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19 - 20)



Measuring economic progress? How Statistics New Zealand has measured the economy since 1945

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Abstract

The New Zealand Government came out of World War Two facing the task of shaping a different society and building New Zealand's place in the world. Six years of war had destabilised and impoverished Europe and governments there were forced to continue post-war rationing, an imposition of austerity that also occurred in New Zealand. The world that developed in the fifties became vastly

¹ The views expressed in this paper are those of the authors and are not necessarily those of Statistics New Zealand. Statistics New Zealand takes no responsibility for any errors or omissions in, or for the correctness of, the information contained in this paper. All data in the graphs is from Statistics New Zealand sources. The authors acknowledge the contribution of Dean Condon to this paper.

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different with a whole new celebration of consumerism, partly fuelled by increased numbers of women in the workforce. The census began to ask if households had a refrigerator or washing machine; while moral panics about the new monied world of the teenager began. New times called for new measures and in the late forties and early 1950s the range of statistics collected by the Department of Statistics began to change.

The 1955 Statistics Act consolidated and strengthened the role of the Department of Statistics and allowed for the range of statistics collected to be expanded, with the result that a number of other statistical collections became as important as the population census. Direct reporting to parliament now became a mandatory function. National Accounting developed after the publishing of a first series of accounts in 1949 and brought New Zealand into line with international developments in the measurement of economies. But there were many limitations in the statistics produced, a situation highlighted by a series of reviews.

As New Zealand's economy and regulatory environment has changed and become more complex, the demand for a greater range of statistics required to adequately measure the progress of the economy has expanded. Massive shifts in government policy have also necessitated changing responses: for example, the deregulation of foreign exchanges and the floating of the New Zealand dollar changed the monetary environment; and the Employment Contracts Act in 1991 effectively diluted collective bargaining and made new data collection systems a necessity for calculating change in wage rates.

This paper will examine how the Department of Statistics (now Statistics New Zealand) has met these needs and responded to changing circumstances by expanding the range of statistics available to the New Zealand government and people. The question remains: how well do we measure progress and what limitations does Statistics New Zealand face in measuring the economy of a small population that is still highly dependent on exports of primary production?

Focus of the paper

This paper will examine how and why economic statistics have changed since 1945. It will also examine the question: how well do we measure progress and what limitations do we face in measuring the economy of a small country? It will concentrate on statistics produced by Statistics New Zealand,² as this government department is the major source of official economic statistics within New Zealand.³ A number of themes emerge in the development of economic statistics in New Zealand but these can be summarised into two categories: drivers for change and development of statistical series, and constraints on the ability of the department to achieve these changes.

Within New Zealand, economic analysts and forecasters, both in government and out, were often vocal about the need for an improved range of more timely economic statistics in order to better understand the evolving economy. These needs were formalised in a number of official statistical reviews that occurred over the period. They also found expression via other official enquiries that contained criticism of the inadequacies of the economic information available for the enquiry to adequately fulfil its aims.

Externally, the New Zealand Government's membership of international organisations brought with it new reporting responsibilities and hence a need for new statistics. There was also (unstated) pressure on the New Zealand Government to develop the range of economic statistics international investors and analysts had come to expect from a developed economy open to trade and investment opportunities. To enable comparison with other countries' data these statistics needed to adopt the classifications, frameworks and best-practice methodologies promulgated by international statistical authorities.

Although outside forces drove the impetus for change, the development of new statistics largely depended on funding obtained from Vote: Statistics and other sources, and the resources available within the department. Financial and manpower constraints often limited the ability of the department to fulfil these changing needs. Constraints of budgets and staff emerge as perennial problems and at various stages either significantly limited or delayed the implementation of planned statistical developments.

When looking at the economic statistics that were published and developed over the last sixty years, it is convenient to identify three different phases: firstly from the end of World War II to 1968; secondly, from 1968-1984; and thirdly from 1984 to today. These periods are not intended as exact boundaries, but rather are indicative, and approximately demarcate when key events or changes occurred that altered what economic statistics would be produced and how they would be produced. While the constraints referred to above will be shown to be ever present over the post-war period, the drivers change. Not surprisingly, these drivers approximately track the major shifts in post-war economic performance and in the policy and institutional responses.

² Statistics New Zealand was previously known as the Department of Statistics. It will be referred to as the 'department' throughout this paper.

³ Other government departments and agencies also produce economic statistics. For example, the Reserve Bank of New Zealand publishes money, credit and financial statistics from a survey of selected New Zealand financial institutions. A further example is the New Zealand Share Price Index which was once calculated by the Department of Statistics but is now produced by the New Zealand Stock Exchange.

The immediate post-war context

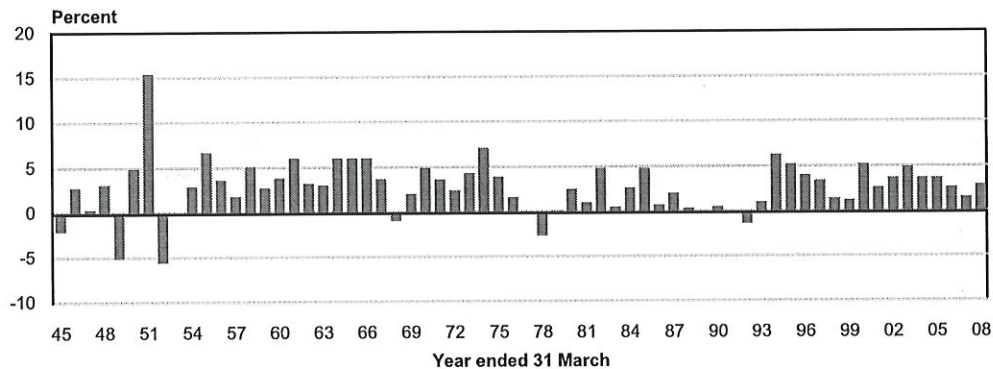
The post-war years marked the consolidation of New Zealand and its development as an independent nation state. As the war ended in 1945, the New Zealand Government faced a very different reality from that of the pre-war period. In Europe, nations faced the task of rebuilding shattered communities and economies. New Zealand, in contrast, had done well economically from the war and entered a new world of prosperity and economic growth, although this was tempered initially by continued post-war rationing. World War Two resulted in manpower shortages, which led to essentially full employment in the New Zealand economy until the late 1960s.

The governments of the period pursued economic policies with three major objectives in mind: stability, full employment and development; and up to 1967 were remarkably successful. Easton⁴ identifies three post-war growth phases: firstly, post-war stagnation, 1944/45 – 1949/50, when gross domestic product (GDP) contracted 0.1 percent per annum; secondly, the early post-war boom, 1949/50 – 1966/67, when GDP grew 4.3 percent per annum; and thirdly, the slow growth, from 1966/67 when GDP grew at 2.3 percent per annum. In this latter period, he further posits a “period of steady growth to about 1985/86, then a period of stagnation.”

⁴ Easton B H (1997). *In Stormy Seas: The Post-war New Zealand Economy*, University of Otago Press, Dunedin, 19.

Figure 1

Real Gross Domestic Product
Annual percentage change
1945–2008



Nevertheless, despite this steady growth in incomes and welfare, from the mid-1950's New Zealand's growth rate fell behind that in most other OECD countries and this relative "lacklustre" growth record was to become an increasingly concerning issue.

After the war, the Government continued to regulate the economy, and the shape of the regulatory environment changed little.⁵ In 1938, the Labour Government established import and exchange controls and these remained a feature of the economy until they were disestablished in 1984.⁶ Government was also heavily involved in infrastructural development (roading construction and improvement, the construction of new electricity generation plants, telecommunications, housing financing and construction, for example). During this period the Government also consolidated and expanded many aspects of the welfare state in areas such as health, education and income support.

As Hawke points out, however:

The most important government influence on the economy as a whole was fiscal policy. The idea that the Budget should be concerned not only with government housekeeping but with balancing aggregate demand with the goods and services available ... was readily accepted by such officials as Sir Bernard Ashwin, Secretary to the Treasury, ... and was understood, at least in part, by leading politicians from Nash to the present day."⁷

The development of macroeconomics, which accompanied such thinking, was to be a key driver of future statistical developments.

⁵ Hawke G R (1981). "The Growth of the Economy" in *The Oxford History of New Zealand*, eds W H Oliver and B R Williams, Oxford University Press, Wellington, 389-391.

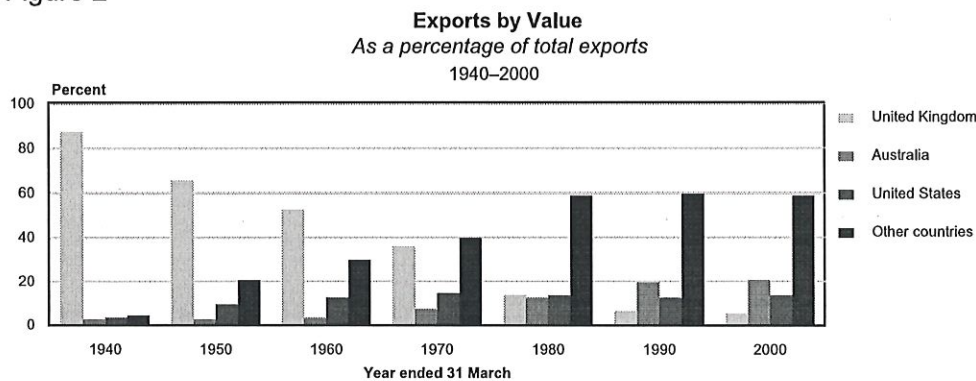
⁶ Hawke, 369. The government originally imposed these controls in response to a foreign exchange crisis. They protected overseas reserves by restricting (licensing) commodity imports and by controlling access to foreign exchange for other items involving overseas payments. The controls contributed to the policy of insulating the New Zealand economy from overseas influences. One consequence was the development of protected manufacturing industries, which provided employment opportunities for the growing urban population. As a result the controls remained, even though the original exchange crisis had passed.

⁷ Hawke, 391.

Another important event was the passing of the Statistics Act 1955, which established the Department of Statistics as a stand-alone independent department, and was now required to report directly to Parliament. The Act raised the profile of official statistics and established operational practices which have underpinned statistics into the 21st century; such as introducing an oath of secrecy for staff, reinforcing the importance of the ideas of confidentiality, and strengthening penalties for non-compliance with the Act.

In foreign affairs, Britain's dominance in the world had diminished and America, Australia and the Pacific assumed a greater international importance for New Zealand. New Zealand gained membership of ANZUS and the South East Asia Treaty Organisation (SEATO). While New Zealand's close relationship with Britain did continue, economic ties eventually loosened, especially when the United Kingdom entered the European Economic Community (EEC) in 1973. New Zealand had been late to assume full independence and had not ratified the Statute of Westminster until the 1940s whereupon it gained status as a fully functioning dominion and member of the United Nations as well as the British Commonwealth.⁸

Figure 2



The years after the war, were ones of steady population growth as New Zealand experienced the baby boom which was a feature of western economies in this period. Immigration also contributed to population increases. There were three distinct waves: in the 1940s and 1950s, immigrants were largely from Europe, during the 1960s and 1970s there was increasing immigration from the Pacific Islands, and from the late-1980s, in addition to the above groups, increasing numbers of immigrants came from Asian countries.

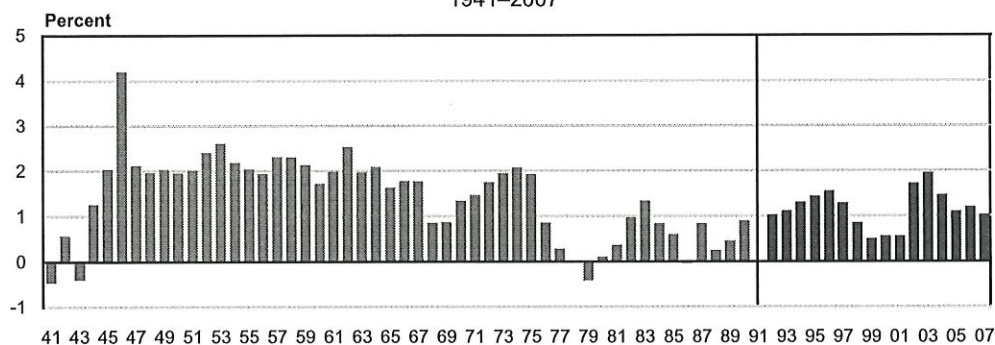
Figure 3

⁸ The Statute of Westminster Adoption Act 1947 (Public Act no. 28 of 1947) was a constitutional Act of the New Zealand Parliament that formally accepted the full external autonomy offered by the British Parliament. By passing the Act on November 25, 1947, New Zealand adopted the Statute of Westminster 1931, an Act of the British Parliament which granted full sovereign status and Commonwealth membership to the Dominions ratifying the statute (New Zealand was the last Dominion to do so, as the Dominion of Newfoundland voted to become a part of Canada in 1949). http://en.wikipedia.org/wiki/Statute_of_Westminster_Adoption_Act_1947 [1 June 2009].

