP. The other elements of GDP incorporated in this measure relate, in the main, to indirect taxes (e.g. GST).

¹⁰ In particular, it is consistent with the 2007 TPK report, The Māori Commercial Asset Base.

¹¹ That is, the value of \$164,601m.

Table 4.1 Māori participation – production GDP dimension

From GDP production account	\$m	%
Value added in Māori enterprises	10,255	
Value added in other enterprises	164,601	
Total value added from GDP production account	174,857	
Māori enterprises as % of Māori + other enterprises		5.9
Other GDP elements: indirect taxes on final demand	12,445	
Total GDP	187,302	
Māori as % of total GDP		5.5

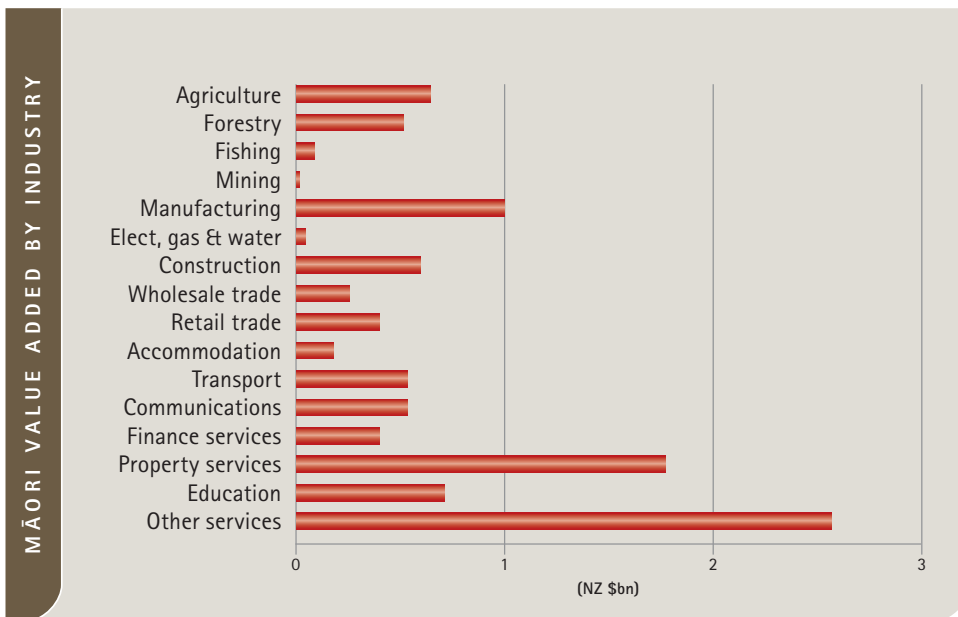
BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

We strongly urge correct interpretation of these proportions. In particular, if using either the 5.9 percent or the 5.5 percent ratios, we do NOT assert that the remaining 94.1 percent or 94.5 percent of GDP arises from non-Māori enterprises.

Such an interpretation would be incorrect as, within the entry in Table 4.1 for *Value added in other enterprises*¹¹, there are enterprises for which it is conceptually difficult to assign ethnicity (e.g. finance and banking). This figure also includes the activities of government sector producer enterprises. For this reason we have explicitly listed the remainder as “other enterprises”, as opposed to the label “non-Māori”.

Within the \$10.3bn value added from Māori enterprises, nearly \$1.2bn is attributable to Māori enterprises in the agriculture, forestry and fishing industries, with a further \$1bn in manufacturing (including food processing) sector, as illustrated in Figure 4.2.

Figure 4.2 Value added in Māori enterprises (2010 \$bn)



BERL calculations using data from various sources.

4.1.1 Expenditure and income measures of GDP

Table 4.2 summarises figures for GDP using the expenditure and the income measures.

- Current and capital spending by Māori households totalled \$16.6bn, with a further \$1.4bn in capital spending by Māori enterprises in New Zealand.¹²
- Māori household GDP income ¹³ totalled \$10.0bn in New Zealand, with a further \$3.3bn in operating surplus generated by Māori enterprises in New Zealand.

Again, we caution on the correct interpretation of the percentage figures listed. Some enterprises are neither Māori nor non-Māori. As noted earlier, there are many conceptual difficulties in assigning ethnicity to some industry activities and so we use the label "other" to distinguish it from "non-Māori".

Table 4.2 Māori participation – income and expenditure GDP dimensions

From GDP expenditure account	\$m	%
Current and capital spending by Māori households	16,619	
Current and capital spending by other households	99,752	
Total household spending from GDP expenditure account	116,371	
Māori households as % of all households		14.3
Capital spending by Māori enterprises	1,442	
Capital spending by other enterprises	25,324	
Total enterprise capital spending from GDP expenditure account	26,767	
Māori enterprises as % of Māori + other enterprises		5.4
From GDP income account	\$m	%
Māori household GDP income	9,957	
Other household GDP income	84,214	
Total household income from GDP income account	94,171	
Māori households as % of all households		10.6
Operating surplus of Māori enterprises	3,280	
Operating surplus of other enterprises	66,792	
Total enterprise operating surplus from GDP income account	70,071	
Māori enterprises as % of Māori + other enterprises		4.7

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

4.2 The household sector dimension

The household sector dimension includes income in addition to the GDP concept of income. In particular, it includes entrepreneurial and property income (e.g. self-employed income, interest and dividends), pension fund earnings and social security benefits and assistance. On the outlays side of this account, taxes paid and pension fund contributions are included in addition to the current and capital spending captured in the GDP expenditure figures.

