



Melbourne City Research

The Price of Petrol and the  
China Effect—  
Causes and Consequences  
2006

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### Acknowledgements

This research report was written by George Konstantinidis, Team Leader, Melbourne City Research.

### ***Disclaimer***

*The views expressed in this paper are those of the author and do not necessarily reflect the views of the City of Melbourne. All due care has been taken to ensure the content of this report is current and accurate. No legal responsibility is accepted for the information, opinions nor any errors or omissions it may contain.*

### 1. Executive Summary

While petrol prices have risen steeply over the past two years, in real terms they are still below the record levels reached in 1980 and represent a lower proportion of average weekly earnings now than they did in that year. Together with a substantial reduction in the energy intensity of production, this explains why the current oil price hike has not had the negative impacts on inflation and economic growth associated with previous experience.

However, the size and speed of recent price increases are substantial and, unlike previous rapid increases, are primarily demand driven. The key drivers are associated with record growth rates in the world economy and more particularly the rapid industrialisation of the Chinese economy.

Coupled with declining rates of new discoveries, reduced capacity and rising international tensions, the longer term outlook is for an upward pressure on oil prices over the next few years, with projected demand growth (especially from China) running up against long term supply constraints.

The short term effects for Australia appear to be some reduction in petrol purchases, as well a small negative impact on retail spending and discretionary expenditures, particularly by lower income households. Australia is expected to be least affected however, as it has a relatively high level of oil self-sufficiency and is a net energy exporter.

Of far greater significance to the Australian economy is the wider context in which current rises in oil prices must be seen, namely the major global shift in the relative prices of resource materials and manufactured products - the so-called "China Effect". As a major exporter of energy and other mining resources, Australia has already experienced, and will continue to experience, a significant turn-around in its terms of trade, together with the consequent appreciation of the dollar and significant improvements in our international ranking of living standards.

The downside of this realignment is significant current and future pressure on Australia's manufacturing sector and the likelihood that the negative impacts of this pressure will be felt disproportionately by the State of Victoria.

Given the significance of manufacturing in this State as a major employer and the high multiplier effects of manufacturing, any significant deterioration of the State's manufacturing sector is likely to have significant repercussions for other parts of the economy, including the City's significant finance, property and business services sectors, as well as City retailing.

It is recommended that these issues be addressed as soon as possible by more specialised research and analysis.

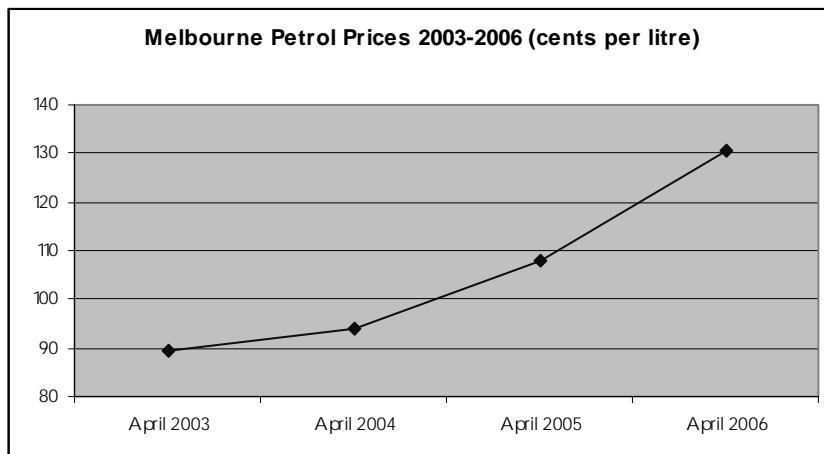
## 2. Synopsis

After documenting the extent of recent petroleum price increases, this paper discusses the reasons behind these increases and their economic consequences. In the case of Australia, it is argued that the discussion needs to focus on the wider global restructuring associated with the emergence of China as a manufacturing industry powerhouse and the associated rapid increases in global demand for energy products and other raw materials. The Australian economy as a whole stands as a major beneficiary of this major global shift; at the same time, this presents major challenges to Australia's manufacturing industry. Given the predominance of manufacturing in the Victorian economy, this State is likely to feel the downside rather than the benefits of this phase of globalisation. It is recommended that the likely impact on the City's substantial finance, property, business services and retail sectors be the subject of further specialized research and analysis.

