Box C: Climate Change Mitigation Policy and the Macroeconomy

In mid December, the Australian Government released a White Paper on the Carbon Pollution Reduction Scheme (CPRS) that outlines its plans for the targets and trajectories for emissions reduction, the design of the emissions trading scheme and how households and firms will be compensated. Until the legislation is passed, the starting date and details of the scheme remain uncertain, although the Government's intention is that the scheme will commence in the September quarter of 2010. While the effects of the CPRS have not yet been incorporated into the Bank's forecasts of inflation and activity, this Box describes the potential macroeconomic effects of the currently envisaged scheme and the implications for monetary policy.

By imposing a price on greenhouse gas emissions, climate change mitigation policies such as the Government's proposed CPRS are designed to change consumer and producer behaviour and alter the structure of the economy. This is likely to have effects on key macroeconomic variables, such as inflation and output, which are relevant for the setting of monetary policy.

The most direct effect will be to increase the price of emissions-intensive energy. Assuming an initial permit price of roughly $25 per tonne of carbon dioxide emitted (or the carbon dioxide equivalent of other greenhouse gases, CO_2-e), the retail prices of electricity and gas are estimated to increase by around 18 per cent and 12 per cent respectively.[1] With electricity and gas together accounting for 2½ per cent of the CPI, this could be expected to add around 0.4 per cent to the CPI over the first few quarters following the introduction of emissions permits. Increases in the prices of other goods and services that are emissions intensive are estimated to add at most an extra 0.7 per cent to the CPI, for a total effect of around 1 per cent.[2]

Thereafter, the ongoing increases in the permit price are expected to be more moderate, although there is likely to be considerable volatility from time to time. The trend increase would have little effect on overall inflation. Given an assumed initial emissions permit price of $25 per tonne of CO_2-e, permit prices would have to increase by 10 per cent for them to add 0.1 per cent to the CPI.

There could also be second-round effects on inflation from the CPRS if it influences businesses' and consumers' expectations about aggregate inflation, and hence their wage- and price-setting behaviour. However, the Government has committed to compensate most households for the increase in prices due to the CPRS, which should help households to look through the initial one-off increase in prices.

1 *The White Paper assumed an initial permit price of around $25 per tonne of CO_2-e in determining the compensation arrangements, though the actual price will be set by the market.*

2 *The estimate of the additional effects is based on the 2004–05 input-output tables and assumes that there is no substitution in production. To the extent that there is substitution away from emissions-intensive inputs in production, the actual effect on the CPI will probably be a little smaller although this will also depend on any future changes to the household expenditure weights used in the CPI.*

In the short run, climate change mitigation policies are likely to lead to slightly lower economic growth, reflecting the higher costs of production. A significant proportion of the capital stock is used in emissions-intensive activities (such as coal-fired electricity generators and aluminium smelters). Therefore, the return on current and future emissions-intensive capital would be lower under the new policy.[3] While this should be partly offset by an increase in investment in low-emission technologies, it is likely that growth in the overall capital stock, and in trend output, will be slightly lower than it would otherwise have been. The adoption of new, higher-cost technologies is likely to reduce standard measures of economic efficiency, while substitution towards less capital-intensive goods and services is likely to reduce aggregate labour productivity. Overall, assuming an emissions permit price of $25 per tonne of CO_2-e, it is estimated that the net result will be to reduce GDP growth by less than 0.5 percentage points in total, spread over the first couple of years following the introduction of the CPRS, with a reduction of about 0.1 percentage points per year thereafter.[4] These effects, however, must be considered against the longer-term costs of not taking steps to ameliorate the negative effects arising from climate change.

There is some uncertainty surrounding the extent and timing of the economic impacts arising from the introduction of climate change mitigation policies. One source of uncertainty is the permit price itself, which will be determined (subject to the price cap) in the market. The experience in the European Union suggests that such prices may be subject to volatility. There is also uncertainty surrounding the effect of the permit price on the economy. It is unclear how quickly firms will pass through increases in production costs to prices. Further, although energy cannot be easily stored, some firms may choose to increase production immediately prior to the introduction of the CPRS to lock in lower energy costs, while others may invest in new technologies prior to the introduction of the scheme.

Although the various uncertainties regarding the impact on the economy will raise challenges for monetary policy, these should be manageable. As with other structural changes affecting prices (such as the introduction of the GST in mid 2000), monetary policy will be set with a focus on medium-term price stability as a means of promoting sustainable growth in output and employment. Given that the increase in the price level is expected to be largely one-off, the Bank should be able to look through the initial increase in inflation. Beyond that, policy would need to ensure that inflation expectations remain anchored in order to avoid second-round price effects.

The Bank will continue to consider this issue as the CPRS goes through the legislative process.

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3 *The Government has committed to providing some transitional assistance to affected firms to compensate for this loss.*

4 *These numbers are consistent with The Treasury's estimates in 'Australia's Low Pollution Future: The Economics of Climate Change Mitigation'.*