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## Brother, can you spare a dime? Perspectives on the financial meltdown of 2008

### FROM THE editor

#### Welcome to Issue 22 of EcoNZ@Otago!

As most readers know already, *EcoNZ@Otago* is a magazine about contemporary economic issues, published by the University of Otago's Department of Economics.

The contents of the previous 21 issues of *EcoNZ@Otago* are listed at the back of this issue, and single issues are available on request (our addresses are below).

If there are any economic issues that you would like examined in a future issue of *EcoNZ@Otago*, then please email your suggestions to econz@otago.ac.nz.

Alternatively you can write to *EcoNZ@Otago*, Department of Economics, University of Otago, PO Box 56, Dunedin.

This is my last issue in charge. I would like to thank authors who have contributed articles and Chris Haig, Paul Hansen and Dorian Owen for invaluable editorial assistance.

Niven Winchester

#### Rick Garside

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During the latter part of 2008 the industrialised world seemed threatened with a second Great Depression. The signs were ominous: stock market collapses, severe banking crises and panic. The USA, most of mainland Europe, Australasia, and countries as far apart as Argentina and Iceland were clamouring for international funding to prop up both banks and large corporations including America's giant auto manufacturers. It seemed as if the capitalist system – or more precisely financial capitalism – had buckled under the weight of its own excesses.



Financial turbulence is not new. It has been an endemic feature of capitalism for centuries. Even if we limit ourselves to recent decades, there were 117 episodes of systemic banking crises spread over 93 countries during the period 1970-2002. Notable examples were in Norway, Finland and Sweden in the early 1990s and in Japan later that decade. All were associated with poor financial deregulation, excessive real estate borrowing, and the collapse of consumer spending and output once asset bubbles were pricked. Faced with financial meltdown in the early 1990s, Sweden acted promptly to take over its troubled banks and recovered relatively quickly. Japan, on the other hand, engaged in denial and forbearance and suffered a decade and more from over-indebtedness, deflation and lower trend growth. It is estimated that the output loss caused by banking crises was 71% of a year's GDP in Japan 1991-2001 and 10% in Finland 1991-94, compared to 2.1% in Sweden 1991-94 (Barrell & Davis, 2008).

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## Financial panic

To most observers the international financial meltdown in 2008 was a direct result of suspect non-risk-averse lending in America. Its origins, however, were more distant and systemic. At one level it seemed as if history was repeating itself. What transformed an economic recession in the USA in the early 1930s into a worldwide depression was the fragile operation of financial markets. By mid-1931 deflationary pressure and the rising scale of indebtedness threatened the solvency of banks in America and Europe. Fettered to the gold standard, governments engaged in a scramble for liquidity in an effort to sustain reserves and the fixed value of their currencies. As uncertainty mounted customers and investors panicked. Banks failed in America and Austria and international confidence weakened further. Financial contagion spread the problem of debtor countries to creditor nations as governments, locked in to the orthodoxy of balanced budgets and non-intervention, looked on almost helplessly as unemployment rose and output and prices collapsed (Garside, 2007). The 1930s certainly proffer one telling lesson: that a collapse of confidence can wreak havoc with the functioning and stability of the financial system and usher in deep and lasting depression.

The panic which swept through the industrialised world in 2008 likewise reflected a crisis of confidence. Its origins lay in a decade or more of extraordinarily cheap money within the global economy fed by the huge foreign exchange reserves of countries such as China (and Japan before it). America's decision in 1971 to suspend the dollar's convertibility to gold and thereby render redundant the international fixed-exchange regime developed at Bretton Woods in 1944 encouraged large and often speculative shifts in international capital. High levels of global liquidity emerged. The foreign exchange reserves of emerging economies rose fivefold between 1999 and 2008, from around \$1 trillion to just over \$5 trillion (*The Financial Times*, 22 January 2008). Both China and Japan kept alive their export-led growth by maintaining export surpluses with the USA, exchanging their dollars not for their own currencies but for US Treasury Bills. The vast accumulation of Asian reserves in US dollars meant that America was under little pressure to raise interest rates and/or taxes to deal with its mounting budget deficit, setting the stage for a huge housing asset bubble. More generally, excess savings in Asian markets were readily available to finance spending in the West.

## Cheap money and risky borrowing

As global long-term interest rates fell after 2001 to probably one percentage point below their level of the previous decade (Barrel & Davis, 2008) an orgy of credit developed. Banks and institutional investors engaged in increasingly dubious and risky financial transactions, especially in structured products geared to real estate, engaging borrowers who would in earlier years have been excluded from or rationed within the loans market. Lax monetary policy reduced long-run real interest rates in the US and the UK from four percent in 1994 to around two percent in 2006. Ultimately, access to cheap credit

raised the price of housing and other assets, encouraging consumers in America and Britain especially to continue their spending spree. Household debt rose significantly as a percentage of total disposable income.

Years of low inflation and economic stability prior to 2000 had reduced the perception of risk. This was eerily reminiscent of Japan in the 1990s. Japan's financial liberalisation a decade earlier had encouraged corporations to seek funds from international rather than traditional domestic sources. The banks, anxious to sustain profits, began to court a wider but riskier customer base. Low cost lending ballooned on the back of dubious collateral values in land and real estate, creating the speculative financial bubble whose eventual collapse dragged down the entire economy.