12 Current spending refers to spending on consumer goods and services produced for immediate consumption by households. Capital spending refers to the purchase of machinery, equipment, land and buildings which will generate further economic benefits (i.e. production or consumer goods) over future years. Thus, capital spending (sometimes termed investment) by producer enterprises relates to their purchase of physical capital items (equipment etc.) which be used in production processes to generate consumer goods and services. Capital spending by households is limited to households' purchase of newly-built houses for owner-occupied residential purposes.

13 Income according to the GDP income concept for households is limited to compensation of employees (wages) and operating surplus arising from the ownership of owner-occupied dwellings. Other elements of household income are captured in the household sector accounts – see accompanying text.

Table 4.3 provides a summary of the household sector account.

- Māori household income is estimated to total nearly \$14.8bn in New Zealand.
- Māori household outlays totalled more than \$20.3bn in New Zealand.
- This suggests a net savings situation for Māori households in New Zealand of -\$5.5bn (i.e. dissaving or borrowing).

Table 4.3 Māori participation summary – household sector dimension

From households sector account	\$m	%
Māori households total income	14,758	
Other households total income	134,312	
Total households income from household sector account	149,070	
Māori households as % of all households		9.9
Māori households total outlays	20,308	
Other households total outlays	136,535	
Total households outlays from household sector account	156,842	
Māori households as % of all households		12.9
Māori households net savings	-5,549	
Other households net savings	-2,223	
Total households net savings from household sector account	-7,772	

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

4.3 The enterprises dimension

The enterprises dimension begins with the gross output ¹⁴ (akin to gross sales) of industries. The operating surplus derived from this gross output is required to fund the distribution of income (e.g. entrepreneurial income and dividends) and corporate tax as well as the capital spending captured in the GDP expenditure numbers.

Table 4.4 Māori participation summary – enterprises dimension

From enterprises account	\$m	%
Māori enterprises gross output	22,155	
Other enterprises gross output	352,900	
Total gross output from enterprises account	375,055	
Māori enterprises as % of Māori and other enterprises		5.9
Operating surplus of Māori enterprises	3,280	
Operating surplus of Non-Māori and other enterprises	66,792	
Total operating surplus from enterprises account	70,071	
Māori enterprises as % of Māori and other enterprises		4.7
Māori enterprises net savings	188	
Other enterprises net savings	9,995	
Total enterprises net savings from enterprises account	10,183	

¹⁴ Income from insurance receipts is also included here.

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

A summary of the enterprises sector account is provided in Table 4.4.

- The operating surplus of Māori enterprises is estimated at nearly \$3.3bn in New Zealand (as per the figure stated in the GDP income section).
- After outlays, the net savings situation for Māori enterprises in New Zealand amounted to \$188m.

4.4 Sector net balances

We note that net savings in the household sector is negative. This is the case for both the Māori households, as well as for other households. Conversely, the net savings situation for the enterprise sector is positive, for both Māori and other enterprises. The consequential negative net savings in the government sector (-\$4.2bn as listed in Table 4.5) is, given data limitations and conceptual differences, consistent with the published -\$4.5bn Operating Balance ¹⁵ in the Government Financial Statements for the June 2010 year.

Consequently, the New Zealand-wide total dissaving ¹⁶ figure is estimated at close to \$4.7bn. This represents 2.4 percent of GDP.

Table 4.5 Sector reconciliation – net balances

	\$m	\$m
Māori household net savings	-5,549	
Other households net savings	-2,223	
Total households net savings		-7,772
Māori enterprises	188	
Other enterprises	9,995	
Total enterprises net savings		10,183
Financial sector net savings	-2,955	
Government sector net savings	-4,157	
Overseas sector net savings	4,701	
Total other sector net savings		-2,411
Total balance		0