Estimated Resident Population of New Zealand

Annual percentage change

1941–2007



Note: No figure given for 1991 due to change from a defacto to estimated resident population count.

Socially and culturally New Zealand changed dramatically; urbanisation continued rapidly and although New Zealand remained dependent on agriculture at least for exports, this was not the case for employment. Jobs in primary industries shrank as a percentage of the workforce, from 21 percent in 1945 to just 7 percent recorded in the 2006 population census. A rural lifestyle, even in New Zealand cities, was reflected in the Census of Population and Dwellings, which for many years collected information on home production of vegetables and livestock, including poultry!⁹

With prosperity came increasing home ownership, an ethos firmly supported by government policy.¹⁰ Married women joined the workforce in ever increasing numbers, partly to purchase new consumer goods such as fridges and washing machines.¹¹ Details about these appliances, plus the acquisition of electricity, toilets and bathrooms, were captured in successive censuses. Maori moved to the cities in unprecedented numbers; from being a predominantly rural people in the 1920s to become an urban people by the 1980s.¹²

Figure 4

⁹ Statistics on number of poultry including fowls, ducks, geese and turkeys, were collected from 1861 until the 1960s. In 1956, for example, poultry numbered 4,485,571 and there were 2.1 poultry per head of population, down from a peak of 3.7 in 1911. Department of Statistics (1958). "Census of Poultry," *Population Census 1951*, Wellington.

¹⁰ Dunstall G (1981). "The Social pattern", in *The Oxford History of New Zealand*, 404-6.

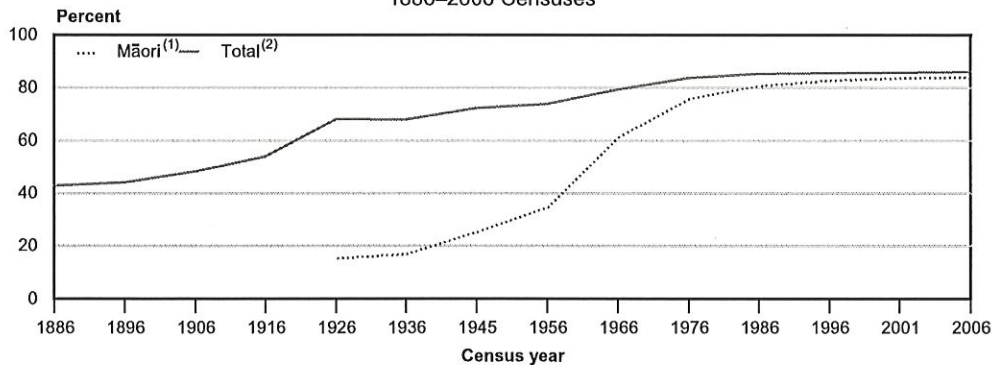
¹¹ Gustafson B (1990). "The National Governments and Social Change" in *The Oxford Illustrated History of New Zealand*, ed K Sinclair, Oxford University Press, Auckland, 286.

¹² Dunstall, 403.

Urbanisation in New Zealand for Māori and Total Population

Population living in urban areas

1886–2006 Censuses



Source: Census of Population and Dwellings, selected years 1886–2006.

(1) Series commences in 1926.

(2) Total population does not include Māori until 1926.

1945-1968: Statistics in a regulated economy

Statistics in 1946

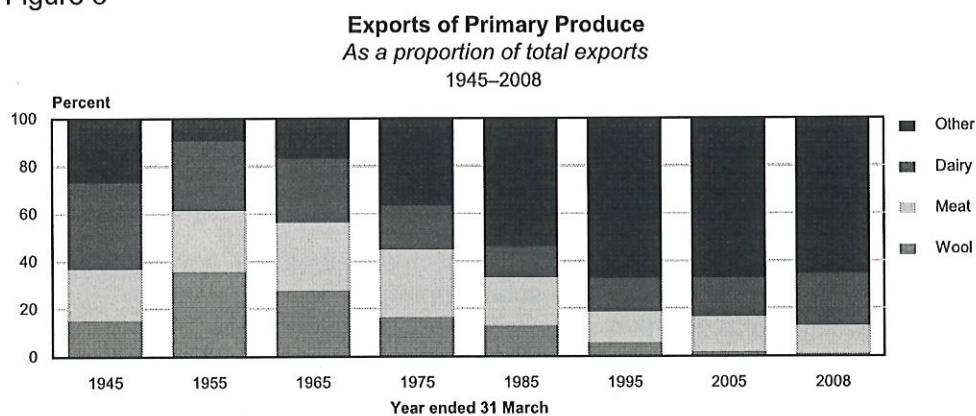
Given the economic and social context of the period what statistics were being produced and how did these change? The range of economic statistics was fairly limited and reflected a relatively simple economy by developed country standards. At the time, the department collected quite detailed statistics about areas of the economy that were considered important to measure. Annual statistics were limited to agriculture, factory censuses, insurance statistics, public finance statistics, and taxation statistics on individual and companies. As well as detailed monthly statistics on a number of manufactured products, the department published a range of monthly statistics, many from administrative data sources. These included: merchandise exports and imports; electricity generation; railway passenger and freight volumes; civil aviation and shipping movements; bank debits, advances and deposits; and local authority building permits. Monthly wholesale, export and imports price indexes were also published. A quarterly retail all groups price index was produced to measure consumer prices, although this was suspended during the war when a special war-time price index was compiled. Labour statistics were also based on administrative data. National Employment Service statistics of notified vacancies, placements and disengaged persons were published monthly; and annual wage rate indexes were based on minimum wages from awards registered with the Arbitration Court.¹³

Many of these series dated back to the 19th century and largely reflected the key features of interest for a small trading nation heavily dependent on the export of primary produce but with a manufacturing sector that employed an increasing proportion of the growing urban population. Some statistics also

¹³ Under the Industrial and Conciliation Act, the Liberal Government set up the Arbitration Court in 1894, which created a compulsory arbitration system for resolving industrial disputes. This system dominated wage setting until the 1980s. The Industrial Relations Amendment Act 1984 replaced compulsory arbitration with voluntary arbitration in the private sector. After the introduction of the Employment Contracts Act of 1991, all types of employment contracts were brought under the exclusive jurisdiction of the Court.

measured the nation's developing infrastructure, important in a time of rapid electrification and road building.

Figure 5



The high level of government involvement meant that statistics were often produced as a by-product of government activities. The department collected some statistics themselves, with the main vehicle of collection being censuses of people and business. At this time New Zealand lacked an integrated framework for economic statistics, which would have allowed measurement of the whole economy.

Drivers for change

The demands of the post-war years led to a radical shift in the range and complexity of statistics. The Government Statistician, George Wood, noted in his history of the department that the post-war environment called for a greater variety of statistics and more in depth statistical research. Better statistics he suggested were needed "if rational solutions to these problems [the changing post-war environment] were to be found."¹⁴ There were two main drivers: international influences and the need to measure the changing domestic economy.

International influences

As part of its developing sense of sovereignty and nationhood, politically New Zealand played a role in the world stage; it was a founding member of the United Nations and early on joined other associated international bodies, such as the International Labour Organisation. Later in 1961, New Zealand became a member of both the International Monetary Fund and the World Bank.

The department was also forging international links at this time. Government statisticians participated in international fora such as the United Nations Statistics Commission (UNSC) and the Commonwealth Statisticians group. George Wood was elected a member of the UNSC in 1955 and in 1959 he was elected Chairman.

Gaining membership to these international organisations brought about new statistical responsibilities. Their reporting requirements led to greater demands

¹⁴ Wood, G E F (1976). *A Personal History – Progress in Official Statistics 1840–1957*, Department of Statistics, Wellington, 160.

on New Zealand's statistical system as new statistics would need to be compatible with the emerging statistical frameworks and standards. These standards have been an ongoing influential shaping force.

Important as these international connections were, however, arguably the main influence on the demand for economic statistics came from the developments that were taking place overseas in economics itself, and, in particular, in the field of macroeconomics. These ultimately led to the system of national accounts as we know it today, with its close links to related economic statistical frameworks such as the balance of payments and flow-of-funds statements.

By the early 1930s, the measurement of national income was well developed in terms of both theory and practice.¹⁵ The subsequent practical use of such measures, especially for policy purposes, was heavily influenced by international ideas, particularly those of economist, John Maynard Keynes. His *General Theory of Employment, Interest and Money*¹⁶ published in 1936, revolutionised the way economists think about economics and the relationships between national accounting measures. As Tily notes: "As he [Keynes] developed his own theoretical explanation of economic activity, his framework was adopted as the framework for the measurement of the economy. In particular, when he advocated use of Richard Kahn's multiplier, a specific need for national income and expenditure information was identified."¹⁷

Keynes' theories also excited politicians, as they introduced the notion of aggregate demand as the sum of consumption, investment and government spending; and argued that full employment could be maintained with the help of government spending.¹⁸ These ideas appealed to nations still suffering from the trauma of the Great Depression, and the effects of war. Government initiatives were an essential part of the rebuilding process and governments worldwide realised that national accounts could be the key to that understanding.

Alongside Keynes, three other people are conventionally credited with the creation of modern-day national income accounting. Simon Kuznet's publication *National Income and Its Composition, 1919–1938*, published in 1941, described the concept of Gross National Product and presented accounts for the American economy. In the United Kingdom, Richard Stone and James Meade prepared an annex on the national income and expenditure of Britain to accompany Keynes' 1942 "White Paper" on British war finance. Their presentation was a landmark because it applied the double-entry bookkeeping method to national accounts. Stone later refined this approach which generally became known as the 'social accounting approach' and presented it to the League of Nations Sub-Committee on National Income Statistics of the Committee of Statistical Experts in 1947.¹⁹ Stone's 1947 paper was the predecessor of the first edition of the United Nations *System of National Accounts*, published in 1953. Many countries, including New Zealand, quickly

¹⁵ Tily G, (2009). "John Maynard Keynes and the Development of National Accounts in Britain, 1895-1941", *Review of Income and Wealth*, June 2009.

¹⁶ Keynes J M (1936). *The General Theory of Employment, Interest and Money*, Macmillan, London.

¹⁷ Tily, 332.

¹⁸ The Concise Encyclopedia of Economics, <http://www.econlib.org/library/Enc/bios/Keynes.html> [1 June 2009]

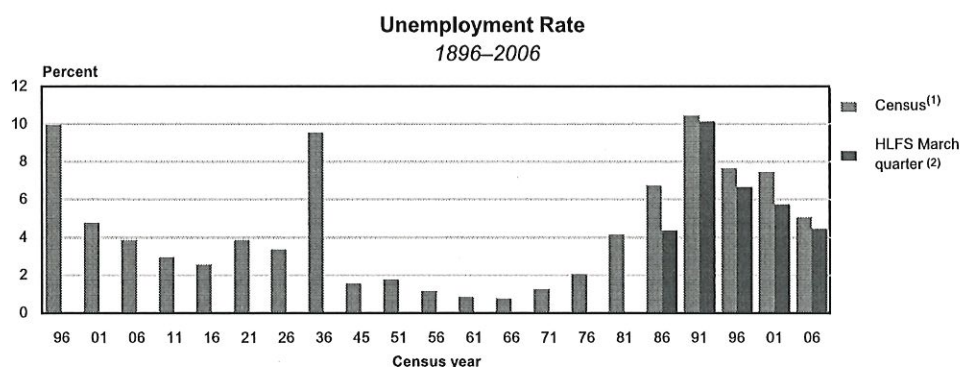
¹⁹ Bureau of Economic Analysis (1992). "Sir Richard Stone and the Development of National Economic Accounts", in *Survey of Current Business*, March 1992.

adopted Stone's approach. New Zealand published its first national income and expenditure accounts in 1949.

Domestic influences

Although international influences were important, ultimately the reality was, and still is, that the New Zealand Government determined what data could be collected and what statistics produced. Statistics would reflect those areas that Government viewed as being of particular concern. For example, while unemployment remained low and worker shortages hindered development, government priorities naturally rested upon statistics around workforce planning rather than unemployment. In later years, as unemployment began to rise, interest shifted to more effective measurements of unemployment. This change coincided with international thinking and the department adopted International Labour Organisation methodologies in the Household Labour Force Survey that commenced in 1986.

Figure 6



Source: Census of Population and Dwellings, selected years 1886–2006.

(1) Census of Population and Dwellings. Census was not carried out in 1931 and during the Second World War.

(2) Household Labour Force Survey commenced March 1986.