In Japan in the 1980s and in America, the UK, Spain and elsewhere from 2000, monetary policy remained too loose (i.e., interest rates were too low) for too long. This encouraged a credit binge but one without adequate regulatory supervision and control by central banks. When interest rates began to rise and house prices fall in the USA in 2007 the scale of the sub-prime crisis – the potential losses arising from having extended loans to those with little hope of repaying in more straitened times – threatened the solvency of major financial institutions not only within the USA but in those countries across the globe whose portfolio of loans had become dangerously dependent upon the flow of mortgage-backed securities.

## Government intervention

When the already serious crisis of liquidity turned into a crisis of solvency towards the end of 2008, matters worsened considerably. America's virtual nationalisation of the mortgage (and much of the banking and insurance) sector and the UK's recapitalisation of its banking sector reflected the urgent need to provide the financial means to sustain lending and to prevent a crisis of confidence. No country wanted to risk a run on the banks. The financial tourniquet was both timely and necessary but in itself insufficient.

Despite the nature and magnitude of government assistance, which was itself unprecedented, not least in America (that bastion of free market economics) financial institutions stubbornly refused either to lend to one another or to the public at large, anxious as they were to improve their damaged balance sheets. With flows of capital between banks and companies severely constrained during the latter part of 2008, major exporting countries such as China, Germany and Japan which had become increasingly dependent in recent years on export and investment demand from overseas (itself dependent upon credit-backed consumption) stood aghast at the prospect of a major downturn in international spending. Governments had to act swiftly to stem the deflationary cycle. America quickly turned away from buying distressed mortgage-backed securities and followed the British example of buying equity stakes in troubled banks. It was vital to support demand and at the same time enable businesses large and small to grasp a life-line of liquidity.

## Consuming spending and jobs

The spectre of debt deflation lurked. Businesses were responding to falling demand by cutting output and jobs; consumers were delaying spending in the hope that falling prices would fall even further. As employment prospects worsened towards the end of 2008 governments grew increasingly concerned that even their financial assistance was failing to sustain confidence and demand. Consumers became even more wary of what Keynes warned in the 1930s: that, unless governments intervened to offset the reluctance of banks to lend and consumers to spend, countries would slide into a deep and lasting depression, the costs of which would outweigh the niceties of fiscal probity.

It was already clear from the experience of the 1930s and Japan in the 1990s that financial contagion could impact upon the real economy with devastating and lasting effects on employment, output and growth in the medium to long term. Authorities needed to act quickly and confidently to stem distrust and minimise the cost of recuperative action. Faced with the prospect of cumulative deflation in an integrated and interdependent world, many governments in 2008 abandoned their otherwise deep-seated opposition to fiscal stimulus, realising that only they could sustain aggregate demand on the scale and for the duration required. Fortunately parallel reductions in the price of key commodities, itself a reflection of economic downturn, removed the immediate threat of severe inflation. Nations had to consider what mix of monetary and fiscal boost might be most appropriate – tax cuts or infrastructure spending for instance – and all were mindful of the huge indebtedness that they carried into future tax years and against unknown cyclical scenarios. There were risks. Consumers can be perverse, choosing to save rather than spend; public investment boosts are slow to impact and do not always advantage the sectors most in need of revival.

But few governments were prepared to face the consequences of not acting. A recent IMF study of banking crises across 37 countries between 1970 and 2007 illustrates how damaging piecemeal, tactical crisis containment has been to the economic and financial health of the nations involved. Regulatory acquiescence and the privileging of stability over cost – hallmarks of Japan's response to its financial hubris of the 1990s – are paltry responses once production, employment and growth are at risk. It is then that comprehensive government action involving the direct use of public money comes into its own (Leaven & Valencia, 2008).

## Intervention vs the free market

In consequence, economists and policymakers are engaged in a familiar but now energised discussion as to the appropriate roles of the government and the market in sustaining financial and macroeconomic stability. Few deny the need for greater transparency and supervision in

credit dealings. The dominance of money capital from the 1970s, combined with lax monetary policy, fostered easy credit and the spread of dubious financial instruments, the volatility of which shattered confidence, liquidity and stability across the industrialised world.

The danger is that the clarion call for greater regulation might be overdone, stymieing the competitive risk-taking and entrepreneurial spirits of the free-market economy. When Keynes in the 1930s called for a 'socialisation of investment' he implied only that the state should be prepared when necessary to augment private investment sufficiently to restore full employment. He was concerned less with planning the capitalist system than in providing the means whereby it might be reinvigorated. Whether states can rescue capitalism from its worst excesses remains to be seen but faith in the 'invisible hand' of the market has certainly been badly bruised.

## Questions to consider

1. Why might a decrease in interest rates stimulate economic activity?
2. What is meant by 'loose monetary policy'? What part did it play in the unfolding of the international financial crisis in 2008?
3. 'The best way to tackle banking crises is to let weak banks fail; lending them more money only makes matters worse.' Consider this statement in light of international events during the second half of 2008.
4. Why did so many governments in the industrialised world engage in fiscal stimulus towards the end of 2008? What are the likely consequences of such action?
5. Are financial crises an endemic part of capitalism?

## Further reading

Financial crises are detailed in Kindleberger (2005).

## Useful websites

Several articles on the current financial crises are available at [www.economist.com](http://www.economist.com) and [www.internationaleconomicsnet/crises](http://www.internationaleconomicsnet/crises)

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# It's all bright here! Sunshine and insulation in Dunedin houses

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In 1978 local authorities in New Zealand implemented building codes that made insulation in the ceiling, walls and floors mandatory in new houses. Before this, almost all houses were built with little or no insulation. Without insulation, outside temperatures have a big effect on indoor environments. Owners of older houses cope with cold weather in a variety of ways. In the short run they heat only the rooms they're in, wear their thermals and put up with discomfort. Over time they purchase more efficient heaters, retro-fit insulation and, when it comes time to move, look for a house with better insulation and/or better exposure to the sun. Of interest is how much better insulation and exposure to the sun are worth to home buyers.