## 3. The recent record and past trends

In the past two years Melbourne petrol prices have increased by 39%, from 93.9 to 130.5 cents a litre. The rise has been most dramatic in the past 12 months, from 108.1 to 130.5 cents, or 21%. The story is fairly similar in the US, where, with the price of crude oil touching US\$75, petrol prices exceeded \$3 a gallon for the first time and drivers now pay 14% more than a year ago

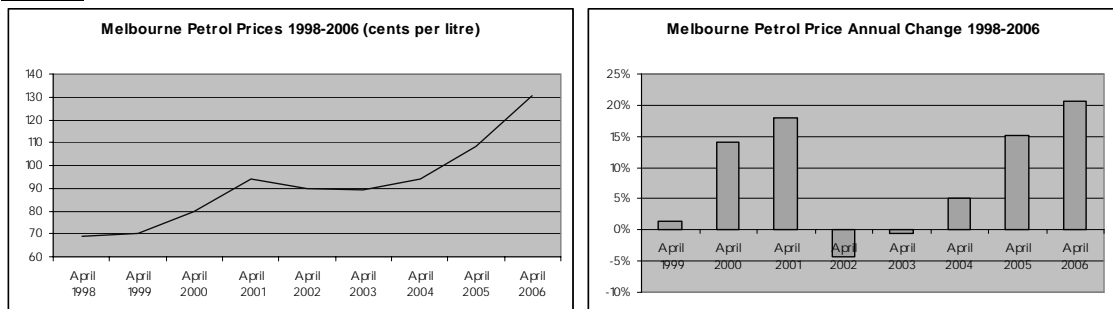
**Chart 1**



SOURCE: FuelTrac PtyLtd

Dramatic as this may seem, the first thing to note is that increases of this scale are not unprecedented. In the two years to April 2001 petrol prices in Melbourne increased by 35%, and in the 12 months to April 2001 by 18%, from 79.7 to 94.1 cents a litre.

**Chart 2**



SOURCE: FuelTrac PtyLtd

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A further perspective is added when fuel prices are considered in the context of CPI and other price movements over a longer period. The following table compares Australian retail petrol prices since 1980 to CPI movements and the price of a number of other products. From this data it emerges in particular that the growth in average weekly earnings over the period has outstripped petrol price increases by 23%. Put another way, back in 1980, putting 50 litres of petrol into a car would have taken up 7.4% of average weekly wages in Australia, whereas today it takes up only 6.3%. In the US case, real retail petrol prices are 20% below the records reached in 1981.

**Table 1: Oil prices compared to other prices**

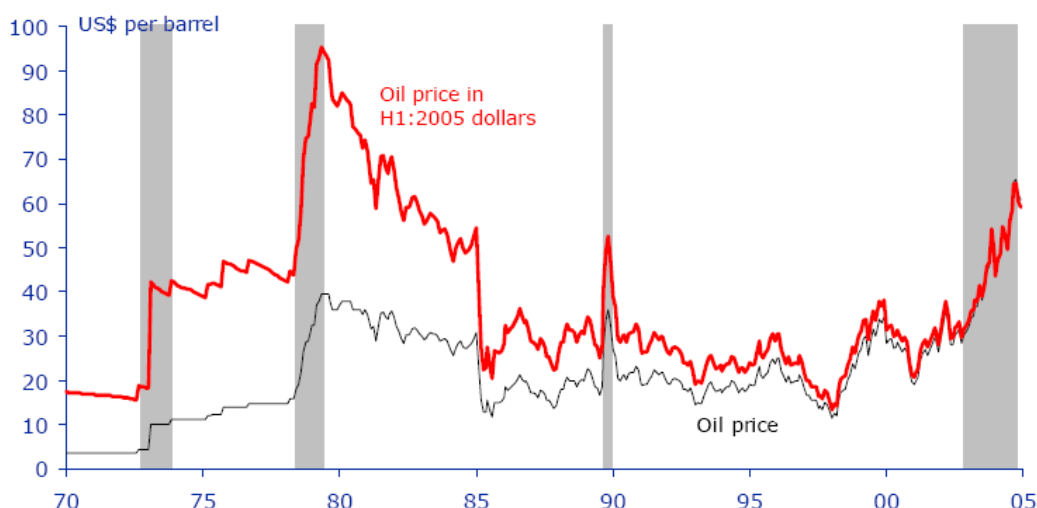
	Jan-80	Apr-06	% change	% change in \$1980
World oil price, \$US/barrel	\$US40	\$US70	75%	23%
World oil price, \$A/barrel	\$36	\$95	164%	50%
Litre of petrol	\$0.33	\$1.29	291%	88%
<b>CPI</b>	<b>100</b>	<b>330</b>		
Litre of milk	\$0.53	\$1.95	271%	82%
Holden Commodore	\$7,903	\$32,990	317%	96%
Average weekly wage	\$224	\$1,026	359%	109%
Avg Aust house prices	\$48,259	\$402,181	733%	223%
All Ords share index	\$586	\$5,200	787%	239%