The department's developing relationships within the state sector proved important for gaining support for new developments. For example, the Government Statistician was a formal witness in the Arbitration Court hearings where he provided evidence for wage setting. In the early 1950s, the Government included the Government Statistician in the Officials Committee on Economic Policy set up by Cabinet. As a result of this increased profile, George Wood was of the opinion that the climate for official statistical progress improved immeasurably. "Treasury was becoming more interested in our work, while the State Services Commission – though still most niggly about salary gradings – was becoming a little more benign – a substantial change . . . a succession of Ministers in Charge of the Department looked upon us with a kindly eye."²⁰

Technology and methodologies were also changing dramatically over this period. Internationally, methodologists were developing sampling methods to reduce the cost of survey collections. The department was one of the first in government to have access to computers, providing the ability to develop new methods such as sampling and seasonal adjustment.

Statistical developments in the 1940s and 1950s

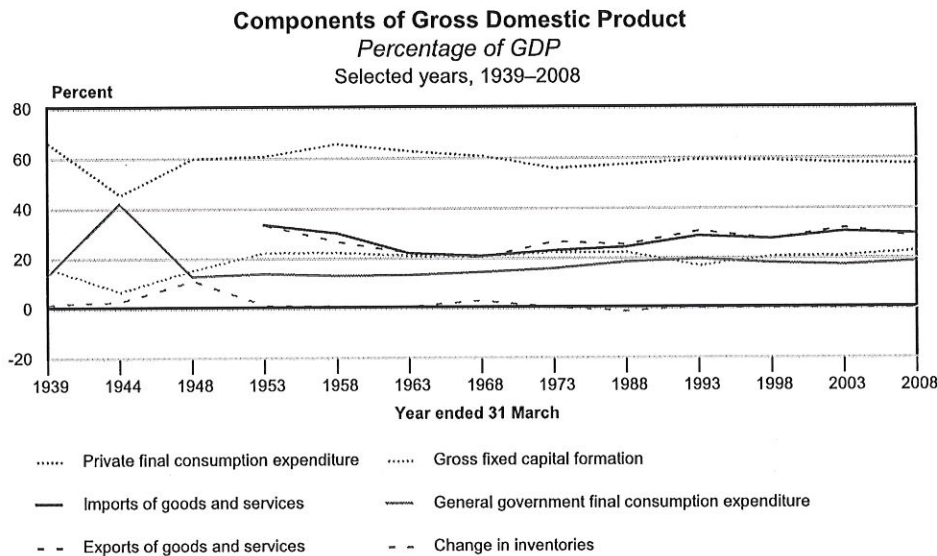
National accounts

During the late 1940s and early 1950s, the department began to establish the macroeconomic statistics that were to become the basis of economic reporting over the following 60 years. The first development was in 1948 when the department produced the first official national income estimates for the period 1938/39 to 1947/48. In 1949, expenditure data was added to produce a national income and expenditure series. These series went well beyond the estimates of national income that had been produced by academics in the 1930s, and instead adopted the double entry 'national accounting' framework, as advocated by Stone in 1947 – at least in principle, if not in practice.

²⁰ Wood, 160.

The accounts described the components of gross national product (using the income approach) and expenditure, national income and its disposition, the financing of capital formation, and external transactions entering into the balance of payments. Separate accounts were given for Government and private-sector incomes and outlays. These accounts greatly improved the range of information about the post-war economy although by today's standards they would seem limited in scope and coverage. The accounts in this format continued largely unchanged until 1976/77 when they were replaced by the new accounts based on the United Nations 1968 System of National Accounts (SNA68).

Figure 7



Note: Definitions change over the period when the old national income series (1939–71) was replaced with the SNA series.

In 1960, annual accounts for the central government sector were added. These were the forerunners of what today would be termed income and outlay and capital finance accounts. They were intended as the first step in a wider institutional development of the national income accounts, but the work was abandoned in 1967 because of resource constraints.

There was also interest in a more detailed understanding of the structure of the New Zealand economy. In 1951, an account for the 'manufacturing sector' was published, which was similar to today's industry production account. The number of 'sector' accounts was gradually expanded and in 1956, when these were reconciled, the department published the first Input-Output Table for the New Zealand economy for the 1952/53 year. This provided an output-based measure of national income which was higher than the official income-based measure. The reason given was that the tax data which underpinned the income measure was believed to be understated. However, this alternative output-based measure was never further refined and adopted in the official national income series.

In the following year, a full Inter-Industry Study of the economy for 1952/53 was published, including derived input coefficient tables.²¹ This followed the methodology developed internationally by Professor WW Leontief²² and was a considerable advance since, at the time, only a dozen countries had published such accounts.

The study was compiled using data from a range of sources, including detailed Industrial Production Statistics and the 1953 Census of Distribution. It also used publicly available information from accounts for the public and private sector, supplemented by special enquiries conducted on a confidential basis and "whatever else could be found". Information on the service industries was limited, with the department noting that: "outside published accounts, available statistical documentation was rather poor and whatever sample accounts could be obtained had to be rated up to the national scale on the basis of incomplete information."²³

It is important to note that the studies were not integrated or reconciled with the national income accounts, which caused a few problems for users. One reason was that the studies used quite different data sources and another was conceptual. The unifying theoretical structure integrating national income accounts and inter-industry studies had not yet been adopted in New Zealand and would need to wait until the 1971/72 study, by which time New Zealand had adopted the framework prescribed by the SNA68.²⁴

Balance of payments

Following the publication of the first *Balance of Payments Manual* by the International Monetary Fund in 1948, the department developed New Zealand's first full annual Balance of Payments statistics. These were first released in 1953 for the 1950/51 and 1952/52 years and included both the Current and Capital Accounts. These accounts are an important measure of the performance of New Zealand's economy and its relationship with the rest of the world. Production of the Balance of Payments accounts was reasonably timely because data on merchandise trade and foreign exchange transactions was readily available from the Customs Department and the Reserve Bank respectively. Preparation of the balance of payments was preceded in 1951 by the first annual survey of companies with overseas affiliations.

Population projections

In the 1950s, the Government regarded population and labour force projections as a useful tool for social and economic planning and in estimating future

²¹ The input-output table contained data for 12 industrial sectors, 5 categories of final demand and 5 types of primary input. The tables were updated for the 1954–55 with the same level of detail. The 1959–60 Inter-Industry Study released in 1966, was expanded to provide detail for 111 productive industries. Further inter-industry studies have been published for 1965–66, 1971–72, 1976–77 1981–82, 1986–87, 1990–91 and 1995–96 years.

²² Leontief W W (1955). *Structure of the American Economy, 1919–1939*, Oxford University Press, Oxford.

²³ Department of Statistics (1957), *Report on the Inter-Industry Study of the New Zealand Economy in 1952–53*, Department of Statistics, Wellington, 26.

²⁴ New Zealand was not unique in this – indeed, when the early studies were being produced many of the required classifications and valuation definitions had not been fully explored internationally.

manpower potential and market demand.²⁵ The department introduced forecasting (population projections) and provided measurements of life expectancy, such as the Table of Male Working Life, 1951.²⁶ George Wood, the Government Statistician, played a part in the development of these tables because of his previous actuarial experience.

The 1953 Census of Distribution

The first Census of Distribution was conducted in 1953. This was to be the forerunner of a number of economic censuses that would be run for the distribution and construction industries over the next 20 years. The Census of Distribution was needed for a number of uses. Without it the first input-output tables could not have been compiled and it also provided the frame for the quarterly survey retail sales introduced in 1954. The data was also used in estimating the expenditure weights for the 1955 CPI revision.

Statistics for economic policy

New demands

A number of factors influenced the demand for better statistics in the late 1950s and 1960s: the requirements of planning, international influences and a more complex economic situation. The need for better statistics for planning purposes began to emerge in the 1950s and this would subsequently prove to be a major impetus for change. Concerns about the availability and affordability of housing prompted the Government in 1953 to call a National Housing Conference. The conference assessed the extent of the housing shortage and set a target of 206,000 houses in 10 years to overcome the shortage and provide for the expected increase in population.²⁷ The department's data was used in setting this target. Electricity generation planning was also a major exercise carried out by the Government in the wake of the power blackouts of the late 1950s.²⁸ The Department of Statistics, sure it could improve on existing information, calculated independent estimates of future demand that John Baker, the Government Statistician at the time, considered were often more accurate than the Electricity Department figures.²⁹

International requirements became more onerous in the 1960s as the International Monetary Fund (IMF) started to review New Zealand's economic performance. The IMF required rigorous and comparable data regardless of the size and resources of a nation's statistical office.

The importance of statistics were highlighted in a series of reviews, which in the next twenty years shaped the statistics that were produced and gave strong

²⁵ Department of Statistics (1959). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 9.

²⁶ Special supplement to the November 1955 issue of the *Monthly Abstract of Statistics*.

²⁷ Department of Statistics (1955). *New Zealand Official Yearbook 1955*, Government Printer, Wellington, 544.

²⁸ Ian Templeton noted that "huge intellectual resources were harnessed to the task of estimating future demand and calculating the best means of supplying electricity. Annual release of the power plans became almost as celebrated as budget night, when the nation listened breathlessly to what the politicians had decided." Ian Templeton (2003). "The Internal Economy", in *Holyoake's Lieutenants*, ed M Clark, Dunmore Press, Palmerston North, 80.

²⁹ Oral history: interview with J V T Baker, 27 April 1992.

support for additional funding for the department. Although the recommendations of the reviews naturally reflected the statistical demands of the issues that had initially led to each report, two common themes emerge. Firstly, the coverage and frequency of published economic statistics was inadequate for economic monitoring and policy formulation, and secondly that the Department of Statistics, as the official statistical agency, needed to be given additional funding and resources to close the gaps. However, as history has too often shown, when it came to choosing between statistics and other competing spending options, the governments of the day gave funding statistics a lower priority.

The Royal Commission on Monetary, Banking and Credit Systems

The first major recommendations for change came as a result of the Royal Commission on Monetary, Banking and Credit Systems in 1956. Although principally concerned with price stability and the financial system,³⁰ the Commission expressed concern about the number of departments and agencies collecting statistics: "with the result that a degree of irritation has developed in the business community due to indications of overlapping. We consider that an attempt should be made to channel all statistical enquires as far as practicable through the Department of Statistics which has had very wide experience in eliciting information from the public."³¹

The Commission examined the statistics that were available and recommended an extended programme of statistical collection including:

- (a) stocks of commodities held by exporters, importers, manufacturers and wholesalers
- (b) surveys of hire-purchase and instalment trading, and operations of discount and finance businesses
- (c) statistics of mortgage indebtedness
- (d) statistics of capital expenditure, past and prospective
- (e) more comprehensive statistics of house and other building construction
- (f) farm costs
- (g) family living cost studies
- (h) compilation of further industry sector accounts
- (i) statistics of deposits with stock and station agents and other trading and financial concerns³²

Monetary and Economic Council report

In 1961, the Government established the Monetary and Economic Council³³ to report on the extent to which stability in prices and other economic objectives

³⁰ The Royal Commission's order of reference had the stated objectives of fostering a greater degree of stability in prices, maintaining full employment, ensuring the healthy development of natural resources, and promoting generally the economic, financial, and social welfare of the people.

³¹ Royal Commission on Monetary, Banking and Credit Systems (1956). *Report of the Royal Commission on Monetary, Banking and Credit Systems*, Government Printer, Wellington, 189.

³² *Ibid*, 188.

³³ This Council was set up under the Monetary and Economic Council Act 1961. Under the Act its functions were: to make reports from time to time on the extent to which stability in the prices of goods and services, economic growth, full employment, and higher standards of living are being achieved, and to make recommendations from time to time relating to the short-term and long-

were being achieved. The Council quickly recognised the need for statistics to assist them in their task. In its second report in 1962, after acknowledging improvements in the range and timeliness of statistics effected by the Government Statistician in the preceding period, the Council made a plea for high priority in the provision of staff and equipment to enable more economic statistics to be produced for policy-makers. In November 1963, the Council produced a report solely on the need for improved statistics.³⁴

The Council's report critically examined the existing series and recommended that the development and improvement of national economic statistics be accorded the highest priority. The Chairman noted in his letter to the Minister to Finance in the preface of the Report that: "every matter on which the Council is required to report calls for the use of statistics that are complete and relevant enough so to clarify the facts that attention can be concentrated on the real problems at issue."³⁵ Information was needed as a basis for deciding broad questions of public economic policy affecting all citizens. As the report noted:

Adequate statistics are indispensable tools without which Government and business cannot carry out their accepted tasks of trying to make the economy achieve a steady growth of real income... The information required changes as new patterns of demand emerge and as the objects of economic policy-making evolve. Such changes cause new questions to be asked requiring fuller information, especially about aspects of the working of the economy that previously attracted little attention.³⁶

What statistics were needed? The Council argued that the country needed improved information on the structure and working of the economy, identification of future trends, and an improvement in the timeliness of all statistics. Its main recommendations were improvements to the annual national income and expenditure estimates, and the development of quarterly estimates of these measures. The report also recommended the development of quarterly building activity estimates to support the production of a quarterly index of industrial production. To satisfy growing demands for more timely information the Council recommended a small monthly survey of retail trade turnover to be published within a week or two of the end of the month. This would be in addition to the existing quarterly series. The Council wanted improved information on wages and hours of work to inform the Arbitration Court hearings. Better information was needed about the household sector, with the Council noting that the "effectiveness of economic policy measures depends upon the way in which they affect the spending and saving decisions of the 680,000 households in New Zealand, with whose welfare economic policy is ultimately concerned."³⁷ The Council recommended the establishment of a household sample survey unit within the Department of Statistics, to collect statistics at the household level by means of both budget studies and specific surveys. A household budget study would also provide an estimate of personal consumption expenditure for the national accounts.³⁸

term measures that should, in its opinion, be undertaken to promote growth and raise standards of living while maintaining full employment and the maximum stability of the internal price level.