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

15 Noting that the Operating Balance Excluding Gains and Losses (OBEGAL) are recorded in deficit of \$6.3bn.

16 Equivalent to the deficit on the Current Account of the Balance of Payments.

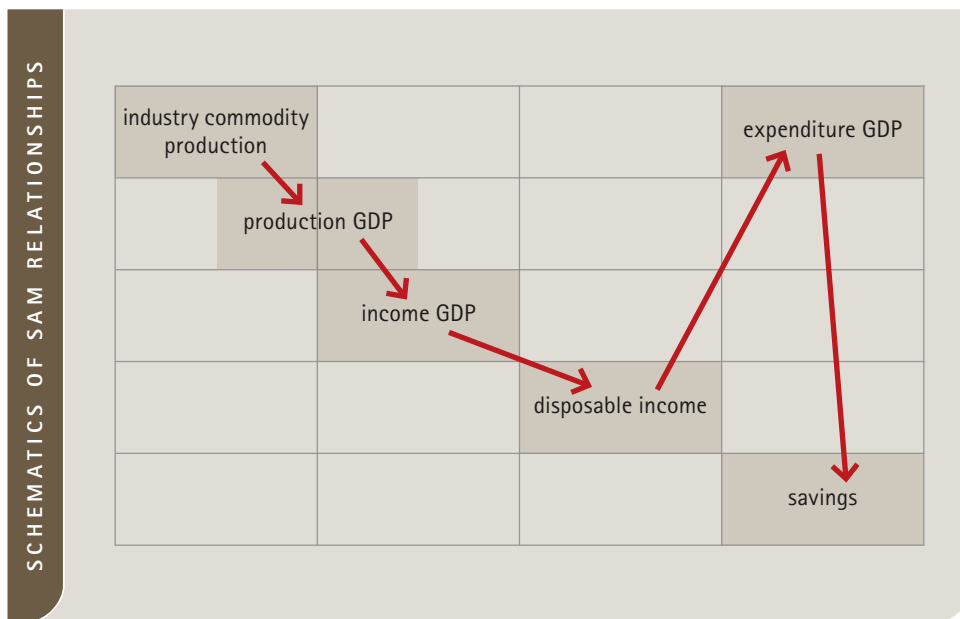
5. Social Accounting Matrix (SAM)

A Social Accounting Matrix (SAM) summarises the many payments or transactions in an economy. These transactions or payments may involve a person, an industry, a household, an enterprise, the Government, a foreign customer or a supplier. The SAM summarises the source and destination of these transactions, i.e. who are making and who are receiving the payments.

A matrix is another word for a table of numbers. In general, each column of the table represents payments by a person; and each row of the table represents payments received by that person. For example, take the case of a household paying income tax. This transaction will be represented by an appropriate figure in the intersection of the 'household' column and the 'government' row of the matrix.

There are other entries in the matrix. For example, there are some figures representing transfers within sectors and other notional transactions.¹⁷ Figure 5.1 depicts a simplified tableau that illustrates the payments or relationships representing the core transactions.

Figure 5.1 Schematics of a SAM



In a more formal sense, a SAM comprises a combination of an inter-industry transactions (or input-output) table and the accounting flows of income and outlays for particular institutional sectors of an economy.

5.1 Inter-industry transactions and production GDP

Transactions between the various industries of the economy form the basis of the production component of the SAM. For example, the fish processing industry buys the raw fish catch from the fishing industry along with other inputs from other industries (e.g. energy from the electricity industry) in order to make its fish product, or commodity.

Thereafter, the processing industry is also likely to purchase transport services from the transport industry in order to convey its product to its final customer (whether to an export port ready for foreign customers or for internal distribution to retail consumers or other domestic users).

17 Notional transactions are those recorded for economic or accounting purposes, but do not take place as a real world transaction. For example, the notional payment by those residing in their own home to themselves reflects the economic rental value of their owner-occupied property. This is included by Statistics New Zealand to ensure that the economic operation of rental and owner-occupied property is treated equally in the National Accounts.

The transactions between the various industries are depicted in the top-left section of Figure 5.1. The principal data source for the information in this section of the SAM is an updated of the 2005/06 input-output table to 2009/10. The earlier 2005/06 input-output table was, in turn, originally derived by BERL¹⁸ from Statistics New Zealand's supply-and-use tables for 2002/03 and earlier revisions.

Of course, industries do more than just purchase and sell between them. They combine both the raw and material inputs they purchase from other industries and in such transformations they 'add value' to the products or commodities they ultimately produce. Such 'value added' is, in an economic sense, equivalent to the GDP contribution of each production industry.

This value added constitutes the payments (or returns) to the primary resources used in the production of each commodity. In its simplest form, primary resources (or factors of production) are limited to labour and physical capital.¹⁹ Consequently, production GDP is captured in a SAM as payments by industries to the owners of labour and capital – that is, wage and profit²⁰ payments.

These wage 'transactions' are listed in a SAM at the intersection of the relevant industry columns and the owners of labour row. Similarly the profit transactions are placed at the intersection of the relevant industry columns and the owners of capital row. The sum of these wage and profit 'payments' is conceptually equivalent to the total 'added value' contributed by the producers in an economy and is termed the production measure of GDP.

Thus, the added value of the fishing industry, for example, is equivalent to the wage payments to those employed in the industry and the surplus of the industry. The latter represents payments to the owners of the machinery, equipment and buildings used in the industry.

5.2 Income GDP and disposable income

From the production segment of an economy, we move on to the income segment.

In this context, a SAM firstly captures the 'conceptual transactions' that translate the income of labour and capital owners into income of households and those of the owners of the producer enterprises.

The entries in a SAM have, for example, figures at the intersection of the 'owners of labour' column and the household row. Other income payments received by households from the 'owners of capital' row would include returns to self-employed persons in their role as business owners across the various industries.

The income of enterprises, predominantly at the intersection of the producer enterprises column and the owners of capital row, represent the conceptual transfer of the surplus of industries into profits of producer enterprises.

It is true that the translation of the incomes of the factors of production (labour and capital) into the incomes of households and enterprises captures, in the main, 'notional' rather than 'actual' transactions. Nevertheless, this segment of a SAM enables an economy's value added to be expressed in an alternative form – namely, income GDP. Consequently, we can capture another dimension to the participation of Māori in the New Zealand economy, i.e. the participation via the income measure of GDP of Māori households.