We address this question by analysing the sale prices of houses. The basic idea is fairly simple. A house is a 'heterogeneous' good, which consists of a bundle of characteristics: its age, condition, floor area, proximity to work and shopping, neighbourhood quality and so on. Some of these characteristics have an *explicit* price when the house is being built. For example, the builder or architect can tell you how much each additional square metre of floor space will cost. But the prices of other characteristics of new houses and of all of the characteristics of used houses are *implicit*: they are included in the sale price of the house but not directly observable.

The price of a sunny exposure is an example of an implicit price. The prices of many houses and sections are determined through negotiation or some form of auction. Each person interested in buying the house makes an offer or bid. In making that offer, the bidder takes into account all of the characteristics of the house or section that matter to her. In the end, the winning bidder is the person who most values the bundle of characteristics of that house or section. Exposure to the sun is one of those characteristics, and so potentially influences the winning bid. The sale price therefore reflects the market value of exposure to the sun, but we don't observe that value directly because it is bundled together with the values of the other characteristics.

Though impossible to observe directly, implicit prices are of interest to a variety of people. A home seller, for example, might be interested to know the implicit market value of a refurbished kitchen: should she refurbish the kitchen before putting the house on the market or leave it like it is? Local policymakers are interested because the value of some policies or projects 'capitalise' into house prices: how much more, for example, are people willing to pay to live near a park or in a safer neighbourhood?

We can estimate the implicit price of a particular house characteristic by looking at how sale prices vary as that characteristic varies across houses. Suppose, for example, that a 1950s bungalow with 140 square metres of floor space sells for \$250,000, and an *otherwise similar* bungalow with 160 metres of floor space sells for \$270,000. This suggests that the implicit price of 20 additional metres of floor space in these older houses is \$20,000. Of course, these two sales might not be representative, so it would be better to look at additional sales. And most houses differ on more than just one characteristic. Consequently, we analyse a large number of house sales using multiple regression analysis. Related studies include Dinan and Miranowski (1989) and Nevin and Watson (1998).

## Data

The data consist of observations on 460 house sales in Dunedin. There are two critical attributes of the data. The first is that exposure to the sun varies considerably across the houses in the sample. Dunedin developed around its harbour, which was created long ago when rising sea levels flooded the caldera of an ancient volcano. Commercial and industrial areas occupy the relatively flat land near the harbour. Single-family residential areas consequently occupy the eroded slopes of the volcano walls. Variation in the orientation and slope of residential land generates variation in potential daily exposure to the winter sun ranging across the house sales we observe from about 3½ to 8½ hours, though 98% of these houses see the sun for at least 4½ hours.

We measure exposure to the sun using a special digital mapping program, known as a geographic information system (GIS), that uses elevation data to create a map of the horizon as seen from any Dunedin location, and then calculates the number of minutes the sun appears above the horizon at midwinter. This is not, of course, a perfect measure of the amount of solar energy that enters the house because the GIS program does not consider shading by clouds, buildings or trees or variation in the size and orientation of windows. Clouds, for example, obscure the sun about 60% of the time in winter. But the sun appears most days and our measure captures pretty well the *relative* variation in exposure to the sun across houses.

The second critical aspect of the data is that insulation varies across the sample. Clark et al. (2005) report the results from a survey of 565 houses in Auckland, Wellington, and Christchurch in 2005. While 69% of ceilings were found to be fully insulated, in only 29% of the sample were all the walls insulated, which corresponds to the 29% of the sample that were built since 1980. An additional 15% had some walls insulated, usually those in recent additions or renovations, and only 18% of floors were fully insulated. Though we do not measure insulation directly we can reasonably assume that a house built before 1980 is insulated poorly relative to a house built after 1980.

Consequently, we split our data set into two samples. One sample consists of observations on 230 sales in 2005 of detached single-family houses built before 1980. The other sample consists of the same number of sales from 2002 through to 2005 of houses built between 1980 and 1999, i.e., after insulation requirements were implemented. We sampled newer houses over four years, instead of just one year, because there are relatively few newer houses in the central parts of Dunedin. The longer time period gives us a larger sample of insulated houses. The samples are the same size because we randomly chose the same numbers of older uninsulated houses and newer insulated houses from each of the 24 census area units in the hilly and predominantly owner-occupied residential areas that surround the Dunedin CBD. No house appears more than once in the sample even if it sold more than once over the time period; we eliminated all but the most recent sale.

In addition to our test variables – hours exposed to the sun and whether the house was built before or after 1980 – we have several control variables: date of sale, floor area, section size, distance from the CBD, distance from the beach, median household income in each census mesh block, which proxies for neighbourhood characteristics, and an admittedly crude measure of the quality of the view. We include these variables in our multiple regression because they are correlated with our test variables. For example, distance from the CBD and beach, neighbourhood income, and view quality are all positively correlated with hours exposed to the sun. Leaving these control variables out of the multiple regression would bias upward our estimate of the implicit price of an additional hour of sun; it would reflect the value of proximity, neighbourhood quality, and view in addition to exposure to the sun.

