

**Economic and Social Council**Distr.: General  
30 March 2010

Original: English

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**Economic Commission for Europe**

## Conference of European Statisticians

**Fifty-eighth plenary session**

Paris, 8-10 June 2010

Item 7 of the provisional agenda

**Impact of crises on statistical systems****The timeliness dilemma in a small economy****Note by Statistics New Zealand***Summary*

The recent financial crisis and the report of the Commission for the Measurement of Economic Performance and Social Progress (commonly known as the Stiglitz Commission) have highlighted the need to improve both the communication and timeliness of official statistics. The financial crisis has placed, as have previous recessions, increasing emphasis on having information available for decision-making when it is needed. Naturally, when change is happening rapidly, this increases the pressure on an official statistics system to deliver more timely information.

The note provides an overview of how Statistics New Zealand addresses the challenges related to improving timeliness and increasing frequency of data.

## I. Introduction

1. The recent financial crisis and the report of the Commission for the Measurement of Economic Performance and Social Progress (commonly known as the Stiglitz Commission) have highlighted the need to improve both the communication and timeliness of official statistics. The financial crisis has placed, as have previous recessions, increasing emphasis on having information available for decision-making when it is needed. Naturally when change is happening rapidly, this increases the pressure on an official statistics system to deliver more timely information.
2. Statistics New Zealand continually strives to improve the timeliness and frequency of our official statistics. However, as a small open economy, this can mean increased levels of volatility which our users find undesirable as the data can be misleading or difficult to interpret.
3. Furthermore, short-term series with poor information content that result in subsequent significant revisions, are also not acceptable.
4. On the other hand, the provision of very timely indicator statistics from alternative data sources such as administrative data collected for operational purposes, where the coverage and limitations are well understood, has been very well received and assists in managing the pressure to bring forward the release of core economic measures.
5. Challenges for national statistical offices include:
  - (a) Managing users' expectations;
  - (b) Assisting them to make choices about their priorities for both improving timeliness and filling gaps in the portfolio of official statistics and the trade-offs between these;
  - (c) Ensuring that there is wide awareness of official statistics and that they are used to their maximum potential (irrespective of frequency or timing);
  - (d) Being able to respond nimbly to changing demands.
6. New Zealand's experience is relevant to many nations, especially smaller ones, where the expectation is to improve the performance of the statistical system through more timely statistics whilst maintaining their quality, despite a fluctuating economic situation, and with constrained resources.
7. This document draws on examples, and highlights the perspectives of users of official statistics, which have influenced our current thinking about both timeliness and communication. It examines the challenge of making timeliness gains in official statistics to support decision-making, within the context of a small open economy.

## II. Background

8. For those unfamiliar with New Zealand, we are a small island country in the south-west Pacific comparable in geographic size (268,860 sq km) to the United Kingdom and the Philippines. New Zealand has a diverse multicultural population of over 4 million people, making it one of the world's least crowded countries. The New Zealand economy is a mixed economy based on free market principles with a sizable and efficient agriculture or primary sector, complemented by goods-producing and growing service industries.

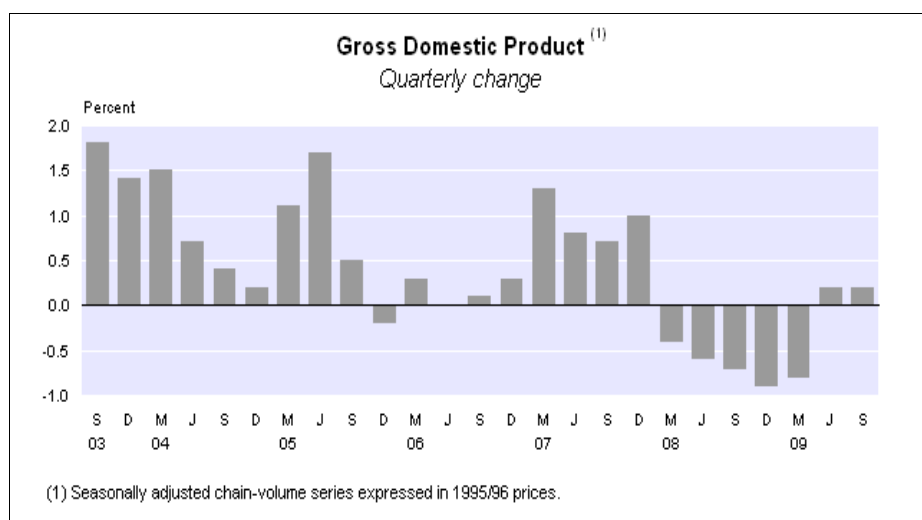
9. The Official Statistical System in New Zealand comprises all government departments producing statistics, with Statistics New Zealand the main producer of key official statistics, such as population statistics and micro- and macro-economic statistics. However in the domains of social and environment statistics, activity is decentralised. The Government Statistician has a legislated leadership role across official statistics but adherence to principles, protocols and standards is not mandatory for other participants.