Very generally, for example, the wage payments of those employed in the fishing industry are likely to be predominantly translated into household income. Similarly, the surplus of this industry is likely to form the basis of the income of producer enterprises.

18 The 2005/06 input-output tables were constructed for use in a project for the Department of Labour – BERL (2008), CGE Modelling of the Economic Impacts of Immigration <http://www.dol.govt.nz/publications/research/cge/cge.pdf>. These simulations were also presented to the 13th Annual Global Trade and Analysis Project (GTAP) conference held in June 2010.

19 That is, machinery, equipment, land and buildings.

20 Strictly speaking, this represents interest, rent and profits (including dividends as well as an allowance for depreciation). In economic terms these are collectively referred to as operating surplus plus consumption of fixed capital.

5.2.1 Disposable income

Having established the income GDP of households and producer enterprises, a SAM moves on to summarise the transactions that lead to the disposable income of these components of the economy. In contrast to the previous segment of the SAM, the majority of these transactions are actual rather than notional. In particular, entries in this segment include income and corporate tax payments to government by households and producer enterprises, as well as social security and benefit payments from government to households. In addition, mortgage and other debt interest payments by households are recorded here in the financial institutions row. Household receipts from financial institutions represent interest as well as superannuation income along with insurance payouts.

The principal data source for household sector income information was Household Income and Outlay Accounts 2010. This was supplemented by information on transactions with the government sector from the Treasury's 2010 Financial Statements of the Government of New Zealand.

5.3 Expenditure GDP and net savings

Given the disposable income of households and producer enterprises, the final set of 'core' transactions captured by a SAM are the expenditure on goods and services (i.e. the commodities) that are produced by industries.

The expenditure by households on consumer goods would be included in the intersection of the household column and the row for the industry producing each consumer commodity.

For example, purchases of fish products by the household are likely to be predominantly in the row of the fish processing industry (noting that the household is unlikely to be purchasing the raw fish catch of the fishing industry). Other consumer spending, like fuel (purchased from the fuel retailing industry), to enable consumers to drive to the supermarket to purchase fish products will also be included here.

Expenditure by producer enterprises on goods and services predominantly involves capital expenditure (investment) on machinery, equipment and buildings. This expenditure is required to maintain and expand the physical resources available to the industry for use in its production processes. For example, the purchase of a fishing boat by a producer enterprise active in the fishing industry would appear in the producer enterprise column and the row relating to the marine equipment making industry.

This set of transactions also includes government purchases of goods and services – for example, the purchase of health services from the health services industry.

The remaining set of transactions here are the purchases by overseas customers of the goods and services produced by New Zealand industry. These export transactions are captured in the intersection of the overseas column and the relevant industry row. Conversely, there will be a set of transactions representing the purchase by New Zealand households and industries of goods and services produced abroad. These import transactions will be represented by figures in the overseas row across the various columns for the range of households and industries.

For example, the petroleum refining industry will be purchasing crude oil imports, which gets translated into petrol purchased by a household via transactions with the fuel retailing industry. Similarly, the purchase of a fishing boat by a producer enterprise active in the fishing industry is likely to require the purchase of a variety of mechanical and electrical components from abroad by the marine equipment making industry.

The total of the expenditure in this segment of the SAM, net of imports, is equivalent to the expenditure measure of GDP. Consequently, a further dimension to the Māori participation in the New Zealand economy can be described – namely, through the expenditure of Māori households.

5.3.1 Net balance or savings

Finally, the SAM enables the calculation of the net balance position of the household, government and producer enterprise sectors. This is calculated directly from the calculated disposable income of each of the sectors minus their expenditure.

In addition, the net balance of transactions with the overseas sector can also be calculated from the figures contained in a SAM. Note, as well as exports and imports of commodities, other transactions with the overseas sector are also included in a SAM. In particular, interest, profits and/or dividends from producer enterprises active in New Zealand industries may be remitted to foreign owners. This will be shown in the intersection of the producer enterprise column and the overseas row.

Similarly, transfers or other transactions from the overseas sector to, for example, New Zealand households, will be shown in the intersection of the relevant row and the overseas column in a SAM. Consequently, the net balance of transactions with the overseas sector is equivalent to the balance on the current account of the Balance of Payments. This balance comprises the balance on trade flows (i.e. export revenue minus import payments), as well as the balance on financial transactions (i.e. interest, profits and other asset income and payments) with the rest of the world.

A cross-check of the net savings figure is provided by the macro-economic identity. This states that the sum of the net savings of all these domestic sectors plus the net balance of transactions with the overseas sector must equal zero. In other words, if the balance of the overseas sector is a positive (i.e. surplus or savings) then the sum of the balances of all the domestic sectors would have to be a negative (i.e. deficit or dissavings) of the same magnitude.

5.4 Data limitations

Using data from a variety of sources causes difficulty when ensuring consistency of treatment. If we limit ourselves to one data source, we can obtain a large degree of sector disaggregation, but at the expense of less than comprehensive coverage of transactions. Using a variety of sources may improve the coverage of the information available, but the sector detail of this information is likely to be more highly aggregated.