## Results

Our main result is that the estimate of the market value of an additional hour of sun is significantly higher in the sample of poorly insulated houses. The point estimate indicates that the buyers of houses built before 1980 paid on average about 3.9% more for each additional hour of exposure to the sun. This is a significant amount. The median sale price in 2005 was about \$220,000 and 3.9% of that is \$8,580, an amount that increases mortgage payments by about \$60 per month assuming a 7% mortgage amortised over 25 years. So, moving from a house that gets 4½ hours of sun to one that gets 7½ hours costs about \$50 more per week on average.

In contrast, buyers of the better insulated houses built since 1980 paid on average less than 1% per additional hour of sun. These estimates indicate that though it's nice to get more sun even in insulated houses, solar heating is indeed more important to the purchasers of older poorly insulated houses.

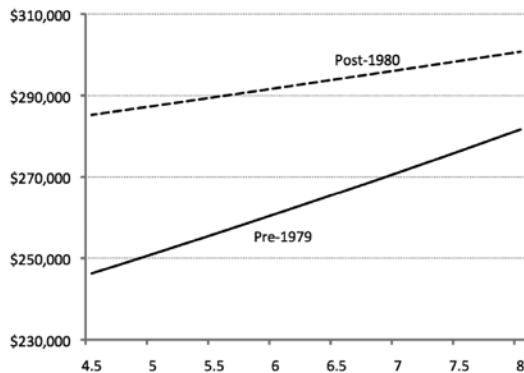
Important to note is the precision of these estimates. The standard error of the estimated effect of hours of sun on the sale prices of uninsulated houses is about 1.6%. This implies that we can be '95% confident' that the actual implicit price is between about 1.3% and 5.5%, a pretty big range. The standard error of the price effect on insulated houses is even bigger at about 2.5%, yielding a 95% confidence interval of from -4% to +6%. The implicit price of an additional hour of sun when the house is insulated is statistically insignificant; we can't be very confident that solar exposure has any effect on the price of insulated houses.

There are a couple more points to note. First, the estimated implicit prices of the other house and neighbourhood characteristics we measure seem reasonable. For example, an otherwise similar house closer to the CBD or in a higher-income neighbourhood commands a higher price. Second, the percentage price effect of hours of sun is linear; each additional hour has about the same percentage effect on sale prices.

## The value of insulation

We can use our regression results to investigate the financial trade-offs home buyers implicitly make between insulation and exposure to the sun. Figure 1 shows our model's prediction of average sale price as a function of hours exposed to the mid-winter sun for two houses, one built before and the other after insulation requirements were implemented. All other observed characteristics are the same for each house.<sup>1</sup>

Figure 1. Sale prices and hours of sun



What can we learn from this graph? First, the newer well-insulated houses tend to sell for higher prices than older poorly-insulated houses regardless of exposure to the sun. For example, in a location exposed to only 4.5 hours of sun, a newer insulated house commands a premium of about \$39,000 over an older poorly-insulated house. Can we conclude that this is the value of insulation? Not with much confidence, in part because there may be additional characteristics that differ across newer and older houses and that affect sale prices but that we don't observe. For example, newer houses have not suffered as much wear and tear as older houses. The new-house premium reflects their better overall condition. So, the vertical distance between the curves in Figure 1 probably represents an 'upper bound' on the value of insulation.

We also learn that home buyers substitute better exposure to the sun for lack of insulation. The discount on a poorly insulated house falls by about \$20,000 as exposure to the sun rises from 4.5 hours to 8 hours. To put it another way, the buyers of insulated houses are willing to pay \$20,000 less than the buyers of poorly insulated houses to move from a shady to a sunny location. This \$20,000 drop arguably represents a lower bound on the value of insulation in shady areas.

This raises the question of why the owners of older homes don't invest more in insulation. The 2005 survey of houses indicates that most home owners invest in ceiling insulation. This makes financial sense because about 40% of heat escapes through the ceiling in an uninsulated house and most ceilings are relatively cheap and easy to insulate. Floors are rarely insulated, perhaps because only about 10% of heat escapes through the floor, and insulating floors is somewhat more difficult and expensive than insulating ceilings. About 25% of heat escapes through the walls, but retro-fitting wall insulation can be very expensive as it typically requires that wall cladding be removed and replaced.

## Questions to consider

1. Can you think of factors other than financial ones that might affect a home owner's decision about whether to improve insulation?
2. Is there a case for government subsidies for retro-fitting insulation in older houses? For example, can you identify external benefits, i.e., benefits of insulated houses that accrue to people other than those who live in the house?
3. Our results indicate that home buyers are willing to pay more for a house in a sunnier location, holding all other house characteristics constant. Do you think exposure to the sun might have affected home builders' decisions about any of those other house characteristics? That is, might exposure to the sun have affected the characteristics of residential development?

## Further reading

You can learn more about hedonic price studies in Taylor (2003).

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<sup>1</sup> The house has 160 m<sup>2</sup> of floor space, 650 m<sup>2</sup> of land area, is 3.5 km from the CBD, not close to the beach, without a view, and in a neighbourhood of median household income.

# Does immigration raise house prices? A question of correlation and causation

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International migration is an important socio-economic phenomenon for most countries. A large body of research has focused on immigrant outcomes – what happens to migrants in their new countries? How long do they settle? Are they 'better off' socially and economically? One stream of migration research at Motu Economic and Public Policy Research, led by Steven Stillman and David C. Maré, focuses on the impact of immigration on the New Zealand born population and on earlier migrants. This work has explored whether immigration affects where New Zealanders choose to live, and whether it reduces employment opportunities or wages for New Zealanders. In both cases, it appears that immigration has little impact. This article focuses on immigration and house prices. For this question, it takes a little longer to untangle the factors involved.