10. Throughout 2008 and into 2009, the New Zealand economy experienced five quarters of negative growth in volume terms, as recoded by Quarterly Gross Domestic Product (QGDP). The weakest quarter was recorded in December 2008, with the economy contracting 0.9 percent.

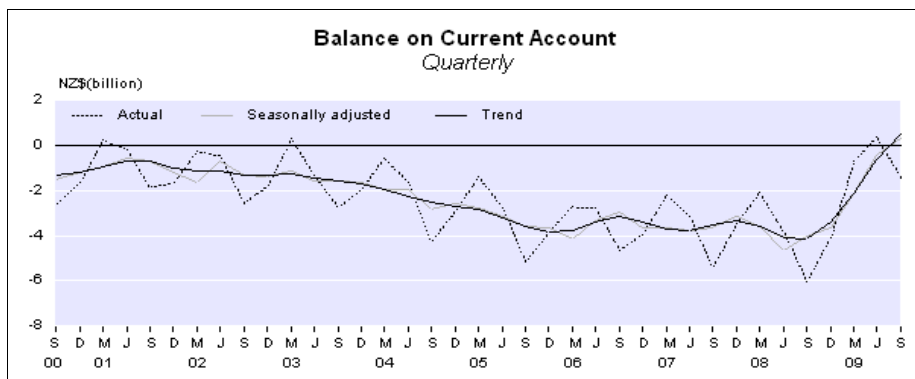
11. The impact of the financial crisis is also evident in other macro- economic statistics. The current account balance turned from a large seasonally adjusted deficit (NZ\$4,662 million) in the June 2008 quarter to a small surplus (NZ\$340 million) just over a year later. This reflects significantly lower imports due to lower household consumption and business investment and falling profits attributable to overseas owners. Unemployment over a similar period recorded an annual increase of 54.7 percent to 7.3 percent in the December 2009 quarter. The consumer price index increased 1.7 percent from the September 2008 quarter to the September 2009 quarter which was the lowest annual increase during more than five years.

Graph 1

**Quarterly change in Gross Domestic Product for New Zealand**



Graph 2  
**Quarterly balance on current account for New Zealand**



### III. The response by the Official Statistics System

12. As can be seen, New Zealand was not immune to the financial crisis, albeit that it was generally considered by commentators that we were in a better position than many other countries. As a consequence we experienced increased demand for more timely information from the official statistics system as policymakers in particular were attempting to respond quickly to the dynamic international situation as it unfolded. At the same time demand for long time-series of information also grew in order to better understand historical patterns, trends, events and triggers that might provide insight into (and hence prevent) future crises.

13. During the early days and weeks of the crisis, the Ministry of Economic Development coordinated government agencies to determine what information could be used to supplement official statistics and whether all the information could be provided in a timely manner. There was also an interest in sharing qualitative and quantitative information where appropriate to inform the macro-economic picture and how it was impacting on businesses and households.

14. Statistics New Zealand made two key contributions to this work: our knowledge of official statistics and numerous data sources across government and, as the major producer of official economic statistics, reviewing their timeliness and identifying potential areas for improvement.

### IV. Timeliness improvements

15. New Zealand produces very few monthly economic statistics, most are quarterly. Timeliness improvements have tended to focus on bringing forward the release dates of these series rather than increasing the frequency.

