Recent trends and developments in currency – 2010/2011

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This article reviews trends in the use of currency in New Zealand and reports developments of particular interest. The value of currency in circulation continues to grow, and there was a spike in the demand for cash after an earthquake hit Christchurch, one of New Zealand's largest cities. Coin demand also increased due to an increase in the Goods and Services Tax (GST) rate. New Zealanders use currency frequently for lower value transactions and are satisfied with its quality. The rate of counterfeiting is low in New Zealand by international standards. To maintain the quality of circulating banknotes, the Reserve Bank continually destroys and replaces ageing banknotes.

1 Introduction

One of the Reserve Bank's core functions is to supply the economy with currency, which comprises banknotes and coins. The Reserve Bank has the sole right to issue New Zealand physical currency and it is our obligation to maintain the supply, the quality, and the integrity of our currency. To do this, we closely monitor trends in demand for notes and coins. We also undertake banknote processing, both to maintain a high quality standard and to check the authenticity of notes in circulation. This article describes recent trends and developments in New Zealand's currency.

Section 2 focuses on the steadily growing demand for currency and the heightened demand following the Christchurch earthquake (see Box). Section 3 reports on cash use in New Zealand while section 4 reports on the Reserve Bank's banknote processing operation. The level of counterfeiting is described in section 5 and summarising comments are made in section 6.

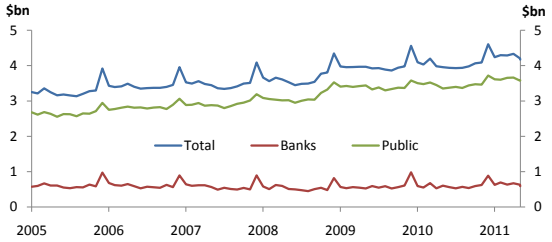
2 Notes and coins in circulation

The Reserve Bank needs to be able to meet the demand for cash in a timely manner so that any cash transactions can be carried out by private households, retailers and other businesses, as the need arises.

The New Zealand public's demand for currency is growing (as shown in Figure 1). In June 2011, the public (and businesses other than banks) held $4.2 billion of currency as compared to $3.9 billion in the previous year. Demand for currency is also seasonal and the spikes around Christmas in each year in Figure 1, when the Reserve Bank issues about $600m, reflect this.

Figure 1

Currency in circulation



Source: RBNZ.

In the year to June 2011, total currency in circulation increased by 6 percent (as shown in table 1). During the last five years, currency in circulation has risen by an average of 4.6 percent each year. Bank holdings of currency appear relatively stable. The value of currency held by the public was almost $3.6 billion in June 2011. The year prior to that, it was almost $3.4 billion. In the last 5 years, currency held by the public has increased by 27 percent.

Composition of banknotes in circulation

Figure 2 and table 2 show the composition of banknotes in circulation. The $20 notes make up the largest share with more than 44 percent of all notes in circulation. However, the $50 notes are becoming more popular at ATMs. In the year to June 2011, the number of $50 notes in circulation grew by over 10 percent. They make up 14.6 percent of notes in circulation. By value, $100 notes are the greatest proportion of notes in circulation.

In June 2011, about 132 million banknotes were in circulation, all of which had been issued by the Reserve Bank, at some point.

Table 1

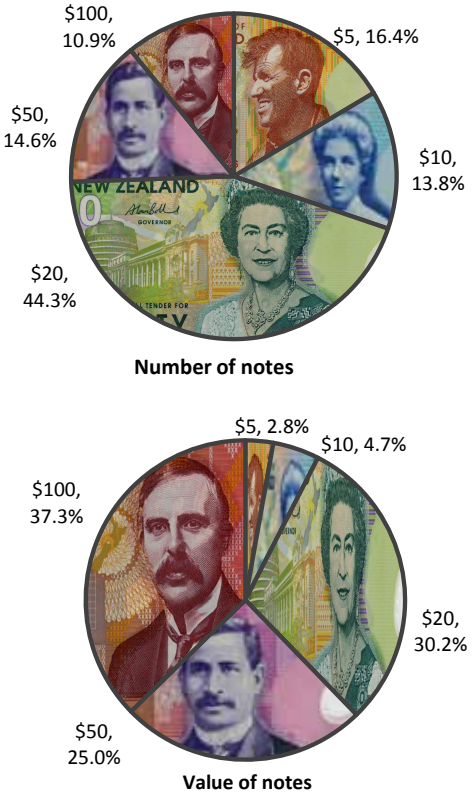
Value of currency in circulation ($m) and annual growth