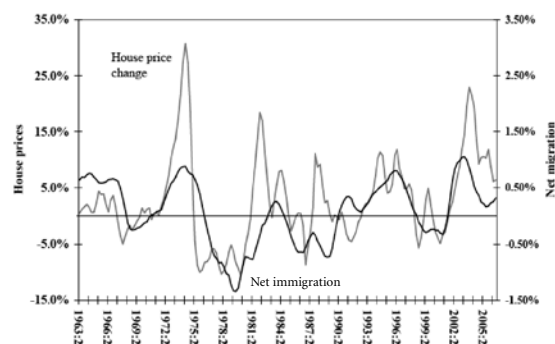


## The big picture

Migration in and out of New Zealand creates significant fluctuations in housing demand. Between 1986 and 2006, permanent and long-term immigrants added an average of 0.1 percent annually to the New Zealand population, compared with a natural increase (from births minus deaths) of 0.8 percent annually. In general, any population growth increases demand for housing.

However, in contrast to New Zealand's relatively steady natural increase, migration flows vary markedly throughout the period. In 1986, migration outflows roughly offset the natural increase, whereas in 1996, 2002 and 2003 migration added more to the population than the natural increase. The important observation for this research is that these periods of high net immigration into New Zealand were also periods of high house price growth. This relationship is shown in Figure 1.

Figure 1: Changes in house prices and net immigration



Source: Coleman & Landon-Lane (2007)

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The correlation between high immigration and house price growth is strong: our findings indicate that a one percent increase in population from migration at the national level is associated with a 12.6 percent increase in house prices. The word ‘associated’ is used purposefully in the previous sentence because it is widely believed that immigration *causes* house price increases. For example, the Reserve Bank’s December 2007 Monetary Policy Statement refers to “a strong housing market fuelled by the combination of a sharp increase in immigration and an extended period of unusually low global interest rates” (Reserve Bank of New Zealand 2007).

Yet as any aspiring economist or statistician will know, a correlation between two events does not require that one causes the other. In this instance, an alternative explanation for parallel increases in migration and house prices at a national level is that both events are influenced by a third factor. We refer to this factor as ‘business cycle effects’: put simply, business cycle effects are how well the economy is doing in a given year.

### Looking locally

One way to determine the relative impacts of immigration and business cycle effects is to look locally since the business cycle typically impacts all areas of the country simultaneously. If immigration is causing house price increases, we might expect to see this effect more clearly in local areas with higher net migration. This is evident in a number of overseas studies (e.g. Saiz 2003, 2007; Ottaviano & Peri 2007). In effect, we are taking a microeconomic approach to what was before a macroeconomic observation. Our analysis looks at local areas, specific populations and specific parts of the house price distribution to better understand what is happening in the data.

The analysis uses demographic data from the 1986, 1991, 1996, 2001, and 2006 New Zealand censuses, housing sales data from Quotable Value New Zealand and housing rents data from the Department of Building and Housing. The census data records an individual’s place of birth, current usual residence and residence five years previously. From this information we classify individuals as ‘new immigrants’ (born overseas and living overseas five years previously), ‘previous immigrants’ (born overseas but living in New Zealand five years previously), ‘returning New Zealanders’ (New Zealand born but living overseas five years previously) or ‘local New Zealanders’ (New Zealand born and living in New Zealand five years previously).

Each individual is linked to a Labour Market Area (LMA). Newell and Papps (2001) divide New Zealand into LMAs using an algorithm where most people who live in an LMA work in it, and most people who work in an LMA live in it. This definition of a local area was chosen as optimum for the effects we are interested in. Two additional definitions – territorial local authorities and regional councils – were included as a check on the findings.

Finally, we control for possible house price increases from migration in specific parts of the house price distribution. This takes into account the possibility that different population groups may affect high-price or low-price housing but not change overall prices. We also separate rents and sales prices.

### Findings

The relationship between increases in house prices and migration looks quite different at a local level. Local population increases from all sources are positively correlated with local house price increases, but the link is much smaller than what is found at the national level: a one percent increase in population is correlated with only a 0.2–0.5 percent increase in house prices.

This effect all but disappears when we include controls for demographic changes in each area. This suggests that house prices are moving in ways that we would expect given observable changes in population characteristics such as age composition, overall incomes and qualification levels. Increases in income levels, for example, are positively correlated with increases in house prices.

If we separate population growth into the four sources described above (new immigrants, previous immigrants, returning New Zealanders, and local New Zealanders), a more interesting picture emerges. Population increases from three of these groups, including both immigrant groups, again show no significant link with house price increases – and some appear to be slightly negatively correlated. However, population increases attributed to returning New Zealanders are strongly correlated with house prices: a 1 percent population increase from returning New Zealanders is associated with a 9.1 percent increase in house prices. (This figure drops slightly to 7.6 percent if we control for demographic changes as before.)

An effect on house prices from returning New Zealanders fits with the demographic characteristics of this group, though the large size of the effect is surprising. Returning New Zealanders are more likely than other groups to own their own homes and more likely to be aged 25–64 (a prime age bracket for purchasing your own home). They are also more likely to work full time.

These findings clearly differ from those of similar studies in the United States, where foreign-born immigration has been shown to lead to higher local house prices (e.g. Saiz 2003, 2007; Ottaviano & Peri 2007). As further support, however, the findings are consistent with related Motu research, which suggests that immigration also has little impact on the labour market.