16. Unlike some other countries, New Zealand does not produce a preliminary estimate of QGDP. Rather, we release many of the quarterly industry economic indicators (and a small number of monthly series) used in compiling QGDP (such as building activity, wholesale and retail trade and manufacturing) as early as possible. This, along with transparency about QGDP compilation methods, enables users to anticipate or calculate a likely QGDP estimate, which they update as the various economic indicator series are released.

17. In recent years we have captured some small timeliness gains mostly achieved through improvements in the processes used to analyse and disseminate the statistics, rather than by reducing time taken in the collection cycle. (Note that the recent introduction of efficient switching technology in the Statistics New Zealand call centre will lead to efficiency gains but also has potential for timeliness gains).

18. The most significant change has been the eight working days achieved in the Electronic Card Transactions release, which is an experimental monthly series, covering all debit and credit card spending with New Zealand-based merchants. This information can be used as an indicator of the change in the level of consumption expenditure and economic activity in general. The monthly series is based on administrative data from only two providers, which made it easier to reduce the time taken in the collection cycle. Changes in the analytical and dissemination phases to increase efficiency were also identified and implemented.

19. The second most significant change was to the timeliness of the Economic Survey of Manufacturing, which improved by six working days. The improvements resulted from increased efficiency in the collection, analytical and dissemination phases. Response rates are maintained at the same level but are achieved in a shorter period of time along with efficiencies in the processing and analytical phases of the release process.

20. Most releases improved their timeliness by between one and three days. While these changes may not seem large, they were still welcomed by our user community.

## V. Quality and timeliness dilemma

21. Although most of New Zealand's economic statistics are quarterly, they can still be volatile and influenced by one off events that in larger economies may go statistically unnoticed. Hence interpretation can be difficult, and our experience suggests that this problem is worse for more frequent series.

22. Our small size compounds this from a sample survey design perspective. For example, a few significant businesses can drive the numbers in particular industries; outliers can be frequent; and changes in enterprise structures (takeovers, restructuring etc) can have a major impact on consistent time series, responses and the stability of the sample designs.

23. Most users understand these issues and while they may complain that it forces them to "drive looking through the rear mirror" they accept that monthly series may not be all that useful.

24. Users of official statistics generally feel that the availability of "short-term" indicator data (predominantly quarterly) is acceptable, although they strongly desire a quarterly income measure of GDP (and the underlying statistical data on profits) and better information about services. When faced with having to prioritise statistical developments, they emphasise that New Zealand has significant gaps in structural statistics. For example, although there are a number of lobbyists for a monthly CPI, users have very clearly indicated that this is not as high a priority as institutional sector accounts (which New Zealand does not have but are currently under development) and balance sheets. These gaps have gained even more visibility and attention as a result of the financial crisis.

25. Notwithstanding these stated priorities, Statistics New Zealand is intent on finding ways to provide more timely sub-annual series. Administrative data (data collected by organisations for operational purposes) seems to be a fruitful source, and offers the opportunity to provide complementary (to usual core statistics) and potentially timely information.

26. Local government administrative records on building and from customs entries for overseas trade have enabled the production of monthly series, and been available for many years.

27. Tax records also have considerable potential, but there are currently limitations to overcome, both in data quality and timeliness of supply. An experimental series derived from Goods and Services Tax (GST records) was produced for a period but has been withdrawn for quality reasons. However, tax data is used to replace survey records in annual collections and thereby reduce compliance costs for respondents, and to produce rich analytical databases such as the Linked Employee-Employer Database.

28. The Electronic Card Transactions series (where we have worked for the first time with the private sector to source such information) are now very well accepted and are our most timely indicator of economic activity. Statistics New Zealand has evaluated the performance of the series compared to the survey based monthly Retail Trade statistics and issues related to coverage and quality seem to be understood.

29. Overall, the user community has been very clear in their expectations that Statistics New Zealand will continue to maintain the quality of our current statistics while identifying and implementing timeliness gains. This has been a consistent message from our users over the last two decades and continues to be re-iterated today. They want reliable and relevant data to assess or forecast the performance of the economy and not have to second-guess official statistics due to data, methodology or process weaknesses.

30. This view can be partly attributed to users' previous experiences of "timeliness improvements" in key measures such as the examples, outlined in this document, of monthly Balance of Payments in the 1980s and "flash estimates" of Retail Trade earlier this decade. The volatility of the series, and, moreover, their reliability (as evidenced by subsequent revisions) caused considerable concern to users.