For this reason, industry and sector definitions have been kept broad to reduce the degree of detail required to be extracted from the data. For similar reasons, many of the 'non-core' transactions between and within sectors have not been explicitly identified in the SAM developed for this project.

The use of Census data has advantages in its comprehensive coverage. However, information here is obtained from the perspective of individual details, rather than business details. Where appropriate we have had to imply relevant variables from individual data rather than from business data. This has limitations in that obtaining data relevant to businesses distinguished by ethnicity is difficult – except, for example, for income of Māori and non-Māori self-employed businesses.

Of particular importance in the generation of this SAM, and the consequential estimates for Māori participation, is the calculation of the Māori asset base.

Due to the lack of reliable information we have not attempted to disaggregate the export dimension of producer enterprises by the ethnicity of such businesses. Clearly, such a shortcoming does reduce the analysis that can be supported by the SAM. Thus, any survey of

businesses should also look to extract information on the export orientation of comparative businesses (ideally, Māori compared with other businesses).

Nevertheless, remembering that the primary aim was to obtain a credible picture of the Māori participation in the New Zealand economy, we decided to establish reliable and robust data to support the estimated core transactions identified in Figure 5.1. We believe we have been successful in this aim.

5.5 Enterprises

5.5.1 Output and income

Gross output of producer enterprises begins with the 2010 estimate of gross output from the input-output tables. The Māori proportion of the gross output of each specified industry is estimated as follows:

- For all sectors except mining, electricity, gas and water, and government administration and defence
 - The proportion estimated using the Māori asset base figures listed in Table 3.4 and a parallel calculation to estimate total assets in these sectors.
- For mining and electricity, gas and water sectors
 - Gross output arising from the assets listed in Table 3.4 is derived using the gross output to capital stock ratios for these sectors from the 2006 input-output data.
- For government administration and defence
 - The Māori component of this sector is set at zero, as per the discussion in sub-section 3.1.3.

Other income to Māori enterprises in the form of insurance claims has been sourced from annual statistics issued by the Insurance Council of New Zealand. The Māori proportion for this figure has been assumed to be equivalent to the Māori proportion in total gross output.

5.5.2 Costs of production

The costs of production for each industry, including compensation of employees, purchase of intermediate commodities (including imports) and other input costs arise from the 2010 input-output inter-industry transactions table. In generating these costs, their proportions in relation to each industry's gross output are set the same as those implied by the input-output table.

5.5.3 Outgoings

Distributions to households in the form of entrepreneurial and dividend income are the converse of those in the household account. All entrepreneurial income accruing to Māori households are assumed to source from Māori producer enterprises. However, the proportion of the dividend distribution from Māori producer enterprises allocated to the Māori household sector is equal to the Māori proportion reporting income from the interest, dividend, rent or other property income category in the 2006 Census.

Corporate tax from the 2010 Government Financial Statements is allocated to Māori enterprises according to the proportion of gross output in Māori enterprises to total gross output.

The proportion of the total for capital spending from the input-output table ²¹ allocated to Māori enterprises is calculated as the Māori proportion in the consumption of fixed capital in industries from the input-output table.

²¹ This excludes investment in owner-occupied dwellings, which is allocated to the Māori and other household sectors.

5.6 Households

The majority of the components of income are derived from a division of the income listed in the Household Income and Outlay Accounts for the 2010 year. In all cases, where relevant, figures from the input-output table are retained for consistency with industry data. The division between Māori and non-Māori households is undertaken using appropriate proportions from the 2006 Census and/or other sources.

5.6.1 Income

- Wages from compensation of employees from the input-output table totals \$84,261m.²² The income for Māori households is obtained by applying the Māori proportion of the income earned by paid employees as reported in the 2006 Census.
- Social security assistance and benefits for all households is from Household Income and Outlay Accounts. The income for Māori households is obtained by applying the Māori proportion reporting income in the 2006 Census from the following sources: New Zealand Superannuation or Veterans Pension, Unemployment Benefit, Sickness Benefit, Domestic Purposes Benefit, Invalids Benefit, or Student Allowance.
- Entrepreneurial income and dividend income for all households is accessed from Household Income and Outlay Accounts. Entrepreneurial income for Māori households is obtained by applying the Māori proportion of income earned by self-employed from the 2006 Census. Dividend income is split according to the proportion reporting income from the interest, dividend, rent or other property income category in the 2006 Census.
- Operating surplus accruing from ownership of owner-occupied dwellings is from the input-output table. The income for Māori households is obtained by applying the Māori proportion from the 2006 Census reporting those that live in owner-occupied dwellings.
- Pension fund benefits including equity changes and interest and insurance receipts is from the Household Income and Outlay Accounts. The former component is split according to the Māori proportion reporting income from the Other Superannuation, Pensions, Annuities category in the 2006 Census. The latter component is split according to the Māori proportion reporting income from the interest, dividend, rent or other property income category in the 2006 Census.
- Overseas transfers are from the Household Income and Outlay Accounts. This is split according to the Māori proportion in the number of households from the 2006 Census.