	General Public	General public - annual growth	Banks	Total	Annual growth
Jun-06	2,819		529	3,348	
Jun-07	2,871	1.8%	490	3,360	0.4%
Jun-08	2,948	2.7%	499	3,447	2.6%
Jun-09	3,328	12.9%	594	3,922	13.8%
Jun-10	3,374	1.4%	564	3,937	0.4%
Jun-11	3,583	6.2%	588	4,171	6.0%
5-year growth	27%	5.0%	11%	25%	4.6%

Source: RBNZ.

Figure 2

Number of banknotes in circulation and value of banknotes in circulation – June 2011 as percent of total



Source: RBNZ.

Box 1

Christchurch earthquake

On 22 February, an earthquake of magnitude 6.3 struck Christchurch at a depth of 5km. It is New Zealand's worst natural disaster for at least 80 years, and 182 people died. The Reserve Bank received, and satisfied, several large orders for cash immediately after the quake. It demonstrated that meeting the demand for cash is an immediate priority after a disaster of this nature and magnitude.

In the weeks following the quake, the Reserve Bank issued about $145 million of cash. This is equivalent to about $350 per Christchurch resident. To put this in perspective, the Reserve Bank issued an average of $22 million in the month of February in the previous three years. Hence, the issues in response to the quake were about seven times the normal cash demand.

Demand for currency rose in all regions in New Zealand as people left the area affected by the quake. Initially, there was greater demand for $20 and $50 notes, as we had anticipated. However, a few days later, there was also demand for the lower denominations.

We are confident that the Reserve Bank holds sufficient reserves of all denominations of banknotes in order to be prepared for extreme demand hikes in case of emergencies such as earthquakes, pandemics, financial crises or events such as Y2K.

Figure 2

Number of banknotes in circulation and value of banknotes in circulation – June 2011 as percent of total

	Number (000)	Value $(000)	Annual growth in value over 2010/2011
$5	21,717	108,587	5.2%
$ 10	18,179	181,792	1.7%
$ 20	58,454	1,169,077	5.9%
$ 50	19,300	965,015	10.2%
100	14,418	1,441,755	3.8%
Total	132,068	3,866,226	5.3%

Source: RBNZ.

Coins in circulation

The number and face value of coins in circulation at the end of June 2011 are shown in table 3. On 30 June 2011, the value of coins in circulation was $305 million. This represents about 7 percent of currency (including banknotes) in circulation on the same day.

Since the introduction of the new copper and nickel-plated 10, 20, and 50 cent coins in July 2006, the demand for coins has been significantly above past levels. Before the introduction of the new coins, a large portion of coin issues was made up of 5 cent pieces. Figure 3 shows this by the red bars significantly exceeding the blue bars until 2006/7.

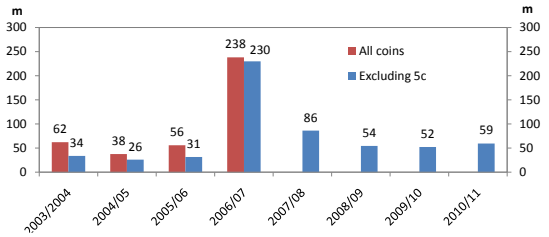
The exceptionally high demand for coins in 2006/07 was due to the need for banks, retailers, the vending industry and the general public to replace their active working stocks of coins. Demand for coins then tapered off until recently. In the year to June 2011, coin demand increased for the first time since the introduction of the new coins. This might be attributable to the Goods and Services Tax (GST) rate increase in October 2010, in so far as retailers may have increased their prices that were previously at or slightly below an even dollar amount, to a level just above an even dollar figure. To provide the appropriate change, more coins would have been needed by retailers.