## **VI. Learning from the past**

### **A. Monthly Balance of Payments**

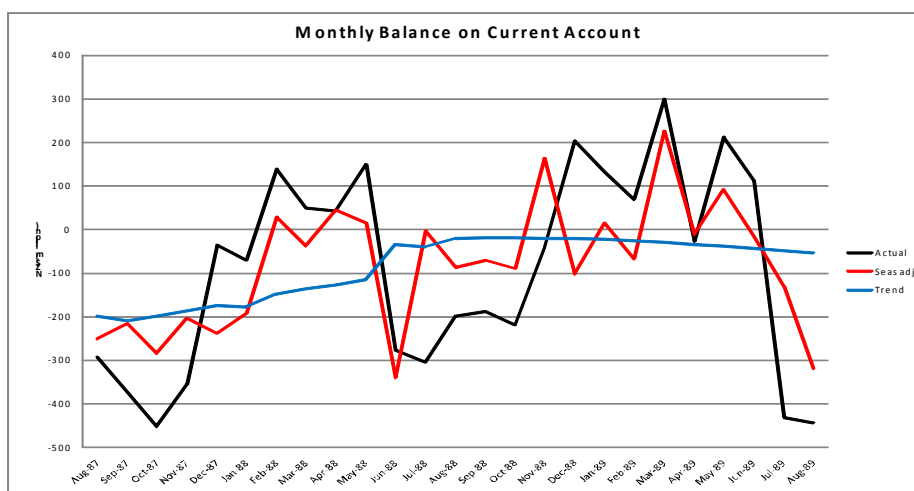
31. The late eighties was an interesting period in New Zealand's economic history. There were major economic reforms which included the removal of tariffs and foreign exchange controls, public asset sales and the world-wide share-market crash in October 1987. Following the share-market crash New Zealand experienced a deep recession.

32. It was rapidly changing and bleak time for New Zealand and the demand for accurate and timely statistics was high. The department was trying to keep up with the impact of the economic reforms on official statistics, particularly in the area of balance of payments where the key data source for non-merchandise trade transactions, Overseas Exchange Transactions (OET), disappeared overnight, as residents were no longer legally required to lodge their foreign exchange transactions with the Reserve Bank.

33. In May 1987, the Department of Statistics, with a focus on publishing leading indicators for key macro-economic statistics, began producing monthly balance of payments estimates in response to the need for more timely data. The monthly balance of payments series were constructed using the existing data sources at the time (which comprised monthly merchandise trade statistics and official sector information) and modelling the remaining components in between quarterly benchmarks. The schedule of releases meant that two months were usually published ahead of the last reference quarter, i.e. July and August months were released before the June quarter was finalised.

34. Building new monthly data sources was not within scope (most probably due to funding constraints) which proved a significant limitation as the introduction of the quarterly and annual benchmarks generated significant revisions to the unadjusted or actual series.

Graph 3  
Monthly balance on current account



35. The graph above shows the last published monthly data for the balance on current account. The volatility is evident. Table 2 shows the extent of revisions in the published series which tended to increase in size as more data became available. Almost half of all final revisions were more than 50 percent of the first published balance.

Table 1  
Current account balance revision analysis based on actuals (unadjusted)

	Period	First published balance	Amount of first revision		Amount of revision from first to last published number	
		\$NZ (million)	NZ\$(million)	Percent	NZ\$(million)	Percent
Maximum revision	June 88	16	332	2075.0	293	1831.3
Average revision	Mar 86-Jul 89	132	29.6	78.8	73.2	170.4

36. Over time the continual revisions and changing trend estimates undermined the confidence of users in the statistics, attracted media attention and damaged the reputation of the department. For a time, the department regularly featured in the media when large revisions were made to balance of payments statistics, usually describing them as errors. Cartoons featured in some newspapers questioning whether the department had any idea what the actual figures were.

37. The series was discontinued and since then the emphasis has been on maintaining the quality of the quarterly and annual statistics while trying to improve their timeliness.