5.6.2 Outgoings

Determining the outgoings from the household sector accounted for by Māori households was achieved, predominantly, using appropriate shares from Census data. Key points include:

- Consumer expenditure from the input-output tables (\$109,491m). This is split according to the Māori proportion in the number of households and adjusted by the relative average household income from the 2006 Census.
- Income tax, other current taxes, social security contributions and fines and penalties are from Household Income and Outlay Accounts. These are split according to the Māori proportion of total individual employment income from the 2006 Census.
- Interest on consumer debt and interest on housing are from Household Income and Outlay Accounts. These are split according to the Māori proportion from the 2006 Census reporting they live in their own dwellings.

²² Compensation of employees listed in the household sector of the National Accounts for 2009 is \$80,669m. Increasing by 2 percent for growth between 2009 and 2010 gives a roughly comparable figure of \$82,282m.

- Investment in owner-occupied dwellings is from the input-output tables. This is split according to the Māori proportion from the 2006 Census reporting they live in their own dwellings.
- Pension fund contributions are from Household Income and Outlay Accounts. This is split according to the Māori proportion reporting income from the Other Superannuation, Pensions, Annuities category in the 2006 Census.
- Overseas transfers are from Household Income and Outlay Accounts. This is split according to the Māori proportion in the number of households from the 2006 Census.

5.7 Net savings reconciliation

The net savings of the household sector (Māori and other) totals -\$7.8bn. The Household Income and Outlay Accounts for 2010 indicate net savings of -\$4.1bn. The difference between these two estimates can be attributed to data limitations as well as conceptual differences between input-output and National Accounts information ²³.

As noted earlier, the net savings of the government sector of -\$4.2bn is, given data limitations and conceptual differences, roughly consistent with the published -\$4.5bn Operating Balance ²⁴ in the Government Financial Statements for the June 2010 year.

The net savings of the external sector of \$4.7bn represents 2.4 percent of GDP. This is closely consistent with the \$4.5bn recorded deficit on the current account from Statistics New Zealand Balance of Payments data for the year to March 2010.

23 For example, input-output concepts include household expenditure on investment in new residential buildings, while Household Income and Outlay accounts capture only the consumption of fixed capital ('depreciation') component of this spending.

24 Noting that the Operating Balance Excluding Gains and Losses (OBEGAL) are recorded in deficit of \$6.3bn.

6. Appendix 1: GDP summary tables

Table 6.1 New Zealand 2010 production, income and expenditure GDP (\$m)

	New Zealand \$m
Composition of GDP by production	
Value added in Māori producer enterprises	10,255
Value added in other enterprises	164,601
Indirect taxes on final demand	12,445
Total	187,302
Composition of GDP by expenditure	
Spending by Māori households	16,619
Spending by non-Māori households	99,752
Government consumption spending	37,750
Capital spending by Māori enterprises	1,442
Capital spending by other enterprises	25,324
Other capital spending (govt+finance sector)	3,679
Exports	52,425
Sub-total	236,992
LESS Imports	49,690
Total	187,302
Composition of GDP by income	
Māori household GDP income	9,957
Non-Māori household GDP income	84,214
Operating surplus of Māori enterprises	3,280
Operating surplus of other enterprises	66,792
Government indirect tax and other income	23,059
Total	187,302

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

7. Appendix 2: SAM tables

Abbreviations in the following tables are as follows.

A01+A02	= Agriculture + Services to Agriculture
A03	= Forestry
A04	= Aquaculture + Fishing
B	= Mining
C	= Manufacturing
D	= Electricity, Gas & Water Supply
E	= Construction
F	= Wholesale Trade
G	= Retail Trade
H	= Accommodation, Cafes and Restaurants
I	= Transport and Storage
J	= Communications Services
K	= Finance and Insurance
L	= Property and Business Services
M	= Government Administration and Defence
N	= Education
O+P+Q	= Health, Community, Cultural, Recreational, Personal and Other Services
COE:	compensation of employees
OPS:	operating surplus
ITX:	other indirect taxes
MHD:	Māori household sector
OHD:	other household sector
FII:	financial institutions sector
MEN:	Māori enterprises sector
OEN:	other enterprises sector
GOV:	government sector

Table 7.1 SAM illustrating Māori participation in 2010 New Zealand economy (\$m) – part A