³⁴ Monetary and Economic Council (1963). *Report No 5: The Need for Improved Statistics*, Government Printer, Wellington.

³⁵ *Ibid*, 4.

³⁶ *Ibid*, 5.

³⁷ *Ibid*, 17.

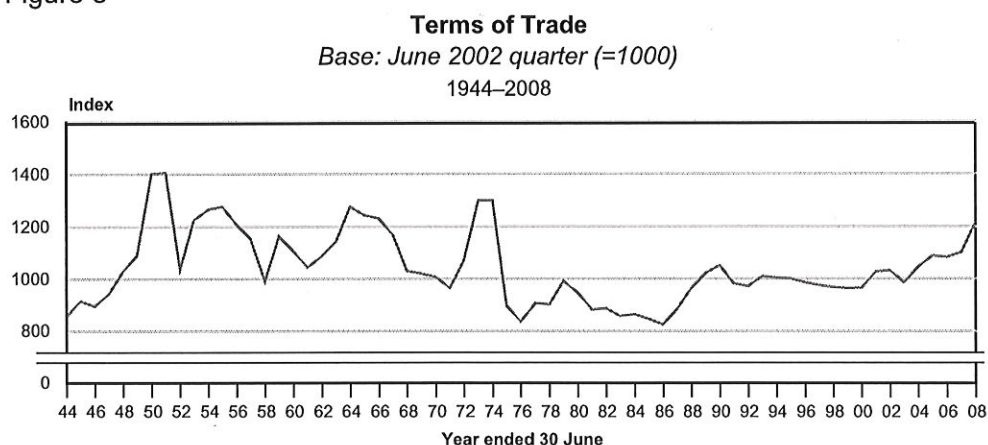
³⁸ At that time personal consumption expenditure was estimated as a residual item.

New statistics through the 1960s

By the time of its 1961 Annual Report, the department was producing most of the information recommended in the 1956 Royal Commission Report, with a few notable exceptions.³⁹ A restricted quarterly survey covering consumer credit transactions began in October 1955, the scope of which was greatly widened after completion of the second Census of Distribution in 1958. A quarterly survey of manufacturers' stocks commenced in 1957, followed by quarterly surveys of retail stocks, and wholesale sales and stocks in 1960. The 1961 Annual Report also noted that more comprehensive statistics of house and other building construction, surveys of farm income and expenditure, preparation of further industry sector accounts, and deposits with finance companies and stock and station agents had also been collected and published.

In March 1962, the department published its first estimates of Gross Domestic Product (GDP) in Constant Prices. The publication noted that the series was produced to "assist the Court of Arbitration in its wage claim deliberations, and also to provide a basis for its own measures of economic growth and productivity."⁴⁰ Using 1954/55 as the base year, the annual series covered the period 1954/55 to 1960/61. These estimates marked a significant advance on previous indexes of the volume of production, since for the first time, the volumes of all goods and services in the economy were measured. A further innovation was the release of a GDP series corrected for the terms of trade. This acknowledged that for a small trading nation such as New Zealand, changes in the terms of trade potentially had a major impact on real income levels.⁴¹ The department also produced an Index of Productivity based on the annual index of production and a labour force volume index.

Figure 8



Progress on implementing the recommendations contained in the 1963 Monetary and Economic Council Report review was slow, constrained by lack of

³⁹ Recommendations (d), (f), and (g) remained unacted.

⁴⁰ Department of Statistics (1962). *Monthly Abstract of Statistics*, Government Printer, March 1962.

⁴¹ While terms of trade adjusted income measures had been discussed in the economic literature, New Zealand was one of the first countries to produce these measures as official statistics. In later years this series was to be known as Real Gross National Disposable Income (RGNDI).

resources, especially recruitment and training of sufficient qualified staff.⁴² For example, the Government Statistician noted in the 1965 Annual Report, that "extreme shortages of qualified staff are making it impossible to keep up with demand . . . It is frustrating to me and my staff not to be able to meet demands that are of high national importance."⁴³

Although little progress was made on national accounts improvements and the development of quarterly GDP, some of the supporting surveys as recommended in the report were established. The quarterly Building Activity Survey⁴⁴ was implemented in 1965 and the monthly Retail Trade Survey commenced in January 1970, replacing the quarterly collection.

It is interesting to note that by the end of this period the department was now producing a range of quarterly economic statistics that are little different to those we have today and which are used in compiling the quarterly expenditure on GDP estimates.

1968 to 1984: Statistics for an economy in transition

The National Development Conference

By the late 1960s, the New Zealand economy was stagnating, and the market for primary produce was no longer as buoyant. The wool price collapsed in December 1966. Meat and wool contributed 60 percent of export revenue, so this collapse had severe consequences for the economy.⁴⁵ The Government found it necessary to devalue the currency in 1967, which was the first adjustment since 1948. It seemed increasingly likely that Britain would enter the EEC, threatening the long and close association of New Zealand as Britain's farm. A visitor to New Zealand in the early 1970s humorously observed the effects when Britain did finally join the EEC. "The days when butter was loaded continuously at the docks are gone, along with the steamers. The machinery still lies rusting on the quays but new markets for butter are hard to find. Has anyone thought of Tibet, where they apparently drink it in tea?"⁴⁶

In response to these economic woes, the National Government convened a National Development Conference in August 1968 to bring together groups from all sectors and provide a united basis for indicative planning.⁴⁷ The Conference optimistically aimed to achieve annual Gross National Product (GNP) growth rates of 4.5 percent for the following five years.⁴⁸ These growth rates would be

⁴² Annual Reports of the Department of Statistics, 1956, 1961, 1962, 1964, 1965

⁴³ Department of Statistics (1965). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 6.

⁴⁴ QBAS uses local authority building permits information as its frame.

⁴⁵ Easton B. "Economy," in *Te Ara*. <http://www.teara.govt.nz/NewZealandInBrief/Economy/en> [14 June 2009]

⁴⁶ Morley R (1991). "Kiwi Polish", in *Strangers in Paradise, Vintage New Zealand*, eds J Eisen and K J Smith, Auckland, 276.

⁴⁷ Indicative planning is a process of formulating acceptable, but feasible, economic growth targets for the nation and its main sectors, and of working out policies to achieve these targets. National Development Council (NZ) Technical Committee on Statistics (1969). *Report of the Technical Committee of Statistics to the National Development Council*, Government Printer, Wellington, 13.

⁴⁸ Department of Statistics (1974). *Official New Zealand Yearbook 1974*, Government Printer, 726.

achieved by an integrated set of output targets for individual sectors of the economy with a series of committees and councils to oversee the process.

The Conference was pivotal for the department as it formally sanctioned an expansion of economic statistics, largely because of the need to measure whether growth targets had been achieved. The Targets Committee was a sub-committee that was set up to control all the analytical work and format proposals for growth from all sectors of the economy. It was under the prompting of this committee that the National Development Conference recommended that the Government should significantly increase the resources of the Department of Statistics. They provided support for a wider and more integrated range of statistics and established the idea of centralised statistical collections under the Department of Statistics. The Targets Committee argued:

If the planning is to be done in a rational way, a comprehensive integrated framework of official economic statistics will be required. Only when the current and projected future performance and structure of the economy is quantified, can the formulation of growth targets and the setting of optimum policies to achieve the targets be carried out effectively.⁴⁹

The Technical Committee on Statistics

The Technical Committee on Statistics⁵⁰ to the National Development Council published a report in October 1969. The report represents a watershed for the production of economic statistics in New Zealand and its significance cannot be underestimated. Besides stressing that major extensions to the statistical system were required, and that national accounts together with inter-industry studies were the key to indicative planning, the report more importantly recommended a major shift in how these statistics should be collected and published. The blueprint it set out has guided the shape of, and thinking about, all economic statistics since.

The Committee recommended the adoption of the SNA68.⁵¹ An integrated system of economic surveys and statistics, based on the establishment of a central register of all economic enterprises (including non-corporate businesses) would underpin the production of these macroeconomic statistics. An extensive range of price indexes should be developed to complement the national accounts, allowing the publication of consistent value, price and volume measures. The SNA framework would drive all subsequent economic developments and classifications.⁵²

⁴⁹ *Report of the Technical Committee of Statistics to the National Development Council*, 13.

⁵⁰ The Committee was chaired by the Government Statistician JVT Baker until his retirement in 31 July 1969 and then JP Lewin from 1 August 1969. Members were EGA Frost, Manufacturers' Federation; Prof LF Jackson, Victoria University; JP McFaull, NZ Meat and Wool Boards' Economic Service; LC Neilson, Treasury; JW Rowe, NZ Institute of Economic Research; and J Kominik and S Kuzmich, Department of Statistics.

⁵¹ This new standard would result in far better measurement systems and provide internationally comparable and robust national accounts. The Committee noted in its report that the SNA68 "is a consistent system which provides most of the statistics necessary for economic planning." *Report of the Technical Committee of Statistics to the National Development Council*, 19.

⁵² The Technical Committee's report also provided recommendations on enhancing a range of statistics for the various NDC Development Councils. These included statistics on overseas trade, tourism, finance, labour, population and housing, and industry productivity and prices.

The Committee also repeated the 1963 MEC recommendations about the need for household budget surveys for a range of purposes. It acknowledged the need for national geographic referencing, which led to the setting up of the New Zealand meshblock system.⁵³ A further recommendation was the establishment of a statistical information centre to provide and maintain computerised files for statistical and econometric analysis. This recommendation was far-sighted as it acknowledged the utility of the unit record data underpinning the statistical outputs and its potential for in-depth research.

These recommendations had huge implications for resourcing since it was estimated that 200 – 250 extra staff would be required to give full effect to the Committee's recommendations. At the time, 380 officers were employed throughout the department.⁵⁴ The review acknowledged that it would be difficult to find and train that number of staff but planned for this recruitment to occur over several stages, between 1970 and 1974. Unfortunately, the funding and capability problems that had daunted the department in the 1950s and 1960s continued, so this optimistic plan for expansion did not occur within the specified timeframes.⁵⁵

Statistical progress in the 1970s

The Inter-departmental Advisory Committee on Statistical Needs and Priorities, which reported in July 1974, provided the impetus for obtaining the required resources. It reiterated that the 1969 Report remained the blue-print for statistical development and supported the adoption of the SNA68. There was also a realisation that more timely statistics such as quarterly measures of GDP as mooted years earlier were essential, but this development took many years to achieve.

It was only after the Committee's review of the department's functions that work on the revised New Zealand SNA began to progress. The Government accepted the recommendations of the Inter-departmental Committee and provided additional funding to support the work programme. The Government Statistician was happy to report in 1975 that "resources now being provided his department will allow him to progress the improvements and extensions to the statistical services so long envisaged."⁵⁶

⁵³ The development of the meshblock system was essential for providing a sound geographic frame for all New Zealand censuses and surveys. New Zealand was well ahead of many other OECD countries in this respect. The United Kingdom, for example, did not develop an equivalent system until the 21st century and in some European nations, other agencies owned the geographic frame, making small area statistics difficult to produce.

⁵⁴ New Zealand Government (1969). *Appendix to the Journals of the House of Representatives*, (B7), Government Printer, Wellington.

⁵⁵ The Annual Reports of the early 1970s make grim reading. The 1973 Annual Report states: "The Government Statistician denies responsibility for the oft-strictured [sic] untimeliness and poor quality of many social and economic statistics. He places the responsibility for this on the persistent long-continued denial of the indispensable resources to the department between 1966 and 1973 and especially between 1969 and 1973. The denial has been the result of Government decisions but both the State Services Commission and the Treasury have by their uncomprehending and/or unsympathetic attitudes to the department's needs made significant contributions to these decisions. 1973. *Annual Report of the Department of Statistics*, Government Printer, Wellington, 37.