Source: Thomson Financial, IMF, AMP Capital Investors (<http://www.propertyreview.com.au/index.php?id=528>)

However, the obvious objection to this analysis is that 1980 is a high base: Following the Iranian revolution of 1979 and the commencement of the Iran/Iraq war in 1980, oil reached its all time high of around US\$90 a barrel in today's prices. Nevertheless the above perspective is useful in explaining some of the reasons why the consumer reaction to the current price spike has been a lot more muted than in the past.

**Chart 3**

### Nominal and real oil price

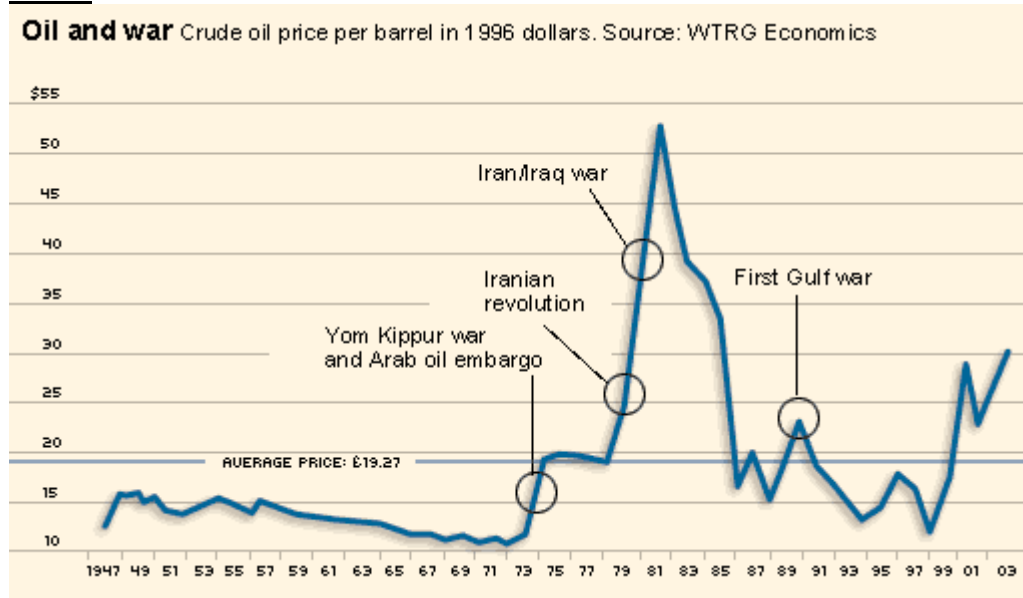


Source: Saul Eslake 'The rising price of oil and its economic consequences' ANZ Bank ([http://www.anz.com/business/info\\_centre/economic\\_commentary/OilPricesNov2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/OilPricesNov2005.pdf))

### 4. Causes

While it is true that current prices are well below the 1980 peak in real terms, it is nevertheless obvious from Chart 3 that both the size and the speed of recent increases have been quite unprecedented, and many commentators consider it unlikely that the price of crude oil will return anywhere near the post-war average of around US\$23 a barrel.