In the year to June 2011, 59 million coins were issued by the Reserve Bank, which is more than in the June year 2005/06, when 5 cent coins were still being issued.

Even apart from those GST-driven issues, the issues of 10 cent to $2 coins have not yet reverted to the lower levels prevailing before the introduction of the new coins. This indicates that people are still tending to accumulate coins in jars, money boxes and other locations.

Figure 3

Number of coins issued



Source: RBNZ.

Table 3

Coins in circulation

	Number of coins (000)	Face value $(000)	Face Value Annual growth (%)
c10	176,544	17,654	14.6%
c20	155,756	31,151	12.4%
c50	69,234	34,617	9.0%
$ 1	80,620	80,620	5.8%
$ 2	70,569	141,138	3.8%
Total	552,722	305,181	6.3%

Source: RBNZ.

Currency Survey

In 2010, the Reserve Bank commissioned The Nielsen Company to carry out a survey on the use of currency among consumers and retailers. The survey was held online with 1000 consumers, and 288 retailers filled in a paper based questionnaire.[1]

As discussed further below, there is a sizeable proportion of notes in circulation (59 percent of the total) for which the currency survey could not account. There are several possible explanations for this. The survey was internet-based and people who use cash may have been under-represented. The $50 and $100 notes are over-represented among those not accounted for by the surveys. People who hold large amounts of high denomination banknotes may have chosen not to participate in the survey. Other notes may be lost, taken overseas, or be in use in the black economy. Either way, while the sample in the currency survey may not be fully representative, it does offer some useful insights to the Reserve Bank about people's perspectives and behaviours as regards currency.

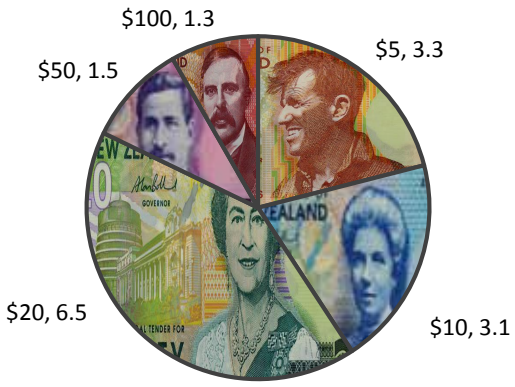
The consumers' survey collected information on both the individual holdings of the respondent and of the total currency holdings of the households of which the respondent was a part.

Taking the responses in relation to households first, such households were found to hold an average of 15.8 banknotes, which equates to an average of 5.5 banknotes per person. If the survey were representative, such household holdings, when scaled up, would comprise a total number of 22.9 million banknotes being held by households in New Zealand. The most commonly held note was the $20 note. On average, households held almost 6.5 $20 notes. Figure 4 shows that New Zealand households hold fewer $100 notes than any of the other denominations.

The average individual respondent holds 2.3 $20 notes while only holding 0.4 $100 notes. In value, the average household sampled holds around $383 while the average respondent holds about $134.

Figure 4

Average holdings of banknotes per household



Source: RBNZ.

The results of the survey indicate that 51 percent of the banknotes held by households are held for day-to-day transactional purposes. A further 40 percent are stored in jars, money boxes, cars, or similar places around the home. More than half of the people surveyed who keep notes in storage inside the home stated that they hold those cash stores for emergencies.

The retailers' survey showed that retail businesses hold an average of 141 notes. Among those sampled, 58 percent are held as floats while the remainder are held in storage. The greatest value is held in $20 notes while the most notes are held in the $5 denomination. Retailers hold very few $50 and $100 notes.