⁵⁶ Department of Statistics (1975). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 3. The work progressed after decentralisation of many of the department's operations out of Wellington where there were serious recruitment and retention issues. The national accounts and price index work was set up in Christchurch where it remained until 2005.

The comments above were made by a Government Statistician now operating under the revised 1975 Statistics Act. The Act built on the provisions in the 1955 Act, in order to meet "the ever-increasing demands in both volume and complexity for [the department's] services... The existing legislation ... is inadequate to meet the demands of the system without strain, both on respondents and resources". The new legislation was seen to embody "... a far-reaching statutory framework for the collection, coordination, quality standardisation and dissemination of official statistics of all kinds."⁵⁷ The Act gave the Government Statistician the authority and independence to coordinate and lead the official statistical system. A prime aim was the reduction of demands of suppliers, particularly where there were multiple requests made by different agencies. It also acknowledged the implications of the computer age by extending the security provisions of the legislation to include electronic media storage.

Development of the business frame and economic surveys

The economics statistics infrastructure that progressively emerged as a result of the Technical Committee's report was well ahead of its time. All economic statistics produced by the department would now be fully integrated, adopting consistent industry, sector and transaction classifications and based on a consistent transactor-unit model. A 'hierarchy of aggregation' was envisaged, whereby individual enterprise (micro-level) data could be aggregated to industry or sector (meso-level) statistics and these could then be aggregated to national accounts (macro-level) series. This structure permitted analysts to 'sum up' to a national accounts total, or to 'drill down' from the total to the underlying industry contributions, which would greatly assist analysis.

At the heart of the model was a central register of enterprises (later renamed the Business Frame), a comprehensive list of all private and public enterprises operating in New Zealand. All economic censuses and surveys would draw their populations from the register, thereby ensuring no duplications or omissions. The register was first used for the 1975 Census of Manufacturing. Geographical referencing was also improved through the development of the New Zealand meshblock system, which was established in time for the 1975 population census and manufacturing census, allowing consistent regional breakdowns.

Another core component of the new approach was the acceptance within the department that the design of all economic surveys and censuses needed to conform to the SNA requirements. This implied that the output of each survey should be a building block for the national accounts. Over time, this resulted in a complete revamp of the questionnaire content in all economic surveys, as they were designed to capture accounting financial data that could then be converted into the SNA economic variables.

On the basis of this model, the new economic census programme began, based on a quinquennial⁵⁸ system of industry rotation. The following industries were progressively covered:

Table 1

⁵⁷ Hon Michael Connolly, Minister in Charge of the Department of Statistics, quoted in Hansard 26 March 1975.

⁵⁸ Manufacturing was surveyed more frequently.

Economic censuses that used the Department of Statistics' register of enterprises	
Industry	Reference years when censuses were undertaken
Agricultural contractors	1979–80, 1984–85
Forestry and logging	1979–80, 1983–84
Fishing	1980–81, 1983–84
Mining and Quarrying	1978–79, 1983–84, 1991–92*
Manufacturing	1974–75, 1975–76, 1976–77, 1978–79, 1981–82, 1983–84, 1994–95*
Building and Construction	1978–79, 1984–85
Distribution	1977–78, 1982–83, 1991–92*
Transport, Storage and Communication	1979–80, 1984–85
Finance and Insurance	1982–83
Services (selected industries)	1980–81, 1982–83
All industries – Economy-wide Economic Census (EWOC)	1986–87
Rest of Economy Census	1995–96*

* These were not full censuses. They were based on the Annual Enterprise Survey but had enlarged samples in order to obtain more detailed industry and transaction data. The results from some of these surveys were not published but were used when compiling the 1995/96 Inter-industry Study.

Agriculture remained outside the economic statistics collection programme, principally because agriculture production statistics were produced from a separate land-based register, but also because Producer Boards were conducting economic surveys for dairy, sheep and beef farming.⁵⁹

From 1986/87, the economy-wide Annual Enterprise Survey (AES) replaced the rolling programme of industry-based censuses. The survey was intended to overcome the weaknesses of the economic censuses, particularly the inability to accurately conduct cross sector analysis, and also to provide more comprehensive economy-wide annual data for the national accounts. Industry coverage has expanded over the years and the industries now covered by the survey contribute approximately 90 percent of New Zealand's GDP.

National accounts in current prices

The new range of economic censuses, along with a redesigned census of local authority financial activities and the central government's integrated management accounting systems, provided the key supporting data on which to base the new system of national accounts. Work began on the national accounts themselves in 1975 and the first annual accounts based on the SNA68 framework were released in 1978. The initial release, backdated to 1971/72, contained summary accounts of the nation with GDP being derived by both the production and expenditure approaches. The focus on the production approach allowed for an analysis of GDP by industry of origin and paved the way for future industry-based real output and productivity measures.⁶⁰ These

⁵⁹ The NZ Dairy Board conducted economic surveys of dairying, while the NZ Meat and Wool Board Economic Service compiled statistics for sheep and beef farms. The department commenced surveying all farming activities not already covered in the 1982–83 year. The department's Agriculture Economic Surveys were last conducted for the June 1995 year.

⁶⁰ The 'old' National Income and Expenditure series used the 'income-approach' to measure GDP. The expenditure-measure was not fully computed, as household consumption expenditure was derived as a residual. An industry analysis of GDP was strongly supported by the NDC which envisaged industry sub-committees setting and monitoring indicative growth targets, using the

accounts were benchmarked to the latest inter-industry study (although this consistency was lost when definitional or classificatory revisions were introduced in the accounts).

When the new SNA series were released in 1978, and the old national income series ceased, one of the casualties was a series of personal income and savings statistics. At this stage, the new series had no sector accounts recording the income flows and sector savings. This gap remained unfilled until 1989 when an annual Household Income and Outlay Account was first published.

Price indexes

The initial industry accounts were all in current prices. One of the NDC recommendations was that quarterly GDP in constant prices also be produced, and to facilitate this there was a parallel project developing a complete suite of industry input and output price indexes. Work commenced in 1975 on the index that would become the Producers Price Index (PPI). In July 1978 the results were first published under the name of the General Price Index. With their release, the existing wholesale price indexes were disbanded.

The PPIs were intended to have two key uses: firstly, as deflators for the SNA industry accounts in order to derive GDP in constant prices; and secondly, as separate measures of industry price changes in their own right. As deflators, the PPIs were designed at the same level of industry disaggregation and, as far as possible, the input and output regimens matched the SNA production account variables they were designed to deflate, namely intermediate consumption and gross output⁶¹ respectively. This was a very ambitious programme. It reflected an integrated statistical structure that was "ideal" and, at the time, well ahead of other countries. Even today, few countries have a full range of industry PPIs, as many industries, especially service industries, pose a great many quality issues. That New Zealand produced the full range of PPIs is not to claim that these quality issues were satisfactorily overcome, rather it was a case of compiling the indexes on an 'as best' basis and omitting from the regimens a number of the more contentious transactions. Even with the PPIs in place, the production of a new series of annual GDP in constant prices did not occur until early 1984, with the release of a quarterly GDP series later that year. This was backdated to the June quarter 1977.

Household Economic Survey

The new Household Expenditure Survey (HES), which commenced in 1974, arose from the acceptance of the recommendation of the 1971 Consumers Price Index Revision Advisory Committee. This recommendation reinforced earlier ones from the Monetary and Economic Council and the Technical Committee on Statistics. The survey was established to collect data for the expenditure weights in the Consumers Price Index and was first used in the 1975 rebase. The survey was also designed for estimating household

new range of industry statistics. Indeed, the SNA industry groupings matched most of the NDC industry sub-committees. Ironically, by 1978 when the new accounts were released, the NDC planning exercise had been disbanded.

⁶¹ They were actually designed to deflate the 'purchases' and 'sales' components of these SNA variables, excluding any inventory changes which would be deflated separately.

expenditure in the national accounts, and the latest year's data was incorporated in the new SNA68 accounts released in 1978.

In the initial years, the survey asked detailed expenditure questions but provided limited income data. The survey was subsequently expanded with a major redesign in 1983/84 to provide more reliable aggregate and distributional income data at the average personal and household level. The improved HES has subsequently been widely used for income distribution and poverty studies.

The 1983 Annual Report indicated that in the economic climate of the day an improved range of statistical indexes relating to prices, incomes and taxation were needed. During the report year, work commenced on a Real Disposable Income Index (RDI) that was to prove extremely valuable in the subsequent years of economic reform. With the HES now in the field, the department was in a position to develop an RDI. The HES provided the income analysis and social characteristics that allowed calculation of the income tax notionally payable and provided the weighting pattern for use in the RDI by quintile groups of salary and wage earners.⁶² The RDI, published as a quarterly index in December 1982, measured the separate and combined effects of changes in the levels of income taxation and consumer prices on salary and wage earners. The quality of the RDI was improved with the enhanced income data collected in the 1983/84 HES redesign.

1984 – 2009: The new economy

The move towards deregulation

While the 1970s had been years of innovation in statistics, the 1980s were to prove even more challenging. New Zealand faced a difficult economic situation as the 1970s ended, and the economic structure of the post-war period seemed to be unravelling.

Although New Zealand had recognised the need to diversify the economy since the 1960s, and some change had occurred, the country struggled to adjust. Internationally, economic thinking was evolving, and the Keynesian philosophies of the post-war period were being challenged by free-market views. For a time, the National Government attempted to maintain the New Zealand economy through continuing the policies of the past.⁶³ New Zealand continued to support its farmers with subsidies, and maintained import controls and tariffs in order to insulate the manufacturing sector. Government spending was shored up through substantial borrowing. The fiscal deficit reached 8 percent of GDP in the early 1980s.⁶⁴ After the second oil shock in 1979, car-less days were introduced, where every household had to nominate a day when they

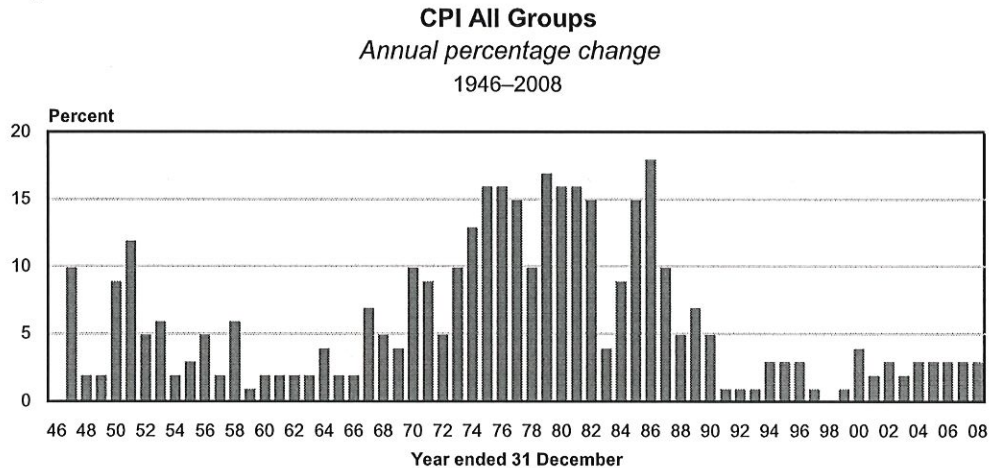
⁶² The Task Force on Tax Reform had earlier acknowledged in its report in 1982, the great value household survey data was in the study of the likely impact of tax changes.

⁶³ Muldoon, Finance Minister and Leader of the National Party, moved more cautiously than his critics wanted. As he told the Auckland Young Nationals in 1979, "My Government does not propose to destroy the efficient manufacturing industries which employ thousands of New Zealand workers in the interests of some theory put forward by desk bound advisors who have no fear of being put in jeopardy from any cause whatsoever . . ." Gustafson B (2000). *His Way A biography of Robert Muldoon*, Auckland University Press, Auckland, 269.

⁶⁴ Murray Sherwin, Deputy Governor of the Reserve Bank: Comments in response to a speech delivered to SEANZA Governors' Forum Colombo, Sri Lanka, 26 August 2000. <http://www.rbnz.govt.nz/speeches/0096204.html> [1 June 2009]

would not use their cars.⁶⁵ The Government also embarked on a series of projects later styled 'Think Big', by which they hoped to diversify the New Zealand economy and reduce dependence on foreign fuels. In response to persistent double-digit inflation after 1974, the Government imposed a wage, price and rent freeze in 1982.

Figure 9



There was, however, some minor liberalisation of the economy. During the 1970s, the Government had continued to gradually remove or relax import restrictions on capital equipment, materials and other requisites for business development. By 1980, licensed imports accounted for only about 20 percent of total imports (by value). One of the most important changes occurred when the Government signed a Closer Economic Relations agreement with Australia in 1983 which set out a programme to eliminate trade barriers between the two countries.