**Chart 4**



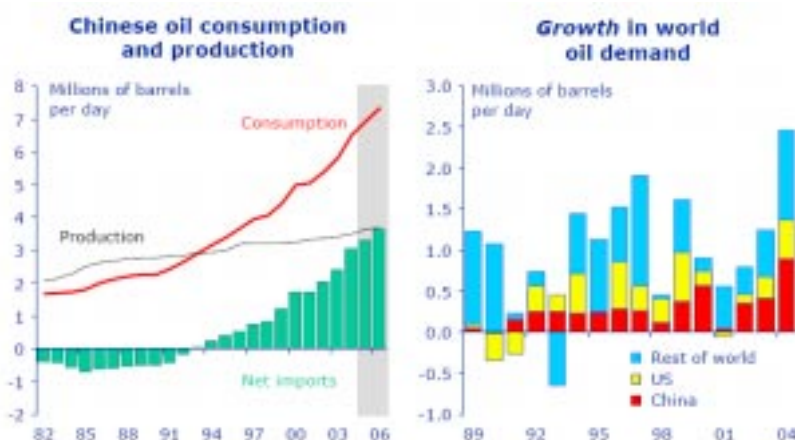
Source: *Oil Price History and Analysis*, WTRG Economics, in *Guardian Unlimited* (<http://www.guardian.co.uk/graphic/0,5812,893505,00.html>)

The two previous periods of rapid increases in oil prices were both associated with significant reductions in oil supply - the 1973 Arab oil embargo and the 1979/1980 reductions in production by Iran and Iraq following the Iranian Revolution and the onset of the Iran/Iraq war. Unlike these “supply-shock-induced” events, the current price spike is regarded as primarily driven by rapidly rising demand, not a supply shock. Global oil consumption in 2005 stood at 84 mbpd (million barrels per day), 20% higher than the 1995 level of 70 mbpd. Just in the two years to 2004, global demand rose by 4.3 mbpd. (“*Oil Market Developments and Macroeconomic Implications*”, *Reserve Bank of Australia Bulletin*, October 2004).

These significant demand side pressures are associated with growth in the world economy at around the highest rates in nearly 30 years, with much of this increased demand coming from China and the US. Over the past four years, China has accounted for 38% of the growth in global demand. An announcement by Chinese President Hu Jintao that his country's economy grew in the first quarter of 2006 at a rate of 10.2% also contributed to the price increase and suggests further rapid rises in Chinese demand for imported oil products.

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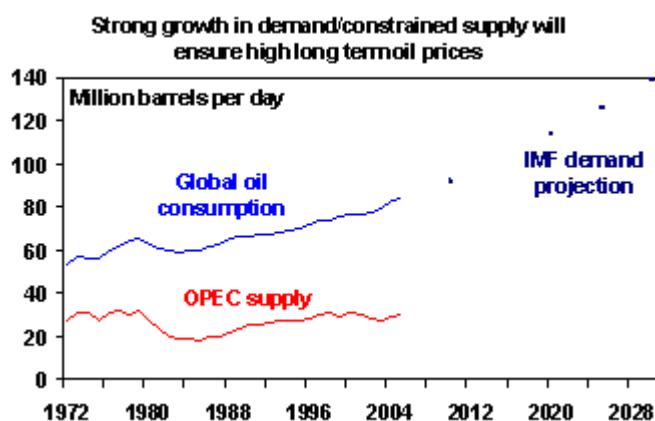
**Chart 5**



Source: Saul Eslake *The rising price of oil and its economic consequences* ANZ Bank ([http://www.anz.com/business/info\\_centre/economic\\_commentary/OilPricesNov2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/OilPricesNov2005.pdf))

Indeed, current IMF projections are for global oil demand to continue growing strongly to some 140 mbpd by 2030.

**Chart 6**



Source: Thomson Financial, IMF, AMP Capital Investors (<http://www.propertyreview.com.au/index.php?id=528>)

On the supply side, the current situation is summed up by The Guardian as:

**"there is practically zero spare oil production capacity available to cover large supply outages"** (*'Oil price blame game misses point'* Tuesday April 25, 2006).