### Alternative explanations

If immigration does not cause rising house prices, how else can we explain the clear correlation between the two factors at a national level? As introduced above, one explanation is to attribute both immigration and house price increases to unspecified ‘business cycle effects’. In this scenario, immigrants are more likely to come to New



Zealand when the country's economy is doing well and overall house prices are increasing.

Another possibility is that house prices adjust quickly across local areas even where immigrants are unevenly distributed. The five-yearly census data is a reasonable time period for this to occur. We hope to explore this possibility further in future work.

### Questions to consider

1. How might immigration decrease wages for New Zealanders? How might immigration increase wages for New Zealanders?
2. Why might immigration and house prices move together?

### Further reading

A more detailed analysis of the link between house prices and migration in New Zealand is presented by Stillman & Maré (2008).

### Useful websites

House price data are available from [www.qv.co.nz](http://www.qv.co.nz), and migration statistics can be sourced from [www.stats.govt.nz](http://www.stats.govt.nz)

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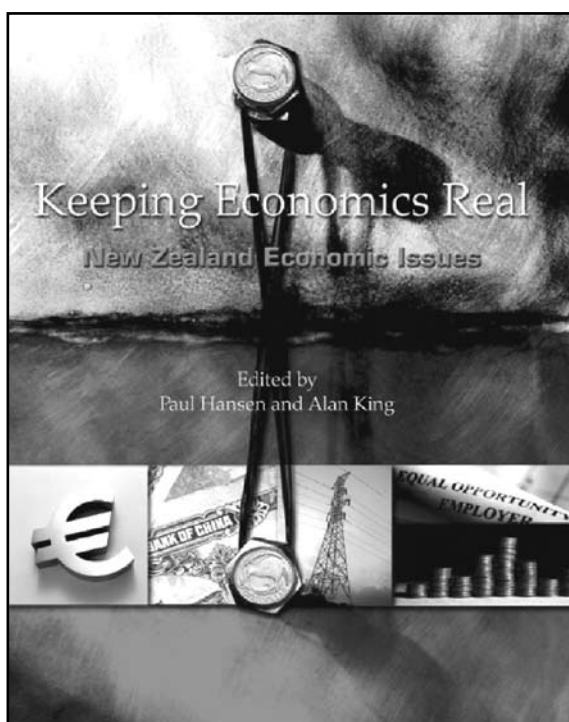
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# Different strokes for different folks: Catering for alternative learning styles at university

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Traditionally, students at university were expected to sit in lectures and tutorials where they discussed topics with lecturers and tutors. Now however, with more young people participating in tertiary education than ever before, universities must adapt to cater for the different learning styles of students. We outline a learning activity used in a Principles of Economics (first year) paper that caters for different learning styles and improves students' learning experiences.

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## University teaching

In universities, formal teaching is accomplished through lectures where students are expected to listen and retain the information for later use. This is often described in the literature as the *transmission of knowledge approach to teaching* (Alexander and McDougall, 2001). To date, the most common method of teaching undergraduate economics is still the 'chalk and talk' method where students are essentially 'passive' learners. Students come into class, sit and listen to a lecture, take notes and leave without interaction with other students or the lecturer. In this environment students are responsible for their own learning with lecturers being the sole authority.

With more students entering university now, they come with a variety of learning styles, so one of the challenges is to expand the traditional teacher-centred method of teaching to include a greater range of student-centred learning methods. The challenge is to use many different styles of teaching so more knowledge can be passed to the maximum number of students at each teaching opportunity.

## Learning Styles

First let's look at some learning styles. We consider three types of learners: *visual*, *auditory* and *kinaesthetic*. Although the categories are distinct, people learn in different ways and can fit into more than one category (Ward and Daley, 1994).

### Visual learners

Visual learners learn by seeing and imagining. They learn to connect ideas through imagery, seeing the pictures in their minds, patterns on the board, and connecting lines that link ideas. Often this takes the form of *mind mapping*, in which a central bubble representing the main theme is the main focus of thought, surrounded by tendrils that represent 'off-shooting' ideas. The visualisation of lines that connect the ideas helps to cement key concepts. Buzan and Buzan (2007) argue that notes based on spontaneous patterns around a central theme are more likely to be recalled than notes prepared in the traditional linear form.

Buzan and Buzan (2007) also suggest that colour stimulates the memory, so at least three colours should be used to connect ideas. Each idea corresponds to a particular colour, and constitutes a portion of the information. The division of a concept into pieces simplifies it and makes it more manageable. Mind-mapping the ideas in colour means that the information is organised efficiently and can be stored and recalled in the same way. Using colour allows new information to be related to old information and joined together so the concept is more fully understood.

**Auditory learners**

In higher education, auditory learners have always been catered for through the ‘chalk and talk’ method of teaching. Traditionally, lectures and discussion groups are led verbally. All formal learning is accomplished through talking and listening. However, the auditory learner also likes to talk and discuss ideas. Hence, discussion groups are an ideal way to cater for the auditory learner.

By using activities and experiments, after clearly explaining what is required, the auditory learner can participate more fully in the learning experience, listening and then contributing through sharing their ideas and talking through explanations with other students. Discussion can be quite involved, as every idea and every offshoot of each idea is talked about. This aids auditory learners’ retention, as they remember what was spoken and discussed and use the processes to analyse new data in order to reach and show understanding of the concept. They actively engage in the learning process this way.