As figure 1 showed, banks hold a significant share of currency in circulation. In 2010, they held about $580 million or 14 percent of the value of all currency in circulation. The majority of notes held by banks are $20 notes. The Reserve Bank estimates that Banks hold 25 million banknotes, which is about 18 percent of all notes in circulation.

As stated above, about 132 million banknotes are currently in circulation, with only about 54 million (or 41 percent) accounted for by households, businesses, and banks.

An even smaller share of banknotes than those surveyed is actively circulating among the general public. To the extent that the survey is representative, consumers would use 11.6 million banknotes for day-to-day transactions; retailers hold 3.6 million banknotes in their floats. This makes up just over 11 percent of notes in circulation.

[1] **The entire survey can be obtained from the Reserve Bank website: http://www.rbnz.govt.nz/currency/banknoteupgrade/index.html.**

3 Cash use in New Zealand

The 2010 currency survey undertaken by the Nielsen Company on behalf of the Reserve Bank explored the payment behaviour of New Zealanders. The Reserve Bank wanted to find out how and how often respondents obtained cash and how they used it as compared to other means of payment. The survey did not consider cash use in the context of households, focusing instead on the behaviours of the respondents.

The survey found that the most common method of obtaining cash was via an ATM. Thirty-eight percent of consumers are using an ATM weekly or more often. This was followed by getting cash in connection with a purchase. Nineteen percent of consumers do this weekly or more often.

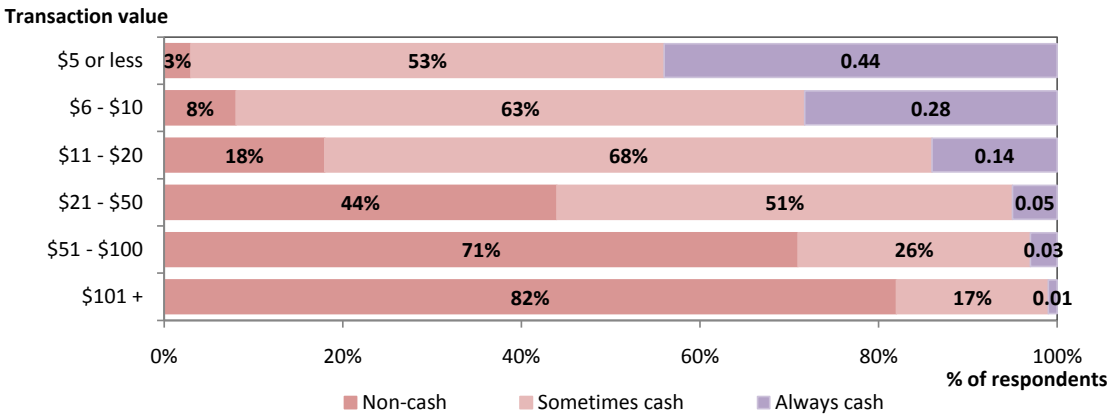
The Reserve Bank is also interested in the payment preferences of the public because it helps us to identify trends and anticipate changes in demand for cash. There are several reasons people continue to prefer cash. Cash can simply be quicker and more convenient in some circumstances, particularly for small transactions. Also, cash works in emergencies, when electricity outages might stop electronic methods of payment. Further, cash is generally accepted whereas some stores do not accept Eftpos or credit cards. Another advantage of cash is that transactions are anonymous and not traceable. The survey shows that preferences for using cash or other means of payment depend on the value of the transaction. The greater the value of the transaction, the greater is the likelihood that people will or would use non-cash methods of payment. Figure 5 shows this.

Almost all respondents "always or sometimes" use cash for purchases of $5 or less. More than nine in 10 "always or sometimes" use cash for purchases of $6 to $10 in value. For transaction values of between to $11 and $20, the method of payment varies with similar proportions of people "always and never" using cash. Transactions with a higher value than $20 are much less likely to be conducted in cash. Those aged 50 years and older are significantly more likely than the total population to use cash for all purchases with a value of $20 and under (not shown in figure 5).