When the Labour Government was elected in July 1984 it immediately faced a financial crisis. It was forced to devalue the currency by 20 percent and then floated the New Zealand dollar nine months later. The country's economic woes gave credence to new free-market ideas and these began to dominate government economic policy. As a result, the Labour Government followed a policy of deregulation, corporatisation of the public sector, and privatisation of government commercial activity. The National Government when re-elected in 1990, continued the process of restructuring the economy by deregulating the labour market and introducing the Fiscal Responsibility Act in 1994.

The effect of economic deregulation on statistics

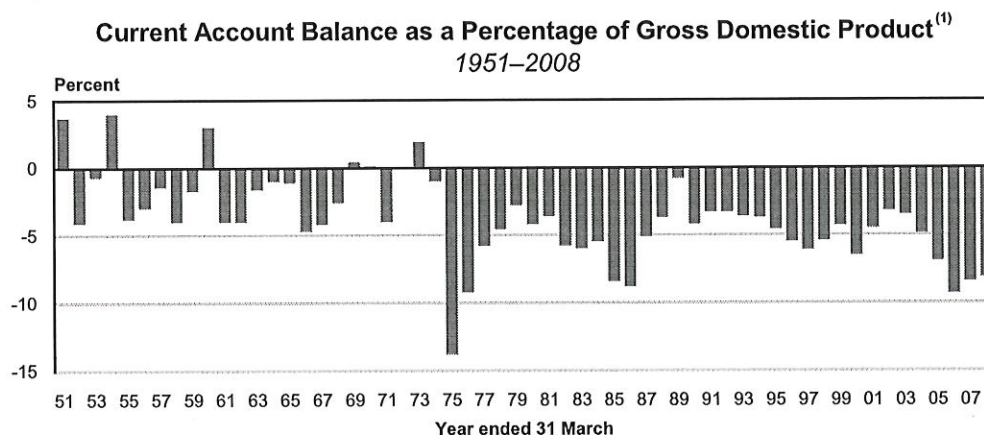
As well as increasing the complexity of the economy and what needed to be measured, the deregulation affected traditional data sources, especially for balance of payments statistics. In freeing up the financial sector, the Government granted unrestricted access to New Zealand's capital market to overseas-owned companies. Restrictions prohibiting New Zealand financial institutions from borrowing overseas were abolished, as were rules governing private overseas borrowing. Arguably, the abrupt abolition of exchange controls

⁶⁵ Carless days for motor vehicles were introduced to combat the second oil shock. They did little to reduce petrol consumption and were scrapped in May 1980.
http://www.nzhistory.net.nz/timelineandnew_date=30/07 [1 June 2009]

had the most profound effect because a key traditional data source for balance of payments statistics, the overseas exchange transaction records, disappeared before there was time to establish alternatives.⁶⁶ In the 1985 Annual Report, the department noted that:

The preparation of overseas Balance of Payments statistics is now facing its biggest challenge yet, in that the relaxation of exchange controls will deprive them of much basic data. In consequence much of the methodology will have to be revised, with many of the statistical functions previously undertaken by the Reserve Bank now falling on the Department.⁶⁷

Figure 10



(1) Current account on BoP Manual version 4 (1951–1987) and version 5 (1988–2008).

In response, the department had to quickly establish a series of replacement surveys and systems.⁶⁸ The surveys were progressively implemented but as more actual data became available, replacing estimates that had increasingly relied on modelling, a series of revisions occurred.⁶⁹

Government changes also impacted on the Consumers Price Index (CPI). The introduction of the Reserve Bank Act in 1989 led to the calculation of additional measures of inflation. At the time, inflation was very high and the Reserve Bank Act aimed to reduce inflation in order to stabilise the economy. The Act

⁶⁶ Some data sources remained, such as the merchandise trade records which were readily available from the Customs Department.

⁶⁷ Department of Statistics (1985). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 5.

⁶⁸ Various quarterly surveys for invisibles were introduced to replace Overseas Exchange Transactions (OET) data. The development of these quarterly surveys not only replaced the OET records but significantly enhanced the quality of Balance of Payments statistics. This included the International Visitors, Transport, Insurance, and Services and Royalties surveys for the current account. For the capital account the Annual Capital Investment Survey was enhanced, given the increase in capital transactions. The Overseas Debt Survey was introduced in the latter half of the 1980s in response to deregulation. This information was used to compile New Zealand's International Investment Position (IIP), which first published as a supplement to the BOP in 1990.

⁶⁹ These revisions continued into the 1990s. Len Cook, Government Statistician, recalls a forthright discussion with the Minister of Finance, Ruth Richardson, over revisions to estimates. This revision occurred just before she was due to meet international rating agency Standard and Poor. He explained to her that the department was under severe pressure because of inadequate resourcing over previous years, and he was asked to put in a proposal to the Government for more funding. Interview with Len Cook, 14 May, 2009.

formalised price stability as a defined target in terms of 'acceptable' movements in a price index and required the Reserve Bank to "direct monetary policy towards the stabilisation of the general level of prices."⁷⁰ This agreement and subsequent amendments were based on various measures of the CPI (the Reserve Bank carried out several adjustments to the CPI), with the target band being changed from time to time.⁷¹ During the early-2000s, Statistics New Zealand widened the measures that it produces to include statistical measures of core inflation, essentially producing those measures previously calculated and reported by the Reserve Bank.⁷²

Another statistics casualty of the reforms was the Real Disposable Income Indexes (RDI). The RDIs had been very valuable throughout the 1980s especially with the changes that occurred in the tax and benefit regimes. However, their relevance and reliability was called into question in the new economic environment. The RDI had been designed at a time when centrally negotiated wage settlements were the norm, inflation was rising rapidly, and changes from direct to indirect taxation were being considered. During this period, the series reflected the interaction of such factors on the wellbeing of full-time wage and salary earners. In the restructured economy, localised wage-fixing arrangements and individual contracts made under the Employment Contracts Act⁷³ were becoming more common. In addition, full-time wage and salary earners were less representative of the working population. Levels of part-time employment and unemployment had increased significantly in the deregulated economy and the RDIs were not considered to reflect the experiences of those who moved out of work or to lower paid part-time positions.⁷⁴ The indexes were published for the last time for the March 1994 quarter.⁷⁵

1991 Review of Macroeconomic Statistics

The announcement in 1989 of significant revisions to previously published Balance of Payments statistics, focused users' concerns on the quality of New Zealand's macroeconomic statistics. This led to a formal statutory review on macroeconomic statistics in 1991. The review aimed to establish the needs of data users in the new economic environment that emerged after deregulation. Its terms of reference were to address the deficiencies of the existing system macroeconomic statistic, identify priorities, and recommend measures to improve their quality. One of the members of the review committee,⁷⁶ Stephen

⁷⁰ New Zealand Government (1989). *Reserve Bank of New Zealand Act 1989*, Government Printer, Wellington, Section 8.

⁷¹ For example, in December 1990 the band was set to annual rises in the CPI of between 0 and 2 percent. Reserve Bank of New Zealand (1990). *Policy Targets Agreement: December 1990*.

⁷² Statistics New Zealand (2009). *Core Inflation Measures Produced in New Zealand*. Paper presented at the 11th Ottawa Group Conference at Neuchatel, Switzerland, 27-29 May 2009.

⁷³ The Employment Contracts Act was introduced in 1991. It removed certain privileges of the unions and focused on individual employment contracts. This act was replaced in 2000 by the Employment Relations Act, which requires employers, employees and unions to deal with each other openly and honestly.

⁷⁴ Department of Statistics (1994). *Official New Zealand Year Book*, Government Printer, 300.

⁷⁵ In 1997, the New Zealand Income Survey (NZIS) was introduced as an annual supplement to the June quarter HLFs. The NZIS collects income on wages, self-employed income and investment income. Besides being an important source of household income in its own right, the data could potentially be used for a redeveloped RDI.

⁷⁶ The Macroeconomic Review Committee included representatives from Reserve Bank, Treasury, Bankers Association, Manufacturers Federation, Employers Federation, Council of Trade Unions, and Federated Farmers. It was chaired by Len Cook, Deputy Government Statistician and organized by Jeff Cope, then manager of National Accounts. The strategy

Pickford, an economist from the United Kingdom then on secondment to New Zealand Treasury, made a significant contribution to the review by providing an international perspective. He had conducted a similar review of economic statistics in the United Kingdom, as their statistics had deteriorated following a reduction in resources during the early 1980s.⁷⁷

The review confirmed the importance of existing macroeconomic statistics and made more than 50 recommendations, 44 of which related to the development or enhancement of specific macroeconomic series. These recommendations included:

- (a) improved timeliness of annual and quarterly statistics
- (b) expansion of the national accounts to include sector income and financial accounts
- (c) increased industry detail in order to better measure service industries in the national accounts
- (d) a national accounting analysis of the Crown Accounts
- (e) development of robust productivity measures for different sectors of the economy
- (f) development of quarterly GDP (expenditure) statistics in current prices
- (g) completion of the survey improvements for a more detailed balance of payments statement
- (h) improved price and wage indexes

The Committee acknowledged the resource constraints faced by the department and provided guidance on implementing the recommendations by grouping them by priority ranking and estimating indicative costings. This was the first time that a departmental review had pulled together user needs, priorities and costs in this fashion, which proved very useful when approaching Government for additional resources. The recommendations provided guidance on the macroeconomic statistical priorities for the 1990s and formed the basis of the ensuing medium-term economic statistics work programme.

Statistics through the economic reform years

Employment statistics

Up until the mid-1980s, users relied on data collected in the population census and data from the half-yearly Department of Labour Employment Information Survey (EIS) to monitor labour demand. The need for statistics on labour supply was identified as early as 1976 when the Minister of Labour approved the need to conduct a feasibility study for a household labour force survey (HLFS). A pilot survey was conducted in 1979 but the department was unable to get funding to commence an on-going survey. Funding was finally approved in the 1985 budget and the first results were published for the 1985 December quarter.⁷⁸ It took some time for the HLFS to gain acceptance as the official measure of unemployment, due to differences with information from the Department of Labour's Unemployment Register. In 1988, statistics on 'other jobless' persons

adopted by the review committee involved a survey of over 200 users of ME statistics, and the commissioning of the NZIER to prepare an independent report on the quality of the existing ME statistics.

⁷⁷ The Pickford Review reported in 1988, and recommended an enhanced central role for the UK's Central Statistical Office.

⁷⁸ In 1990 the frequency of the HLFS was changed to monthly.

were added to assist in the better interpretation of the inconsistencies.⁷⁹ In 1989, the department took over the operation of the EIS from the Department of Labour. The survey had by then (in 1980) moved to a quarterly survey, the Quarterly Employment Survey (QES).

Business demography

During the 1980s coverage of the business frame continued to improve. The introduction of Goods and Services Tax (GST) in 1986 provided an extensive source of new information about New Zealand businesses that the department was able to utilise. In 1987 the department began to publish business demographic information about the size and location of businesses, business start-ups and cessations, and the degree of overseas ownership.

National accounts

The 1991 Budget was a mixture of gains and losses for the production of economic statistics. Although the Budget delivered wide-spread cuts in government expenditure, additional funding was nevertheless forthcoming for the highest priority recommendations from the Review of Macro-economic Statistics. However, this came at a cost as a number of economic series were also reduced in frequency or discontinued (see next section).

Implementing the macroeconomic review recommendations was a multi-year exercise, and over the next ten years the range and quality of national accounts statistics gradually improved. An analysis of the Crown Accounts was first published in 1992.⁸⁰ After the release of an experimental series in July 1994, quarterly Expenditure on GDP in Current and Constant Prices was finally released as an official series in February 1995, along with a new series of implicit price deflators. Experimental estimates for Institutional Sector Accounts for the years 1986/87 to 1990/91 were published in 1995, although these did not eventuate into an official series. Little progress was made on the development of productivity measures. There were improvements in timeliness of publications, when quarterly GDP was first published within three months of the end of the reference period in late-August 1995.⁸¹

A major initiative was completed in 2000, when in November the national accounts were published (back-dated to 1986/87) on the revised 1993 System of National Accounts (SNA93), with industry detail on the new Australian and New Zealand Standard Industrial Classification 1996.⁸² The 1995/96 Inter Industry Study was finalised and incorporated into the annual accounts. Also

⁷⁹ Department of Statistics (1988). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 6.

⁸⁰ The department had earlier published a National Accounting Analysis of the Public Accounts but this had not been updated beyond 1986. The new series expanded the coverage and was fully consistent with the national accounts. In 2006, the Crown Accounts analysis was replaced by the Government Sector Accounts, which are released with the annual National Accounts in November each year.