**Kinaesthetic learners**

Kinaesthetic learners enjoy movement, whether it is with their body, a pen or other objects. They act things out, pace around, gesticulate and always seem restless. For this type of learner, action is important because it is how they formulate concepts and bring them to life. Moving

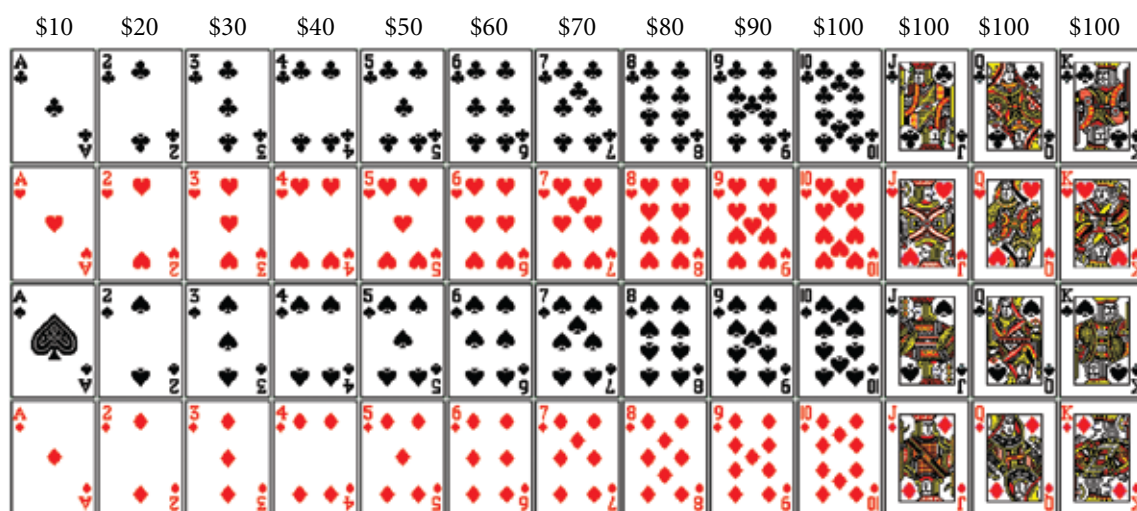
activates the association of ideas and by remembering this movement, ideas and understanding are recalled. The retention of information is through movement. This leads to understanding of concepts.

In general, in large classes, we have a diverse group of students with differing learning styles. From questioning a random sample of students, it appeared that 10% were pure visual learners, 10% were pure auditory learners, 30% rated themselves as kinaesthetic learners while 50% said they learned using a mixture of styles. We set out to use this information and try to cater for all types of learners in a Principles of Economics first-year paper by designing an activity to aid students’ learning.

**The classroom experiment**

We used a simple classroom experiment about how a labour market works (Garces-Ozanne and Esplin, 2008) to show how different types of learners can be catered for effectively. In this classroom experiment, students are assigned the role of workers, and are asked to draw a card from an ordinary deck of playing cards. The playing card they draw determines whether students are skilled or unskilled workers and gives them information about their marginal productivity (the amount of output produced per day) and opportunity costs of working (what they must give up in order to work). Students who draw a red card are skilled workers and students with black cards are unskilled workers. Skilled workers have a marginal productivity of 30 units of output per day while the unskilled have a marginal productivity of only 20 output units per day. The face value of the card the worker receives (face cards have a numerical value of 10) multiplied by \$10 represents the dollar value of the workers’ costs of working (this includes the opportunity cost of their time, transportation, childcare expenses and any other expense the worker incurs in choosing to work). The cost of working is illustrated in Figure 1.

Figure 1: Costs of Working for alternative playing cards



The wage paid to each worker is determined by rolling a six-sided die and multiplying the number rolled by each worker's productivity. For example, if a three is rolled, skilled workers (red cards) are paid  $3 \times 30 = \$90$  per day and unskilled workers (black cards) are paid  $3 \times 20 = \$60$  per day.

The experiment takes place over a number of periods. A die is rolled at the beginning of each period, so wages offered to students vary throughout the simulation. Each period, students must decide whether or not to work. In doing so, students must take into consideration the costs associated with going to work, the wage rate offered, and then compare these to the unemployment benefit, which is varied throughout the classroom simulation. The simulation forces students to realise that working is only economically worthwhile if a worker's wage minus her cost of working exceeds the unemployment benefit.

For example, suppose the unemployment benefit is \$40 per day and a four is rolled. A student holding a two of clubs should work as her wage minus her cost of working ( $4 \times 20 - 2 \times 10 = \$60$ ) is greater than the unemployment benefit. However, the wage minus the cost of working for a student holding a six of clubs ( $4 \times 20 - 6 \times 10 = \$20$ ) is less than the unemployment benefit, so the student should not work. If net income from employment and the unemployment benefit are equal, the discussion centres on the reasons for working or not working. After each wage offer, students who choose to work are asked to sit at the front of the lecture theatre and those who choose not to work move to the back of the theatre.

### The experiment and alternative learning styles

The use of playing cards and die caters for visual learners. Visual learners are also assisted by writing wage offers and the unemployment benefit on a whiteboard using different coloured pens for the different pieces of information. For example, wage offers can be written on the whiteboard using a black marker, the number of employed with a blue marker and the number of unemployed with a red marker. Using colour, patterns and imagery helps visual learners understand concepts and retain the knowledge for later recall and analysis.

The simulation meets the needs of auditory learners by administering instructions verbally, the lecturer verbally calling out wage offers, and verbal discussion of the results for each period. As decisions are being made, there is a lot of talk, analysis and discussion, with students also moving around the room to indicate whether they will work or not. Auditory learners can gain valuable analytical skills because they enjoy discussing and sharing information and ideas with others.