		COMMODITY SUPPLY – ANZSIC sectors															
		A01+02	A03	A04	B	C	D	E	F	G	H	I	J	K	L	M	N
COMMODITY USE – ANZSIC sectors	A01+02																
	A03																
	A04																
	B																
	C																
	D																
	E																
	F																
	G																
	H																
	I																
	J																
	K																
	L																
	M																
	N																
O+P+Q																	
INDUSTRY OUPUT	A01+02	1134	42	0	0	428	0	19	0	0	1	10	0	0	8	1	0
	A03	54	1510	0	0	93	0	21	0	0	0	9	0	0	11	0	0
	A04	0	0	321	0	2	0	0	0	0	0	1	0	0	3	0	0
	B	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	C	11	0	3	3	2903	2	9	2	49	0	3	2	0	25	0	0
	D	0	0	0	3	0	117	4	0	0	0	0	0	0	0	0	0
	E	0	0	0	3	27	0	1871	0	0	0	1	0	0	22	0	0
	F	3	0	4	0	570	0	1	21	9	5	2	0	0	46	0	0
	G	4	0	0	0	245	0	0	6	347	110	0	0	0	38	0	0
	H	0	0	0	0	0	0	0	0	0	351	0	0	0	7	0	0
	I	2	3	0	1	19	0	7	0	1	0	1270	0	0	34	1	0
	J	0	0	0	0	30	0	2	0	0	0	0	852	0	15	0	0
	K	0	0	3	0	1	0	1	0	0	0	1	2	618	112	0	0
	L	4	5	2	1	34	0	4	4	3	3	7	3	6	2713	22	4
N	0	0	0	0	15	0	1	0	0	45	5	0	0	22	617	307	
O+P+Q	31	0	0	0	109	0	3	2	1	63	5	10	1	295	1070	44	
REST NZ	14867	4630	1534	6850	133212	10680	25062	779	4988	7627	17902	8648	14176	59750	22862	3008	
INC GEN	COE																
	OPS																
	ITX																
INC ALLOC PRIM	MHD																
	OHD																
	FII																
	MEN																
INC ALLOC SECYD	OEN																
	GOV	495	183	60	283	5187	317	792	28	159	240	622	296	450	1936	720	99
	GOV																
USE OF DISP INCOME	MHD																
	OHD																
	FII																
	MEN																
	GOV																
CAPITAL ACCOUNT	MHD																
	OHD																
	FII																
	MEN																
	GOV																
EXTERNAL	796	46	174	2801	39324	11	38	146	25	2	2018	591	556	2961	0	29	
FINANCE																	
TOTAL	17402	6419	2100	9948	182200	11127	27834	988	5582	8448	21855	10404	15806	67999	25293	3491	

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

O+P+Q	INDUSTRY OUTPUT																REST NZ
	Māori economy - ANZSIC sectors																
	A01+02	A03	A04	B	C	D	E	F	G	H	I	J	K	L	N	O+P+Q	
	355	26	0	0	233	0	0	18	6	10	1	0	0	3	0	40	12876
	0	578	1	0	60	0	1	4	0	0	1	0	0	29	0	0	4212
	0	0	267	0	38	0	0	2	1	0	0	0	2	0	0	0	1861
	13	1	10	1	53	12	14	81	0	0	1	1	0	2	4	12	8174
	443	276	120	0	1290	3	739	174	184	161	208	123	18	293	128	700	86963
	21	4	6	0	45	54	2	3	13	4	5	2	2	19	30	43	7625
	12	8	4	0	6	6	435	0	1	0	5	7	2	92	35	74	9742
	5	0	0	0	2	0	1	0	0	0	1	1	1	11	30	24	642
	41	7	42	0	9	1	30	0	0	0	65	4	1	29	19	42	3016
	-1	-2	0	0	-2	0	-5	-1	-1	-1	-17	0	-1	-4	-48	-81	-1133
	29	211	41	0	100	0	9	37	12	1	337	14	4	35	20	61	11743
	21	14	5	0	18	0	16	12	13	2	34	156	13	42	27	106	5623
	54	26	11	0	25	1	12	13	33	4	24	5	233	100	18	125	11130
	96	82	30	0	131	11	81	67	106	15	172	58	84	402	98	795	28847
	-93	-44	-34	0	-12	0	-17	-6	-12	-3	-39	-8	-19	-29	-99	-265	-5648
	0	1	0	0	1	0	1	0	0	0	1	1	0	8	32	34	568
	3	2	1	0	7	1	3	1	1	0	2	1	1	28	12	241	2058
2																	
0																	
0																	
0																	
8																	
0																	
0																	
4																	
11																	
1																	
6																	
0																	
20																	
7																	
2886																	
16594																	
	423	240	41	0	458	7	299	158	219	104	296	147	155	531	636	1716	78832
	178	259	50	2	429	35	280	89	172	65	200	386	196	1108	70	790	75672
	43	10	0	0	120	1	22	9	6	8	42	8	45	135	6	61	10098
578																	
174																	
20294	1645	1699	597	3	3010	133	1924	662	755	369	1339	905	739	2836	1020	4519	352900

Table 7.2 SAM illustrating Māori participation in 2010 New Zealand economy (\$m) – part B

		INCOME GENERATION			INCOME ALLOCATION PRIMARY						INCOME ALLOCATION SECONDARY					
		COE	OPS	ITX	MHD	OHD	FII	MEN	OEN	GOV	MHD	OHD	FII	MEN	OEN	GOV
COMMODITY USE - ANZSIC sectors	A01+02															
	A03															
	A04															
	B															
	C															
	D															
	E															
	F															
	G															
	H															
	I															
	J															
	K															
	L															
	M															
	N															
O+P+Q																
INDUSTRY OUPUT	A01+02															
	A03															
	A04															
	B															
	C															
	D															
	E															
	F															
	G															
	H															
	I															
	J															
	K															
	L															
	N															
	O+P+Q															
REST NZ																
INC GEN	COE															
	OPS															
	ITX															
INC ALLOC PRIM	MHD	8927	1030				262	1264								
	OHD	75335	8880				6938		20849							
	FII				953	8210										
	MEN		3280													
	OEN		66792													
	GOV			10614												
INC ALLOC SECY	MHD				10530						47		145			3059
	OHD					103791						276	3520			18363
	FII						-1091				166	4042				
	MEN							2016					40			
	OEN								41368				645			
	GOV									23059	2525	24268	781	426	6694	
USE OF DISP INCOME	MHD										10997					
	OHD											97103				
	FII												-2015			
	MEN													1630		
	OEN														35320	
	GOV															36331
CAPITAL ACCOUNT	MHD															
	OHD															
	FII															
	MEN															
	OEN															
	GOV															
EXTERNAL FINANCE						3,796		8,327		45	262					
TOTAL	84261	79981	10614	11483	112002	9905	3280	70545	23059	13780	125951	3117	2056	42014	57753	