The survey also established how many cash transactions people made on average and what the average value of those transactions was. On average, people make five cash transactions a week (less than one a day). Almost two thirds of people make between one and five cash transactions a week while 6 percent claim to do none. Almost three quarters of people said that their average cash transaction value was between $5 and $50, while 15 percent of people claimed that their average value of cash transactions was below $5.

By combining these facts, we have estimated the average weekly cash expenditure. Figure 6 summarises the results. A cluster of consumers that fall into the $21 to $200 category. One in eight people report to have no weekly cash expenditure. The average value of weekly cash transactions

Figure 5
Preferred method of payment

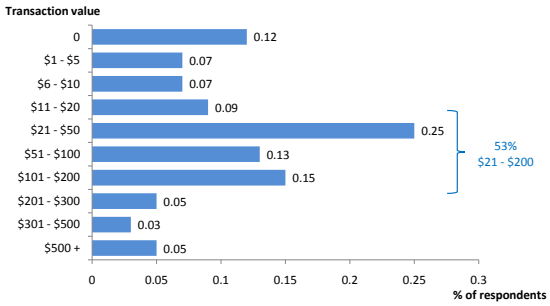


Source: RBNZ.

found in the survey is the same as the average amount of cash that consumers report receiving weekly from all sources ($130). This consistency supports the validity of survey data.

Figure 6

Average value of weekly cash transactions



Source: RBNZ.

4 Banknote processing

A key currency function of the Reserve Bank is to maintain a high quality of circulating banknotes. This objective is achieved by quality testing them, a process known as 'note processing'. Maintaining a high standard of banknotes is vital for several reasons. Good quality banknotes are easier to handle for retailers and the general public – and by cash handling equipment. This benefits everyone who uses them. On the other hand, poor quality banknotes are more difficult to authenticate, which could lead to an increase in counterfeiting activity. Hence, note processing assists in the handling of notes by retailers and the public and is a preventative measure against counterfeiting.

Note processing

In the 12 months to June 2011, the Reserve Bank received 51.6 million surplus and unfit notes from banks. Of these, 22 million were machine processed by the Reserve Bank's note processing machine. Machine processing identifies low quality notes and destroys the notes automatically. The note-processing machine also authenticates the notes, ie, checks for counterfeits. Hence, machine processing is an important instrument for the Reserve Bank to maintain high note quality as well as checking for counterfeits. In the year to June 2011, the Reserve Bank destroyed 15.5 million banknotes that were below the Reserve Bank's quality standard.

Banknotes are destroyed when they show structural damage such as holes, tears, or soiling, when the security features are damaged, or when the printed image is starting to fade. New Zealand's banknotes are made from polymer. These notes are more durable than paper notes and hence are more cost effective. Polymer notes however, eventually suffer from ink wear. Over time, the printed images on the notes fade with their extended use. The lower value notes are more affected by this condition because they are handled more frequently and are returned to banks for quality sorting less often.

Table 4 shows that the Reserve Bank destroyed 15.5 million banknotes in 2010/11, or about 12 percent of polymer notes in circulation in that year. When New Zealand used paper notes, the destruction rate was 60 percent of notes in circulation. That would represent 75 million notes in 2011. This is an effective reduction of more than 60 million notes that would otherwise be destroyed and replaced by new notes.

Only 3 percent of the $100 notes were destroyed in the last year, which makes them the least destroyed notes. It is the highest value note and it appears to be used more for storing value rather than for transactional purposes. Hence, it is not handled as much as other notes and is less affected by ink wear and other structural damage.

The $10 note is the most frequently destroyed, in percentage terms of notes in circulation. The Reserve Bank destroyed 21.6 percent of the circulating $10 notes in the year to June 2011.

In the responses to the 2010 currency survey, about 80 percent of consumers and retailers said they were happy with the condition of the notes of value $10 and higher. 57 percent of consumers and 76 percent of retailers were unhappy with the condition of the $5 note. As noted further below, the Reserve Bank continues to take steps to improve the quality of notes in circulation.

