Westpac InstitutionalBank

Flu jab

The potential impact of the H1N1 influenza epidemic on the NZ economy

- **The number of people infected with the H1N1 virus in New Zealand is rising sharply, and set to continue to do so.**
- **The main macroeconomic effects of the virus will come through disruptions to labour supply. At this stage it does not appear likely that well people will fear the virus enough to make significant changes to their daily behaviour.**
- **It is very difficult to gauge the impact on GDP. As a ballpark range, a 1% to 2% drop in GDP over the first year looks reasonable.**

Introduction

The World Health Organisation (WHO) has declared that the outbreak of H1N1 ("swine") flu has reached pandemic proportions. Cases in NZ are rising sharply.

The virus appears a lot less scary than it did when news of it first broke. Outside Mexico, cases have been milder than the normal seasonal flu, and the virus responds to medication. Nonetheless, widespread outbreaks of even a mild disease can have significant negative effects on the macroeconomy. Forecasting the impact is extremely difficult as viruses are notoriously difficult to predict, but in this article, we take a quick look at how things might pan out.

About the pandemic:

- This is the world's first influenza pandemic in 40 years. The WHO has declared the virus "unstoppable".
- The WHO has confirmed 141 deaths from nearly 30,000 cases in 74 countries, a fatality rate "slightly higher" than seasonal flu's 0.1-0.2%.
- It appears to be a fairly mild illness. Up to 98% of affected people recover without hospitalisation, according to Professor Peter Openshaw of Imperial College London.
- However, the virus is causing "very severe disease disproportionately" among people 30 to 50 years old. It is also proving resilient to warm weather.
- Drug companies will be mass-producing a vaccine in the next few months (but NZ will be down the queue as we have not pre-ordered it).
- The WHO comments that the pandemic could last up to two years, and that the virus could mutate into a more dangerous form at any time. "Complacency is our biggest concern".

The NZ situation

So far there are more than 100 confirmed cases of swine flu in NZ, versus over 1200 in Australia. Health Minister Tony Ryall has called it "inevitable" that swine flu will spread further here. Estimates of how many people will be affected range from 20 to 60%, with about 30% a number commonly bandied about. For comparison, around 5% of adults and 20% of children currently get a flu-like illness in any given year.

Nonetheless, Ryall says NZ's containment strategy has worked well. The aim is to contain the spread of the virus as long as possible so that health services are not overloaded. However, as more cases emerge the strategy will move away from containment and towards management.

The potential economic impact

There are a number of channels through which the current pandemic could affect the economy.

Labour supply: Infected people will need time off work. Indeed, they will be encouraged to take it: "it's important that anyone who develops flu-like symptoms stays away from work, stays away from school" (Tony Ryall, Health Minister 12 June). Some well people will need to stay home to look after the sick. And some well people may stay home out of fear of infection, or perhaps because their workplace has been temporarily closed down due to an outbreak.

This is primarily a negative labour supply shock, but will also impact demand negatively (some leave may be unpaid, reducing incomes).

Consumer demand: There are two main reasons consumer demand could fall. Firstly, people could avoid crowd situations and busy shops and social gathering places ("social distancing"). There could be involuntary social distancing as well: regional medical officers of health will have the power to close borders, restrict public gatherings, put patients in isolation, and shut

For further information, questions or comments contact Brendan O'Donovan, telephone (04) 470 8250, email bodonovan@westpac.co.nz

schools and workplaces. (Two NZ schools have already partly closed). Ashley Bloomfield (MoH chief public health adviser) has stated that as more people test positive, more workplaces, schools and childcare centres will be affected. There is a trade-off – social distancing increases the short-term GDP hit but presumably reduces the medium-term impact by reducing and delaying the virus' spread.

Secondly, the general uncertainty and negative publicity around an outbreak could make people lack confidence about the path of the economy, holding off on major purchases. This is perhaps particularly true during a recession, when sentiment is already fragile.

Export demand: The pandemic will reduce GDP growth in our trading partners and hence demand for NZ's exports. Tourism is particularly vulnerable, especially if the virus becomes established in NZ more quickly than in key tourist markets. In the SARS outbreak of 2003, NZ was seen as a safe destination, which mitigated the impact on our tourism industry. That appears unlikely this time around.

Exports of seafood were particularly hard hit in the SARS epidemic, as consumers in Asia ate out less. We may see that again. Exports of education could also be hard hit if infection rates are significantly higher in NZ than in China and NZ's other foreign student markets.