⁸¹ While this was an improvement, the quarterly GDP statistics are still released a number of weeks later than those of most other OECD countries.

⁸² Over the period, the economic classifications adopted across all economic statistics have been progressively updated to reflect the changing structure of the New Zealand economy and international standards. These changes have been carried out to maintain relevance (by keeping the statistics up-to-date and reflecting a modern economy) and to facilitate international comparability. The industrial classification ANZSIC96 was developed jointly with Australia and the latest version, ANZSIC 2006, is currently being implemented across economic statistics.

included in the release were newly developed capital stock series by industry and by asset type. These new series allowed depreciation to now be measured at current replacement cost and provided the capital measures that would feed into the (yet to be developed) productivity series. The constant price series were also redeveloped, moving from a fixed weight formula to an annual chain-volume series. By annually updating weights, substitution effects due to relative price changes could be better accounted for.

Labour cost index

The Macroeconomic Review also recommended the development of better labour cost indexes. This was partly prompted by the introduction of the Employment Contracts Act in 1991, which abolished the National Award System under the Arbitration Court and resulted in the loss of data for the Prevailing Weekly Wage Rates Index. The Labour Cost Index (LCI) was introduced from the December 1992 quarter. In addition to ordinary time wage and salary rates, the indexes included overtime pay rates and non-wage costs of annual leave and statutory holidays, superannuation, ACC employer premiums, and medical insurance.

The public sector reforms and the effect on statistics

During this time, the institutional structure and operating practices of the whole state sector also came under scrutiny. The Government sought ways to improve the effectiveness of government departments, which resulted in a new public sector management framework and the enabling legislation, the State Sector Act 1988 and the Public Finance Act 1989. Constraints on departmental spending resulted in the deferral of a number of statistical developments and it became increasingly difficult to maintain the quality of a range of outputs. Government departments were also required to charge for certain services. For the department, this policy change imposed a requirement to generate more revenue from information sales and operate on a cost recovery basis where possible.⁸³ This diverted resources away from the development of further community-value economic statistics and redirected it towards revenue-producing customised services. In addition, under a competitive procurement model, government agencies had the autonomy to choose what statistics they required and could seek the cheapest provider through a tendering process.⁸⁴

In 1992, the Cabinet Expenditure Control Committee decided upon specific reductions in statistical outputs in order to achieve a reduction in the department's expenditure budget. These cuts included reducing the periodicity of the Inter-industry Study (7-yearly rather than 5-yearly), conducting a biennial Agriculture Census (rather than annual), discontinuing the Hire-purchase Survey and Import Orders Survey, and reducing the frequency of the Retail

⁸³ From 1986/87 the department was placed on a net-funded basis whereby over the five fiscal years 1987–1991 it would need to self-fund 25 percent of its expenditure. In reality the department always struggled to meet the revenue targets, and this policy also caused some resentment with data suppliers expecting to be paid for supplying data as numerous letters from respondents will attest.

⁸⁴ In newly-appointed Government Statistician Len Cook's first annual report in 1992, he noted that the year had been very demanding "given the continuing difficult commercial environment in which the department has had to compete for non-Crown revenue to fund elements of its official statistical programme. . . The capability of the DOS to adapt, redevelop and initiate statistics has been constrained to that achievable within the current resource availability." Department of Statistics (1992). *Annual Report of the Department of Statistics*, Government Printer, Wellington, 5.

Trade Survey and the HLFS from monthly to quarterly, unless funding could be derived from other sources. The Monthly Import Orders Survey and the monthly Retail Trade Survey were subsequently reinstated (with other organisations funding the re-establishment costs) as the "loss of two of the country's few monthly economic indicators was soon felt by the financial community."⁸⁵

The 1994 Annual Report noted a long list of gaps in the economic area⁸⁶, which could not be met without extra resourcing from Parliament. Demand for statistics in the private sector was growing as businesses were using statistics to seek new market opportunities and improve market understanding. The 1994 Annual Report noted that: "The demand for official statistics is strong at this time, and Statistics New Zealand must respond appropriately if opportunities to make significant contributions to meeting this demand are not to be lost."⁸⁷

A further review of the department's operations was undertaken in 1996 (the Output Price Review) which provided additional funding in the 1997 Budget to improve capability and carry out a revision of the Consumers Price Index. Once again, in return for extra funding, the department was asked to cut "lower priority" outputs. The Agricultural Production Survey was stopped and the scope of the quarterly Manufacturing Survey was restricted to sales and stocks only, a decision that was later reversed. The Household Economic Survey moved from an annual to a three-year cycle, and the Overseas Debt Survey from a quarterly to an annual collection. The department's flagship publication, the annual New Zealand Official Yearbook, was reduced to a biennial publication.⁸⁸

Statistics for the new millennium

The market-led reforms of the 1980s and 1990s radically changed the economic environment and led to an increase in demand for a range of new and more sophisticated statistics. However, the funding restrictions during the 1990s had led to deficiencies and gaps in official statistics as noted in the 1994 Annual Report and in subsequent years. Closing these gaps and satisfying new user demands would come to rely increasingly on third-party support and funding rather than increases in Vote: Statistics.

Sector interest statistics

During the 1990s, various lobby groups were calling for new information that required alternative views of the economy, such as the impact of tourism, the measurement of unpaid work and the impact of environmental degradation.⁸⁹ The department began to respond to these demands in mid to late-1990s.

⁸⁵ Ibid, 20.

⁸⁶ These were listed as: incomplete range of macroeconomic statistics; gaps/deficiencies on the labour market, education and training; housing; dynamics of personal income, wealth and savings behaviour; business dynamics; service industries such as tourism, information technology and culture; environmental accounts; household time-use data to measure the contribution of unpaid work.

⁸⁷ Department of Statistics (1994). *Annual Report of Statistics New Zealand*, Government Printer, Wellington, 21

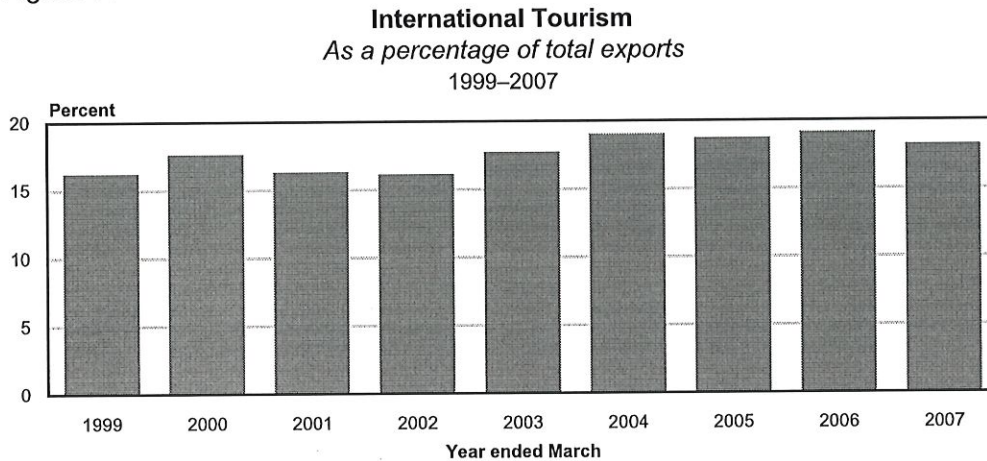
⁸⁸ Department of Statistics (1997). *Annual Report of Statistics New Zealand*, Government Printer, Wellington, 11.

⁸⁹ For example, Marilyn Waring's *Counting for Nothing* called for GDP to reflect the value of women's unpaid work and impact of degradation of the environment brought about by economic growth.

Tourism

With support from the Ministry of Tourism, a pilot Tourism Satellite Account was prepared for the 1994/95 year, with the first official Tourism Satellite Accounts for the years 1997–2000 published in late 2000. These statistics are now published annually.

Figure 11



Unpaid work

A pilot Time Use Survey⁹⁰ had been conducted in 1990 and in 1999 a full survey was held, largely due to financial assistance from the Ministry of Women's Affairs. The Ministry also financed the 2001 publication *Measuring Unpaid Work in New Zealand 1999*.

Environment

The Ministry of the Environment provided funding for Statistics New Zealand to extend its work into the field of environmental statistics, in particular the development of national level natural resource and environmental accounts. A number of these covering fish, wood products and energy were published from 2002.

Non-profit Institutions

In 2007, the department published a Non-profit Institutions Satellite Account for the 2004 year, with strong support from the Office of the Community and Voluntary Sector.

Regional interests

In response to an increasing demand for regional information, the department established a Regional and International Statistics Division in 1995. To improve the range of regional statistics, two experimental series involving synthetic modelling of unemployment (Regional Labour Market database), and expenditure (Regional Household Expenditure database) were developed. Also produced, was a Quarterly Regional Review publication which compiled a range

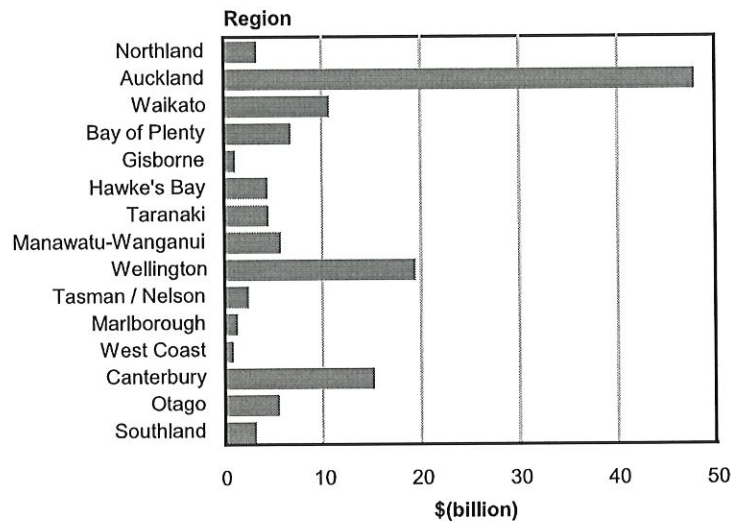
⁹⁰ In an article for the *New Zealand Listener* in 2004, Marilyn Waring noted the importance of the Time Use Survey but thought it underused. "We've had the time-use survey here, but one of the difficulties has been that there aren't many people in strategic policy positions who actually know how to use the data ... the survey demonstrated that the time spent on unpaid work in New Zealand was the equivalent of two million full-year full-time jobs." *New Zealand Listener*, April 10-16 2004 Vol 193 No 3335.

of regional social, demographic and economic indicators. This small unit was initially funded entirely through external revenue generation but was disbanded in 2008 due to the lack of commitment to ongoing funding for regional statistics.

For many years, there had also been an expressed demand for regional GDP statistics to support regional development policies. In December 2006, the department, with support from the Ministry of Economic Development, released the *Research Report on Regional Gross Domestic Product*. It contained findings on the feasibility of producing regional GDP by industry with series for the 2000–2003 March years. The intention was that the regional GDP statistics would provide the framework to which other regional indicators (such as regional retail sales) could be linked. Although the study confirmed that regional GDP statistics could be produced at minimal additional cost, based largely on utilising existing Statistics New Zealand datasets, the programme was not continued.

Figure 12

Regional Gross Domestic Product 2003
Year ended March

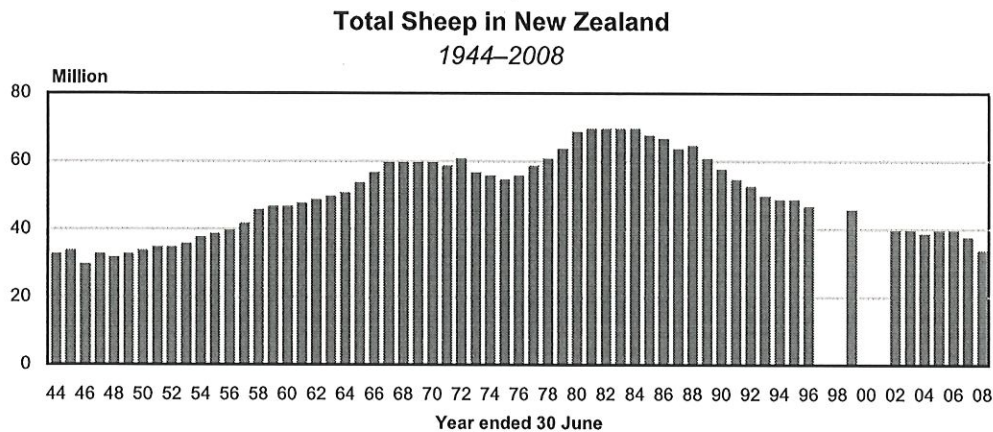


Interest in the performance of regional economies and of regional and local government continues, and this area remains a major gap in New Zealand's official statistics.