Kinaesthetic learners are engaged by movement around the lecture theatre throughout the simulations. Students move to either an employed or an unemployed location in each period. The act of moving engages the kinaesthetic learner who may previously otherwise have been fidgeting and uninvolved or tuned out.

## Conclusions

We outlined an experiment that engages the three learning styles – visual, auditory and kinaesthetic – to facilitate student learning. By appealing to different learning styles, abstract concepts such as decisions on whether or not to work are made more concrete because students act out their decisions.

Hazlett (2006) suggests that a good classroom experiment guides students to the important concepts and that an active analysis is important at its conclusion. When this experiment was conducted in a first-year Principles of Economics class, the students enjoyed the experiment and all fully participated in the discussions and follow-up analysis. Students reported that recalling the relevant facts came easily. They came to their own conclusions about whether or not to work and were able to communicate their reasons to the rest of the class. The class discussion generated the relevant facts in this learner-centred experiment. By expanding teaching techniques to cater for different learning styles, more students are given the opportunity to learn in a manner that will allow them later to recall more knowledge and analyse data.

## Questions to consider

1. What type of learner are you?
2. What costs of working are associated with your current job?
3. If the unemployment benefit equalled your take-home pay, would you work? Why or why not?

## Further reading

The classroom simulation described in this article is outlined in greater detail in Garces-Ozanne and Esplin (2008).

## Useful websites

A number of classroom games to assist instruction of economic concepts are available at [www.marietta.edu/~delemeeg/games/](http://www.marietta.edu/~delemeeg/games/)

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# Commentary on the New Zealand Economy

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	Sep 2008	Jun 2008	Mar 2008	Dec 2007	Sep 2007
GDP (real, annual growth rate, %)	1.7	2.5	3.1	3.1	2.8
Consumption (real, annual growth rate, %)	1.7	2.8	3.4	3.9	3.8
Investment (real, annual growth rate, %)	2.0	5.3	7.4	5.9	6.6
Employment: full-time (000s)	1683	1674	1656	1687	1659
Employment: part-time (000s)	489	492	484	489	491
Unemployment (% of labour force)	4.2	3.9	3.7	3.4	3.5
Consumer Price Inflation (annual rate, %)	5.1	4.0	3.4	3.2	1.8
Food Price Inflation (annual rate, %)	9.5	6.9	5.1	4.4	3.3
Producer Price Inflation (outputs, annual rate, %)	9.8	8.5	6.1	4.0	2.0
Producer Price Inflation (inputs, annual rate, %)	13.6	11.8	7.3	3.3	1.6
Salary and Wage Rates (annual growth rate, %)	3.6	3.5	3.4	3.3	3.1
Narrow Money Supply (M1, annual growth rate, %)	0.7	4.3	2.4	1.2	-0.5
Broad Money Supply (M3, annual growth rate, %)	6.6	7.4	6.5	7.4	9.5
Interest rates (90-day bank bills, %)	7.95	8.68	8.91	8.90	8.81
Exchange rate (TWI, June 1979 = 100)	63.8	68.1	71.6	71.6	68.3
Exports (fob, \$m, year to date)	41,968	40,028	38,128	36,562	34,596
Imports (cif, \$m, year to date)	46,953	44,507	42,653	41,869	40,878
Exports (volume, June 2002 [not seas. adj.] = 1000)	1043	1068	1111	1157	1052
Imports (volume, June 2002 [not seas. adj.] = 1000)	1652	1739	1651	1660	1593
Terms of Trade (June 2002 = 1000)	1214	1242	1247	1197	1163
Current Account Balance (% of GDP, year to date)	-8.6	-8.4	-8.0	-8.2	-8.7

Sources: Statistics New Zealand ([www.stats.govt.nz](http://www.stats.govt.nz)), Reserve Bank of New Zealand ([www.rbnz.govt.nz](http://www.rbnz.govt.nz))

Our table provides a snapshot of the New Zealand economy on the eve of October's transformation of the credit crunch into a full-blown global financial crisis. What we see is economic activity rapidly slowing (GDP actually contracted in each of the three quarters of 2008) and unemployment rising above 4% for the first time in over four years. This is largely thanks to the high interest rates (and the consequently strong dollar) employed to combat the inflationary pressures that have been present for some time. Actual inflation hit levels in September that had not been seen for almost twenty years, but this was largely due to massive oil and dairy price increases. The underlying rate of inflation had been showing signs of slowly easing. Finally, despite strong terms of trade, the current account deficit finished a remarkable fourth year above 8% of GDP.

The financial crisis itself has already brought a sharp depreciation of the New Zealand dollar against the world's three major currencies and several large cuts in interest rates (with more expected). Any boost these provide to the economy will take some time to emerge and, in any case,

would need to overcome other negative influences – in particular, the simultaneous recession being experienced by most of the rest of the world's economy. Unemployment, therefore, is bound to rise steadily throughout the year.

On a brighter note, inflation will be much less of a problem in 2009. Despite the pressure on import prices from the weaker dollar, the collapse of world oil prices alone should all but return headline inflation to the RBNZ's 1–3% target band in the December quarter 2008. Weak demand should complete the job by mid-year.

Domestic inflationary pressures will also ease through the demise of the dairy boom – world dairy prices have already fallen back to where they were at the beginning of 2007. The recent decline in the terms of trade should therefore continue, though its fall will be dampened by the slide in oil prices. Despite this, the current account deficit should be significantly smaller by the end of next year. What the dollar's sharp fall in late 2008 revealed is that the rest of the world is finally tiring of financing such high levels of spending by small open economies.

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