Existing studies of macroeconomic effects

It is impossible to know exactly how the virus will spread. The best one can do in assessing its likely impact is therefore to make some reasonable assumptions and examine the sensitivities around these assumptions where possible. This is the strategy behind the main piece of work done looking at the possible economic impact of an influenza epidemic in NZ: a Treasury paper of 2006.[1] The key assumptions for the "mild" scenario, which seem most relevant to today's situation (with the fortunate exception, at present, of a lower mortality rate), are:

- There is no outbreak of panic amongst the populace. Infrastructure and utilities are unaffected.
- 30% of the population is infected, and 0.25% of those infected die.
- The epidemic takes eight weeks and occurs in one wave.
- A 1% reduction in the labour supply is assumed to lead to a 0.6% reduction in GDP.
- The infected are assumed to need one week off work on average. This includes a small allowance for the fact that some people will need to take extra leave to care for children who can't go to school. This effect could be large.
- Output from the Accommodation, Restaurants and Bars, Cultural and Recreational Services, Personal and Other Community Services industries is assumed to fall by just under 20% in the pandemic quarter. These are the sectors most affected by "social distancing".
- Retail trade output is reduced by 6%. The transport and storage industry is also assumed to drop 6% due to reduced tourist travel. The output of the rest of the economy (except the government sector) is reduced by just over 1% in the pandemic quarter.

Results

The reduced labour supply by itself reduces GDP by 0.7% for the first year. Given the additional output reduction assumptions, using the NZ Treasury Model, Treasury estimate GDP would be reduced by 0.7% to 2.1% in the first year and after four years the cumulative reduction would be 1.1% to 2.8% of one year's GDP. The eventual effects could well be larger given the current recession will have reduced firms' capacity to absorb another negative shock.

Reliability of results

How much should we trust these results?

Well for starters, they move around a lot according to the assumptions. Increasing (decreasing) the infection rate by 10 percentage points increases (reduces) the first year GDP impact by around 0.8ppts. Increasing the average number of weeks workers take off by one, while holding everything else constant, increases the first year impact by around 1.5 percentage points.

Secondly, the model used will have a huge impact on the results. The Treasury study allows only a very small effect from lower confidence. A 2006 Australian study[2] assumes mortality of 0.2%, and that 20% of the labour force is absent from work during the pandemic quarter. They focus on confidence effects, and estimate Australian GDP would be a whopping 9% lower in the first year.

Looking at the SARS precedent certainly suggests confidence effects can be large. From the Treasury report: "Despite a comparatively low infection rate, Cooper and Coxe (2005) estimate that the outbreak of SARS in Toronto reduced annual Canadian GDP by as much as 0.6 percentage points… the majority of the economic impact came from heavily reduced tourism and the disruption to normal business because of quarantine and health concerns".

Treasury note that "a pandemic being epidemiologically less severe does not necessarily mean the length of time people take off work or the psychological effects of the pandemic are lessened". However, the current situation is very different from SARS, for example. In that case, there were few infected people, but widespread fear of being infected, due to the high death rate. People changed their daily behaviour, avoiding crowd situations, and changing travel plans. In the current H1N1 epidemic, a very large number of people are likely to become infected, but by most accounts the disease is mild, with a very low chance of death. So far, New Zealanders seem

[1] Buckle, B., J. Douglas, and K. Szeto (2006): "Impacts of a potential influenza pandemic on New Zealand's macroeconomy," *NZ Treasury Policy Perspectives Paper 06/03.*

[2] Kennedy, Thomson and Vujanovic (2006): "A primer on the macroeconomic effects of an influenza pandemic," *Australian Treasury Working Paper 2006-01.*

to be taking a "she'll be right" attitude to it. This could change if/when the first New Zealand deaths occur, but for now, we seem unlikely to see the kinds of fear-driven major changes in behaviour that would lead to the large drops in service sectors as assumed in the Treasury study. On the other hand, work absences due to actual illness may be higher, given that the disease is expected to spread quickly and widely through the New Zealand population. It is difficult to know how these two factors (i.e. spread versus fatality rate) will offset.

Conclusion

Swine flu is bad news for the economy. That much is clear. But exactly how bad it will prove to be is very hard to know. The main issues will be disruption to labour supply, the extent to which people start trying to avoid each other, and the impact on business and consumer confidence. So far, New Zealanders seem to be treating the outbreak as an inconvenience rather than a catastrophe, suggesting the labour supply impact from illness will be the main issue. If fear grows, the latter two impacts will come to the fore.

It will be very difficult to sift out the impact of swine flu from the general economic malaise affecting the globe at present, but as a general guide, we'd pick that swine flu could knock 1% to 2% off NZ GDP in the next 12 months. Given that New Zealand has likely been in recession for six consecutive quarters to mid-2009, this could amount to a lengthening of the recession by a couple of quarters.

Brendan O'Donovan, Chief Economist, Ph: (64-4) 470 8250
Sharon Zollner, Economist, Ph: (64-4) 381 1414