In any event, the retail survey showed that low note quality had negative implications for businesses. 22 percent of retailers pointed out that poor note quality either slows down note counting or made the processing of notes difficult. Further, 11 percent of respondents said they did not

Table 4

Destruction of polymer notes from July 2010 to June 2011 and paper notes in 1998

(000)	$5	$10	$20	$50	$100	Total
Polymer notes destroyed	2,676	3,398	7,655	1,355	424	15,507
Average polymer notes in circulation	17,346	15,765	58,369	18,681	14,032	124,193
Notes destroyed as % in circulation	15.4%	21.6%	13.1%	7.3%	3.0%	12.5%
Paper notes destroyed (1998)	7,871	12,599	18,024	1,951	870	41,315
Average paper notes in circulation	11,592	12,300	32,092	7,275	4,575	67,834
Notes destroyed as % in circulation	67.9%	102.4%	56.2%	26.8%	19.0%	60.9%

Source: RBNZ.

pass on damaged notes to customers and they had to make additional trips to the bank as soon as possible to deposit and replace damaged notes.

The Reserve Bank addresses this issue with regular $5 note swaps. In 2009 and 2010, the Reserve Bank contracted the cash in transit companies that conduct banknote processing to replace 2.76 million worn $5 notes with brand new ones. The Reserve Bank then processed the used notes and found 1.37 million or 50 percent of them unfit. The Reserve Bank is currently undertaking a similar exercise, issuing 2.4 million new $5 notes into circulation.

5 Counterfeiting

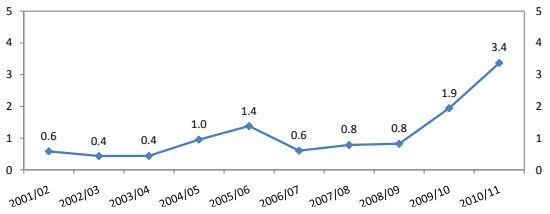
The third objective of the Reserve Bank's currency function is to maintain the integrity of currency. Internationally, this is measured as a rate showing counterfeits found per million notes in circulation. It is the Reserve Bank's target to have fewer than 10 counterfeits per million notes in circulation. The Reserve Bank has met this target comfortably since the introduction of polymer banknotes in 1999. Prior to this, New Zealand experienced a peak in counterfeiting. The counterfeiting rate reached almost 20 counterfeits per million notes in circulation in 1997.

Counterfeits are identified via three main methods; in the Reserve Bank's own machine processing, in cash in transit companies' machine processing, via the return of counterfeits by the general public and retailers to the police. The counterfeiting rate in New Zealand includes counterfeits from all sources. As shown in figure 8, in the year to June 2011, the counterfeiting rate rose to 3.4 per million notes in circulation from the level of 1.9 per million in the previous year. Although this constitutes a noticeable increase, the rates remain very low by international standards and the Reserve Bank is confident of the integrity of its banknotes.

The Reserve Bank constantly strives to improve the quality of its banknotes, using state of the art techniques to do so. Nonetheless, the Reserve Bank also advises people to visually inspect notes before accepting them, especially the higher value notes, if they have any suspicions about their authenticity. The best security feature to check is the clear window with the embossed value in it. The plastic feel of the genuine notes is also a distinctive feature.

Figure 7

Counterfeits per million notes in circulation



Source: RBNZ.

6 Summary

Banknotes and coins are still an important means for conducting transactions in New Zealand. The stock of currency in circulation is still growing steadily despite continuing technological advances in other payments media. The Reserve Bank is committed to being able to meet currency demands, even quite extreme ones, as and when they arise – for example, following the February 2011 earthquake in Christchurch. It is very important that the Reserve Bank hold emergency reserves of currency. The Reserve Bank continues to meet the demand for cash and

note quality remains high. New Zealanders continue to use currency regularly and the public has confidence in the currency, as counterfeiting levels are low by international standards.