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

USE OF DISPOSABLE INCOME						CAPITAL ACCOUNT						EXTERNAL	TOTAL
MHD	OHD	FII	MEN	OEN	GOV	MHD	OHD	FII	MEN	OEN	GOV		
207	1219				0	1	12	2	3	48	5	2318	17386
10	61				0	9	77	12	18	317	34	989	6414
0	0				0	0	2	0	1	9	1	291	2476
50	294				0	6	49	8	12	203	22	918	9941
5662	33318				758	289	2492	380	583	10235	1107	35409	182057
467	2746				0	0	0	0	0	0	0	27	11116
16	94				0	329	2837	433	664	11654	1260	91	27807
0	2				0	0	0	0	0	0	0	266	988
297	1745				0	0	0	0	0	0	0	228	5577
986	5802				0	0	1	0	0	5	0	2942	8440
673	3958				252	0	0	0	0	0	0	4299	21836
517	3043				0	0	0	0	0	0	0	732	10394
557	3281				0	0	0	0	0	0	0	138	15791
4338	25528				634	81	695	106	163	2854	309	2152	67937
51	298				31175	0	0	0	0	0	0	73	25268
239	1405				419	0	0	0	0	0	0	776	3487
1834	10792				4512	0	0	0	0	0	0	776	20276
													1645
													1699
													327
													3
													3010
													133
													1924
													662
													755
													369
													1339
													905
													739
													2836
													1020
													4519
													353170
													84261
													79981
													10614
													11483
													112002
												742	9905
													3280
												3753	70545
													23059
													13780
													125951
													3117
													2056
													42014
													57753
												72	11070
												427	97529
													-2015
													1630
													35320
													36331
-4834													-4834
	3942												3942
		-2015											-2015
			1630										1630
				35320									35320
					-1418								-1418
													62120
						-5549	-2223	-2955	188	9995	-4157	4701	0
11070	97529	-2015	1630	35320	36331	-4834	3942	-2015	1630	35320	-1418	62119	1736657

Table 7.3 Household sector 2010 income and outlays (\$m)

	\$m	Māori	Other	New Zealand
Income				
Wages and salaries	8,927		75,335	84,261
Social security & assistance benefits	3,059		18,363	21,422
Entrepreneurial & dividend income	1,264		20,849	22,113
Operating surplus in owner-occupied dwellings	1,030		8,880	9,910
Interest, pension fund earnings & insurance receipts	407		10,458	10,865
Overseas transfers	72		427	499
Sub-total		14,758	134,312	149,070
LESS Outlays				
Consumer expenditure	15,904		93,587	109,491
Income & other tax, social security contributions, fines & penalties	2,525		24,268	26,793
Interest on consumer debt & housing	953		8,210	9,163
Investment in owner-occupied dwellings	715		6,165	6,880
Pension fund contributions	166		4,042	4,208
Overseas transfers	45		262	307
Sub-total		20,308	136,535	156,842
Net savings		-5,549	-2,223	-7,772

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

Table 7.4 Enterprises sector 2010 income and outlays (\$m)

	\$m	Māori	Other	New Zealand
Gross output of enterprises		22,155	352,900	375,055
LESS Costs of production				
Compensation of employees	5,429		78,832	84,261
Intermediate and other input costs	12,416		198,397	210,813
		17,845	277,229	295,074
Sub-total		4,310	75,672	79,981
LESS Surplus in own dwellings	1,030		8,880	9,910
Operating surplus of enterprises		3,280	66,792	70,071
Other income - insurance claims		40	645	685
Other income - overseas		3,753	3,753	
Sub-total		3,320	71,190	74,510
LESS Outlays				
Distributions to households: entrepreneurial income & dividends	1,264		20,849	22,113
Corporate tax	426		6,694	7,120
Overseas payments			8,327	8,327
Capital spending	1,442		25,324	26,767
Sub-total		3,132	61,195	64,326
Net savings		188	9,995	10,183

BERL calculations using data from various sources. Totals may differ from sum of components due to rounding.

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Kotahitanga Te Reo Wairuatanga
Kaitiakitanga Ukaipotanga Whakapapa
Pukengatanga Rangatiratanga Manaakitanga
Whanaungatanga



Contact the Taskforce

Chair of the Māori Economic Taskforce: *The Hon Dr Pita R Sharples, Minister of Māori Affairs*

Taskforce Secretariat: *Carol Berghan*

Postal Address: *PO Box 18041, Parliament Building, Wellington 6160.*

Address: *Level 7, Bowen House, Wellington*

Contact: *Phone: 04 817 9800 | Fax: 04 817 6525 | Email: met@tpk.govt.nz | Web: www.tpk.govt.nz*