## B. Retail Sales Indicator

38. In April 2000, an early estimate of monthly retail sales called the Retail Sales Indicator (RSI) was published on an experimental basis. It was compiled using results from retail trade survey (RTS) returns available at 20 days after the reference month. Research had indicated that a relatively stable indicator of the final retail trade total sales figure could be produced, which would show major changes in retail spending,

39. The RSI was produced for eight months. The differences between the retail sales indicator percentage movement and the final percentage movement for the retail trade survey are shown below.

Table 2

**Differences between Retail Sales Indicators and Retail Trade Survey**

	Retail Sales Indicator (RSI)	Retail Trade Survey (RTS)	
2000	% change from previous	period	Difference RSI/RTS
Mar	0.2	0	0.2
Apr	0.2	0.3	0.1
May	0.7	0.8	0.1
Jun	0.2	0.5	0.3
Jul	1.1	0.7	-0.4
Aug	1.5	1.1	-0.4
Sep	1.2	1.1	-0.1
Oct	-0.1	0.1	0

40. The RSI generally met the standards Statistics New Zealand had stated. As much information as possible about the limitations of the data was provided to users. Despite these caveats, Statistics New Zealand became concerned that the RSI was being used beyond its limitations. The variability in the size of the monthly change in retail sales was considered too big for reliable forecasting and monitoring of economic activity.

41. There were several reasons affecting this, including the imputation assumptions, the identification and treatment of ceased units, and the volatility of sales from month to month for a number of units. It was difficult to quantify the impact of these factors.

42. It was concluded that the integrity of official statistics was being called into question and the series was discontinued.

## VII. Usual revisions

43. It is standard practice to revise the core (and less timely) macro-economic series such as annual quarterly Gross Domestic Product (GDP), to incorporate better data and improved estimation methods (and for GDP, the usual supply/use balancing processes.) The impact of these types of revision need to be considered as well.

44. In late 2009, New Zealand's annual National Accounts were revised, as is always done annually at this time of year. These revisions, which were subsequently incorporated into the quarterly GDP estimates, changed the growth rates, particularly in the period (2006-2008) leading up and during the financial crisis.

45. Although, generally, there was little attention from analysts to these revisions, some did note that the economic picture had changed (revised figures for 2006, for example showed weaker growth than had previously been published) and that economic or financial



management decisions taken by both government and private sector institutions may have been different, if the revised data had been available at the time.

46. In future Statistics New Zealand is intending to provide better forewarning of upcoming revisions and more analysis of their impact historically. This is, in fact, an aspect of managing “timeliness” that can readily be improved.

## VIII. Conclusions

47. In challenging economic conditions, timely information is critical for users to make informed decisions and to respond accordingly. However, for small volatile economies such as New Zealand’s producing more frequent and timely (monthly, weekly or real time) statistics may not be the most appropriate way forward.

48. The experience of Statistics New Zealand demonstrates that the potential impacts on quality need to be considered carefully before improving the timeliness or frequency of key economic statistics.

49. The publication of monthly estimates and data which have subsequently needed significant revisions can impact a National Statistics Office’s reputation and undermine confidence in official statistics.

50. Too much volatility in the statistics, albeit that this might reflect real world events, can impede the usefulness of the statistics. As a small open economy, many of our quarterly economic indicators already contain more noise relative to other countries.

51. Identifying good monthly leading indicators is challenging. For New Zealand, resolving the timeliness/quality dilemma focuses on:

(a) Improving the timeliness of quarterly data;

(b) Making these quarterly statistics more robust and less subject to revision; and

(c) Attempting to fill timeliness gap by making available administrative data that has a wide population coverage which the users can manipulate themselves.

52. Releasing these more timely administratively-based statistics has proved to be a successful approach, along with improving our own efficiency.

53. Cost is also a relevant consideration. In a climate of fiscal constraint, it is necessary to establish priorities across improving timeliness, maintaining the quality and relevance of the existing portfolio of statistics and producing new measures to meet user demand.

54. Continuing strong and timely engagement and communication with the user community is essential. Engagement with them will assist in setting priorities for new or enhanced statistics, finding the balance between improving timeliness and quality, and allow them to be prepared for, to understand and assess the impact of, change (such as revisions) to key statistics.

55. This is not new. The financial crisis has simply brought again to the forefront the importance of these fundamentals.