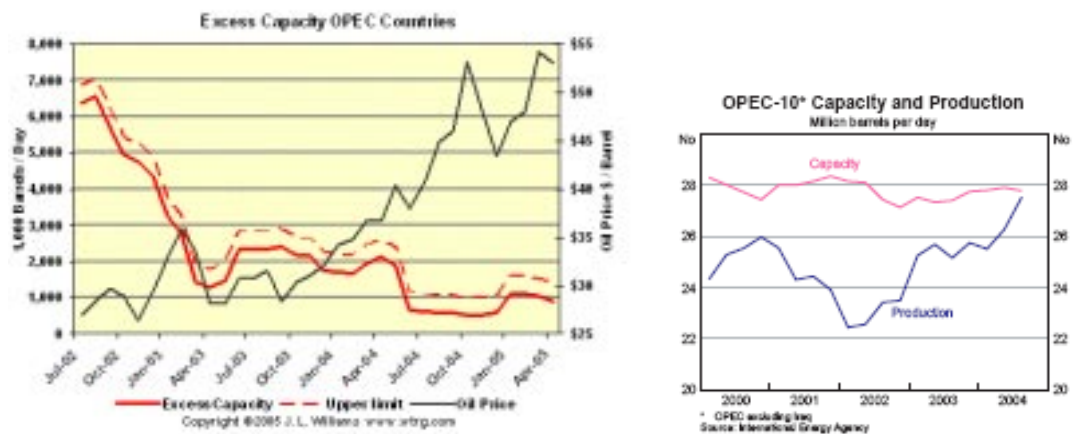
The seeds of the current crisis were sown in 1997, when an OPEC decision to lift production quotas was taken shortly before the Asian currency crisis, which undermined demand from the region that was expected to be the greatest source of new demand. Oil soon fell to \$10 a barrel, and in the last quarter of 1998 post-tax profits for the six biggest American producers fell 90%.

This, in turn, led to the slashing of investment in exploration, production and refinery capacity, and the subsequent China-Asia demand boom was met not so much by increased production but by reductions in excess capacity - from around 6 mbpd in 2002 to less than 1 mbpd in 2006.

Historically, OPEC has had significant excess capacity and has used this capacity to reduce swings in prices by adjusting supply. Now, however, OPEC's excess capacity has shrunk to its lowest level for several decades and represents less than 1% of current demand. Only Saudi Arabia claims to have some spare capacity remaining.

This, in turn, makes the world much more vulnerable: if disaster (eg Katrina), war or terrorism disrupts production in one location, it will be much harder to make up the loss with increased production elsewhere.

### Chart 7



Coupled with increased demand and reduced capacity, international tensions (including the Iraq war, the nuclear standoff with Iran, politically inspired disruptions to supply in Nigeria, and oil industry nationalisation threats in Venezuela and Bolivia) are adding to the sense of insecurity and potential vulnerability, with consequent hikes in the price of oil futures:

**“With big producers like Nigeria, Venezuela and Iraq looking unstable, people selling contracts to deliver oil in the future are demanding a hefty premium to cover the risk that the contract may mature in the middle of a shortage.”** *(The Economist, 6 April 2005)*

This combination of rapidly rising demand, past underinvestment and current political strife should see continuing high prices for the remainder of 2006 and into 2007:

**“World crude oil prices are expected to stay high through 2007 because of strong petroleum demand, limited surplus oil production and refining capacity and concerns about supply disruptions due to geopolitical risks in countries like Iran”** *(US Energy Information Administration 3 May 2006).*

While oil companies and energy agencies continue to maintain the traditional textbook paradigm that rising oil prices will themselves restore supply/demand equilibrium by providing the incentive for increased investment in exploration, extraction and refinery capacity, an increasing body of evidence suggests that there are significant constraints to increased supply, and that petroleum supplies may well peak in the next decade.

While allowing that higher prices provide an incentive for increased spending on exploration, development and research into alternative energy sources, proponents of this view point to the lack of any large discoveries since 1980 - the discovery of new oil reserves is currently running around 10 billion barrels per annum compared to 40-50 billion in the late 1950s/early 1960s. Coupled with soaring demand, the world economy is now consuming more than four barrels of oil for every new one discovered:

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“Total new discoveries have been steadily declining for 40 years, and world consumption has outpaced newfound reserves for nearly a quarter of a century. The global economy today now uses more than four barrels of oil for every new one discovered....More and more of the legacy of past discoveries is being consumed. In 1975, about 65% of total discoveries were in production. Through the end of 2003 that figure had risen to 85% of all the oil ever discovered.” (Marshall Auerback, *Asia Times*, 4 May 2005, [www.atimes.com/atimes/Global\\_Economy/GE04Dj03.html](http://www.atimes.com/atimes/Global_Economy/GE04Dj03.html)).