Agriculture statistics

Agriculture production statistics were re-instated in 1999, funded by the Ministry of Agriculture and Forestry. A survey of Livestock and Cropping Farms was conducted using Agribase, the land-based register of farms maintained by AgriQuality, as the basis for selecting the sample. Because of coverage problems with Agribase, the department reverted to using the Statistics NZ Business Frame supplemented by Agribase and other lists for the 2000 Horticulture Survey. Another census was carried out in 2002, and annual surveys have continued since then.

Figure 13



Source: Agricultural Production Surveys, 1935–2008.

Note: No surveys were carried out in 1997, 1998, 2000 and 2001.

Business performance

Business practices and technology were also changing rapidly. In response to the need to measure this changing environment, the Ministry of Research, Science and Technology (MoRST) sponsored a range of new statistics. The surveys were designed to help government and other policy agencies to promote growth and innovation, and to understand the nature of New Zealand business. Surveys of Information and Communications Technology (ICT) Supply were conducted in 1994 and 1996, followed by further surveys to measure the supply and take-up of ICT by government, businesses and households. The department developed and conducted a Research and Development Survey during the 1990s, funded and published by MoRST and ran the first Biotechnology Survey for the 1999 year.

The Knowledge Wave Conference of 2001, which led to the development of the Labour Government's Growth and Innovation Framework (GIF),⁹¹ put funding for these statistics on an on-going basis. The Ministry of Economic Development provided also provided funding for the development of statistics on labour, capital and multi-factor productivity. These important measures had been requested by users over many years and were high on the priority list of the 1991 Review of Macro-economic Statistics. However, it took the GIF funding 15 years later, for these measures to be developed and they were first published for the years 1988–2005 in 2006.

Retirement income

During the 1990s, concerns about the adequacy of retirement income and the affordability of government pensions began to emerge. The 1992 Taskforce on Private Provision for Retirement identified the need for regular information

⁹¹ The Growth and Innovation Framework was a whole-of-government approach that placed innovation as a central theme across all economic policy. It set up public-private taskforces in design, biotech, ICT; it announced a package to boost the regions and revived the old-fashioned idea of planning, including restoring the Ministry of Economic Development. Vincent Heeringa in the "First 3,000 Days", *Idealog* #17, September-October 2008
<http://idealog.co.nz/magazine/september-october-2008/> [13 June 2009]

covering patterns of voluntary private savings and life-cycle statistics on income, expenditure and wealth.⁹² In response, the department with funding support from the Department of Social Welfare, undertook an exploratory household survey of retirement income provision plans. This was intended as the precursor to more comprehensive surveys but these did not eventuate.

However, the original concerns continued to grow, leading to a further review. In 1997, the Periodic Report Group was charged with reviewing retirement income policies. It expressed disappointment that, with one exception, there had been "little change since 1992 in the quality of statistics available to inform the debate on individual and national savings levels and patterns."⁹³ The Group strongly recommended the development of a new range of statistics to fill this gap. This ultimately led to the 2001 Household Savings Survey, which was commissioned by the Office of the Retirement Commissioner, and published in 2002. This cross-sectional survey was designed to establish levels and distribution of net-worth amongst New Zealand households. The intention is to further improve the quality of information available on retirement income provision using data gathered from the longitudinal Survey of Family, Income and Employment (SOFIE) which has been in the field since October 2002.

Administrative data and the development of unit-record databases

Compliance cost reduction has been a recurring theme throughout the 1990s and 2000s, and prompted a move to use administrative data to replace direct surveying. In 1991, the department gained access to data from Inland Revenue's FIRST computer system. Initially used to populate and maintain the business frame, tax return data is now used extensively for survey design and maintenance and as a replacement for direct surveying. Access to tax data has also enabled the development of unit-record databases combining administrative and survey data for statistical and research purposes. These databases have led to innovative developments of new statistics, and have also helped to satisfy the growing need of researchers for access to micro-data. Many of the advances in furthering our understanding of social and economic issues will come through exploiting the potential of these databases.

One such important initiative was the development of the Linked Employer-Employee Database (LEED) which combines PAYE data and business frame records. An extensive range of new labour market statistics from this database was first published in February 2006. Production of these statistics involved cooperation between Inland Revenue, the Department of Labour, and Statistics New Zealand. A further example is the Longitudinal Database Development (IBULDD), which created a longitudinal firm level database using business-related data from both administrative and sample survey datasets. This database is being used to carry out firm-level analysis on topics such as the performance of exporters and productivity of Auckland businesses. It is clear that there is a high level of demand from external researchers for access to linked unit-record databases and the provision of these will be an increasingly important aspect of the department's future work.

In February 2007, the first release of an experimental series for electronic card transactions data (ECT) occurred. This series covers all debit and credit card

⁹² Statistics New Zealand and the Retirement Commission (2002). *The Net Worth of New Zealanders*, Statistics New Zealand and the Retirement Commission, Wellington, 4.

⁹³ Period Report Group interim report July 1997.

spending processed by New Zealand resident merchants. This release marked the first time that Statistics New Zealand has worked with the private sector to develop a statistical output from administrative data. This series is a very timely indicator of consumption expenditure and is published just seven working days after the month to which the data refers.

Future challenges

In 2009, there remain many gaps in the economic statistics portfolio. New Zealand is one of the few OECD countries which does not produce institutional sector (income and outlay) accounts. However, with financial assistance from the Reserve Bank and Treasury, the development of Institutional Sector Accounts is now underway. Another shortcoming of particular relevance at this time of economic uncertainty, are the financial accounts and balance sheets that would inform our understanding of wealth, debt and sustainability. The recommendation of earlier reviews for the production of a quarterly income measure of GDP has still not been met. In addition, the last Inter-industry Study was produced for the 1995/96 year and has not been updated since, although annual supply-use tables are now produced. An updated study is urgently needed.

There is general agreement amongst users, including Statistics New Zealand's Advisory Committee on Economic Statistics, that these are priority areas for improvement. However, the progress that can be made in addressing these deficiencies will be dependent on the funding that can be gained in the near future, and on the department's ability to develop its capability.

There is also an accepted understanding that measuring economic welfare needs to go beyond the traditional scope of economic statistics. What are needed are more comprehensive measures that bring together information from the economic, social and environmental domains. While closing the key gaps in the economic statistics portfolio remains a priority, researching and developing these new measures is of growing, and some would say, critical, importance. While many of these measures will rely on extending and updating existing statistics in these domains, other measures will need to be novel and break new ground if they are to achieve their goal. The frameworks and concepts for many of these new measures are far from settled and are still the subject of lively international debate.

The department is taking an active part in these discussions and, through a number of its programmes, is positioning itself to provide much of the underlying data that will be needed to track future progress. In particular, the need for a coherent set of socio-economic statistics will be provided by the Programme for Social Statistics (POSS), a funded multi-year programme. POSS comprises a range of statistical data collections (repeated household surveys and adapted administrative sources) that will provide household and individual statistics on a range of topics relevant to well-being, such as economic standard of living, housing, knowledge and skills, health, paid and unpaid work and social connectedness.

Incorporating environmental and natural resource issues into wider measures of economic progress is a major challenge. While international frameworks now

exist,⁹⁴ their application is very much a 'greenfields' exercise. Unlike the SNA macroeconomic series, the utility of the SEEA measures for policy purposes has yet to be widely proven, partly due to their novelty and lack of time series. However, this situation is changing as the European countries, in particular, proceed to expand their economic-environment measures. The demands for effective monitoring of the effects on economic wellbeing of climate change and carbon emissions have made such developments more pressing.

Of equal urgency is the need to develop practical measures of sustainable development. While this is a new and controversial area for statistical offices to be involved in, the need for objective and impartial measures is paramount and the department has taken a lead. A suite of sustainable development indicators will shortly be released, based on an adaptation of a methodology developed by the Federal Statistics Office of Switzerland. These indicators focus on measuring the sustainability of economic, social and environmental capital, on the premise that medium to long term wellbeing is ultimately dependent on maintaining and developing society's asset base.

Conclusion

Since 1945, the New Zealand society and economy has undergone a series of transformations that are reflected in the statistics collected and produced by Statistics New Zealand. In 1945, the economy was much smaller and focused firmly on agricultural production, manufacturing and on constructing a post-war infrastructure needed to develop the economy. Statistics at the time reflected these concerns. For many years they were shaped by the Government's aim of maintaining full employment and stability in prices and exchange reserves while not jeopardising development, rather than a sophisticated understanding of New Zealand's place in the world economy.

By the late 1960s, New Zealand's certainty in its reliance on agricultural production began to evaporate. The Government invested in the National Development Conference as a means to transform the New Zealand economy, but New Zealand's relative economic position continued to deteriorate. The loss of exclusive access to Britain's market, and the oil shocks of the 1970s, caused considerable anxiety. As British MP and author, Austin Mitchell, noted in 1972: "New markets demand change, adjustment, new industries and an end to old certainties. The trinity of Wool Board, Meat Board and Dairy Board can no longer save the country. Hesitantly, reluctantly, the New Zealander is being forced to stand upon his own two knees."⁹⁵ Indeed, New Zealand from the 1980s did go through a painful period of adjustment and the economy changed markedly as a result. Yet even in 2009, agricultural production remains important and a decline in the Fonterra payment for milk solids still casts national gloom.

Over the post-war period, economic statistics changed. User demands and the recommendations of successive reviews led to a gradual expansion in the range of economic statistics and the development of an integrated framework. In 2009, commentators can use an increased range of statistics, some monthly

⁹⁴ United Nations et al (2003). *Integrated Environmental and Economic Accounting 2003* (SEEA), United Nations. The few natural resource accounts that have already been published by the department are based on this standard.

⁹⁵ Mitchell A, from *The Half Gallon Quarter-Acre Pavlova Paradise*, 1972 quoted in *Strangers in Paradise*, eds J Eisen and K J Smith, 274.

and some quarterly, to measure change in the New Zealand economy. However, there are still major gaps that hinder their analyses.

One of the objectives of the paper was to answer the question: how well has Statistics New Zealand measured progress in the years since 1945? The answer seems to be that in some periods New Zealand has responded to demands effectively and made changes in statistical series. In doing so, the measurement of the economy has improved. At other times, statistical developments have occurred too slowly, and the coverage of official statistics in New Zealand has fallen behind comparable OECD countries. This has significantly limited our ability to properly monitor and measure the evolution of the New Zealand economy over this period.

As this paper has discussed, many of the reasons for slow development of statistics stem from government priorities and funding, and the challenge of expanding the department's capability. For example, the recommendations from the National Development Conference called for the department to almost double in size, a considerable challenge given the tight labour market at the time and the shortage of qualified graduates. In 1971, the NDC Technical Committee set out an enlightened statistical programme that, if followed, would have seen New Zealand at the forefront of statistical developments internationally. It would have resulted in New Zealand having an extensive and (by now) long-running time series of both structural and short-term monitoring statistics, on which to base economic analyses and policy formulation. However, because there has not been a commitment to fully fund this programme of work, we now have an economic statistics base with major gaps.

When resources have permitted, however, New Zealand has been innovative. Statistics New Zealand has developed an integrated economics statistical system based on a comprehensive business frame. It has led the world in integrating administrative and survey data for replacing direct respondent returns and microanalysis. ECT statistics, for example, are released just seven days after the reference period and provide rapid measurement in an era where electronic transactions now outnumber cash ones. It has developed a comprehensive infrastructure to support statistics and many of these systems have been adopted in overseas statistical agencies. Examples include the geographic frame, PC/Trade system, and the classification storage system CARS. New Zealand has also been an early implementer of overseas ideas particularly with the early development of national accounts in the late 1940s and early 1950s, and the comprehensive scope of the producer price indexes developed in the 1970s.

In 2009, statistics that measure economic progress (or lack of progress) are now more timely, more complex and more comprehensive than they were in 1945.

The current world-wide economic and financial crisis has once again highlighted the need for statistics to measure and help understand today's complex economic systems. Timely and relevant information becomes increasingly vital to enable governments to formulate a response to the rapidly changing economic environment.

The OECD noted in its recent evaluation of New Zealand:

New Zealand is paradoxically at the forefront of the OECD in adopting policies in many areas that have been shown to lead to high per capita income, and yet it still ranks toward the bottom end of the OECD's productivity league. This performance has many natural and hence unavoidable causes, such as the economy's small size and geographical isolation. But the root of the problem is a structural deficiency in the capacity to produce tradable goods and services. Raising productivity growth therefore remains the greatest medium-term challenge.⁹⁶

Regardless of whether this prescription for economic recovery is correct, such statements highlight the importance of effective measurement of all aspects of the economy. As the series of reviews of the economy and statistics have noted since the 1950s, understanding is essential before "rational solutions" to problems can be established.

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⁹⁶ OECD, Economic Survey of New Zealand, 2009.

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