Overall, then, current prices appear to reflect a combination of medium to long term demand and supply factors. The longer term outlook is for an upward pressure on oil prices (at or above US\$100 over the next few years), with long-run growth in demand - especially from China - running up against long term supply constraints.

### 5. Economic Impact - Macroeconomic

The sharp increases in oil prices in the 1970s had significant ‘stagflationary’ effects on the world economy, with lower economic growth accompanying upward pressure on inflation. The cost-push effects on output were further accentuated by central banks adopting contractionary policies to stem inflationary pressures.

The ‘rules of thumb’ based on previous oil shocks suggest that sustained increases in the price of oil will have a significant detrimental impact on output and inflation. The IMF, for example, estimates that a US\$10 increase in the price of oil subtracts 0.6 percentage points from output and adds around 0.4 percentage points to inflation in industrialised countries:

**Table 2**

**Impact of a sustained US\$10 per barrel increase in crude oil prices after one year**

	Real GDP (%)	Inflation (%)	Trade balance (% of GDP)
United States	-0.8	0.6	-0.2
Japan	-0.4	0.2	-0.2
Euro area	-0.8	0.6	-0.2
Industrial countries	-0.6	0.4	-0.2
Asia	-0.8	1.4	-1.0
Latin America	-0.1	1.2	0.0
World	-0.6		

Source: Saul Eslake ‘The rising price of oil and its economic consequences’ ANZ Bank, adapted from IMF, *The Impact of Higher Oil Prices on the Global Economy* (Washington DC: 2000). ([http://www.anz.com/business/info\\_centre/economic\\_commentary/OilPricesNov2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/OilPricesNov2005.pdf))

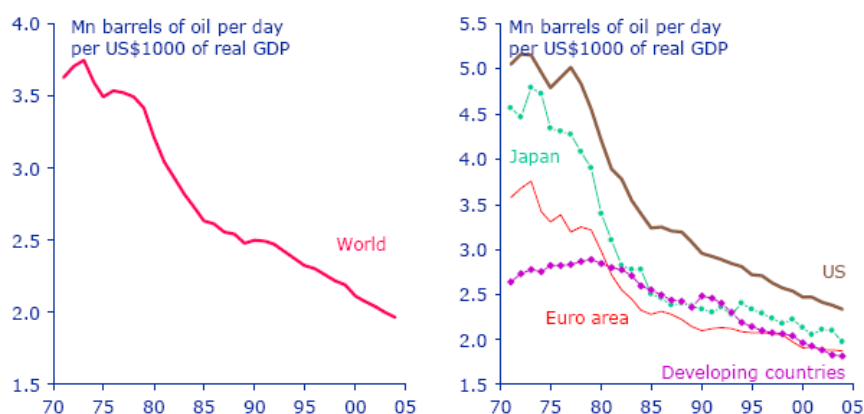
What has come as a surprise to many commentators is that the current round of price increases has not had any apparent effect on global output, with the IMF predicting another year of GDP growth of nearly 5% and noting with some surprise that the soaring oil prices of the past 18 months have had little effect on oil-importing economies (*Economist online*, 19 April 2006).

There are several reasons for suggesting that the implications of the most recent rise in oil prices will be less serious than was the case in the past:

- As noted at the beginning of this paper, the current level of oil prices is lower, in real terms, than the prices reached in the late 1970s.
- The latest price rises have not been as rapid as the earlier episodes.
- The energy intensity of aggregate world output is markedly lower than it was in the 1970s: In 1980 America used a little over 17mbpd to produce GDP worth 45.2 trillion (in 2000 \$). By 2005 oil consumption reached 20.7 mbpd, but GDP had more than doubled to \$11.1 trillion. Although in the case of the US and other OECD countries this has to some extent been due to the higher share in total output of the less energy-intensive services sector, a similar trend is observed in newly industrialised countries as well, and the global oil intensity of production has declined over the past 35 years from nearly 4mbpd to around 2mbpd per US\$1000 of real GDP (see Chart 8).
- Unlike the 1970s, current price rises are occurring in a macroeconomic environment in which inflationary expectations are anchored at low levels, with much lower risks of second-round 1970s-style inflationary consequences.
- Perhaps most importantly, current price rises are demand driven by the highest rates of global economic growth in nearly 30 years, as opposed to the 1970s supply-side shocks with entirely unfavourable consequences for output.
- Lastly, the impact of rising oil prices due to demand pressures associated with economic growth in very fast-growing economies such as China, India, Brazil and Pakistan has, as an anti-inflationary corollary, the production and trade of much cheaper manufactured products. - while pushing up the price of commodities, China is at the same time pushing down the price of finished goods, a process recently referred to by the Commonwealth Bank as “The China Effect” (*Joseph Capurso “China rewrites the inflation equation”, Commonwealth Research Economic Issues, 13 March 2006*). Putting the same point in a slightly different context, the competitive pressures created by globalised production and trade are imposing themselves on local manufacturers by reducing their ability to pass on rising costs in the form of higher prices.

**Chart 8**

### Oil intensity of economic activity



Source: Saul Eslake 'The rising price of oil and its economic consequences' ANZ Bank ([http://www.anz.com/business/info\\_centre/economic\\_commentary/OilPricesNov2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/OilPricesNov2005.pdf))

### 6. Economic Impact - Consumption

As noted above, economies have become a lot more fuel-efficient in recent years and, consequently, spending on petroleum products is a smaller percentage of income. On the other hand, governments have also begun taxing fuel more heavily, so the price of petrol has generally increased faster than the price of crude oil. On balance, however, since the 1970s retail petrol prices have risen at a lower rate than disposable income:

**In 1970 Americans spent 3.4% of their consumer dollars on petrol and oil. By 1980 it rose to 5%. Yet in 2005, after a year of steadily rising oil prices, that number was 3.3% Consumers are grumbling, however, because they remember happy days, as in 2002, when households spent a scant 2.2% of their income on fuel. ('Calculating the costs of pricey oil' Economist, 28 April 2006).**

Still, there is evidence that the steepness of the recent oil price spike is affecting consumer behaviour, and some analysts are suggesting that Americans were showing signs of slightly adjusting their driving habits to ease the sting of near-record retail gasoline prices, using smaller cars and cutting back on discretionary road trips.

### 7 Australia: Short Term Effects

Applying the IMF 'rules of thumb' (see Table 2 above) to the Australian case we can anticipate that a US\$10 in per-barrel crude oil prices would imply a reduction in Australia's employment and GDP growth, a contribution to inflation, and a deterioration in the terms of trade from what would have otherwise been the case. This approach has been adopted by a number of commentators including:

- NIEIR in their Energy Working Party Report Q3 2004 ([http://www.nieir.com.au/code/research\\_centre/reports/energy/Oil\\_Shock.pdf](http://www.nieir.com.au/code/research_centre/reports/energy/Oil_Shock.pdf))
- the Reserve Bank ('Oil Market Developments and Macroeconomic Implications', *Reserve Bank of Australia Bulletin*, October 2004),
- the ANZ Bank ('The impact of oil on the Australian economy', *Economic Update*, 1 Sept 2004), and
- the Commonwealth Bank (eg 'How dangerous are high petrol prices?', *Economic Issues*, 12 Sep 2005)

Data from the 2003-04 ABS Household Expenditure Survey (HES) shows that in that year Australian households spent on average \$32.28 per week on automotive fuel, or 3.5% of disposable income. Assuming no change in average consumption, the ANZ Bank estimates that this amount would have increased by 31% to \$42.5 per week (or 4.3% of disposable income) in the September quarter 2005.

This 3.5% average in the HES varied across the income range, with the poorest 20% of households spending 5.5% of their income on automotive fuel, and the richest 20% spending only 2.5%. In turn, low income households direct a much larger share of their income towards retail expenditures.

Consequently, rising fuel prices are affecting lower income households the most, as well as having a disproportionate impact on retail spending and discretionary expenditures such as travel, entertainment and recreation. A recent survey by *Sensis* (reported in the 24 April 2006 issue of the Commonwealth Bank's on-line publication *Economic Issues*) reports that about one-third of respondents have cut spending because of high petrol prices, with expenditure on entertainment/recreation bearing the brunt, together with some evidence of a muted shift to alternative transport modes such as rail and bus.

There is emerging evidence that consumers have also reacted to the price increases by reducing petrol purchases the Commonwealth Bank (*Economic Issues*, 24 April 2006) has reported an 8% decline in the volume of petrol spending during 2005, the largest annual decline in the 20 years for which data is available.

Overall, the ANZ Bank estimates that a sustained rise of 10% in the price of petrol would cut real consumer spending by 0.3%, leading to a 0.2% cut in GDP growth as a first round effect. With petroleum and coal inputs accounting for around 1.2% of intermediate inputs (excluding wages) and automotive fuel comprising 4.25% of the CPI, the direct impact on inflation is estimated at 0.4%, although indirect effects could potentially be half of that again. Finally, the effect on the trade balance is estimated as a deterioration of the current account deficit of around 0.1% of GDP, leading to a combined effect on GDP growth of -0.3%. (*The impact of oil on the Australian economy*, ANZ Bank Economic Update 1 Sep 2004).

### 8. Australia: Long Term Effects

Estimates of the short-term effects of oil price rises on the Australian economy such as those just discussed have one major shortcoming: they treat oil price increases in isolation from the wider context in which they are occurring, namely rising demand for energy and other raw materials from the emerging economic powerhouse of China.

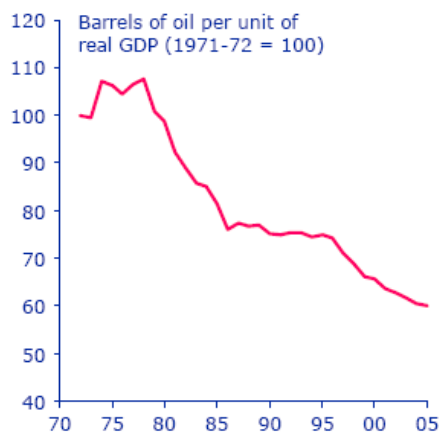
As put by ANZ Bank economist Saul Eslake, in assessing the impact of the current round of rising oil prices on the Australian economy it is crucial to bear in mind that the rise in oil prices is just one aspect of a major global shift in relative prices between raw materials and manufactures, which is just one of the consequences of China's rapid growth and industrialisation, and from which Australia (to a much greater extent than other countries) stands to benefit a great deal.

The following points are highly pertinent in assessing the impact of rising oil prices on the Australian economy:

- Australia has a relatively high level of oil self-sufficiency, producing 78% of its oil consumption in 2003.
- Australia is a net energy exporter: its combined Petroleum, Gas and Coal exports in 2003-04 stood at \$20.4 billion, compared to imports of \$10.2 billion.
- Along with the rest of the world, the oil intensity of Australian economic activity has declined dramatically in the last 25 years

#### Chart 9

#### Oil intensity of Australian economic activity



Source: Saul Eslake 'The rising price of oil and its economic consequences' ANZ Bank ([http://www.anz.com/business/info\\_centre/economic\\_commentary/OilPricesNov2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/OilPricesNov2005.pdf))

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While Australia is a small net importer of oil, it is a substantial and growing exporter of natural gas and coal, the price of which tends to rise with oil. As a net energy exporter, the overall effect of higher energy prices is to improve Australia's terms of trade, representing a net transfer of income from overseas. ('Oil Market Developments and Macroeconomic Implications', Reserve Bank of Australia Bulletin, October 2004).

**Table 3: Australia's Trade in Energy Resources**

2003/04, \$ billion

	Exports	Imports
Petroleum	6.6	10.0
Gas	2.8	0.2
Coal	11.0	0.0

Source: ABS Cat No 5368

Furthermore, the key factor responsible for rising oil prices, i.e. rapidly growing demand, particularly from China, has further boosted Australia's terms of trade through increased demand (and prices) for the rest of Australia's substantial mineral exports, in combination with the reductions in the cost of manufactured imports discussed earlier. The dramatic turnaround in Australia's terms of trade since the late 1990s is illustrated in the following chart.

**Chart 10**



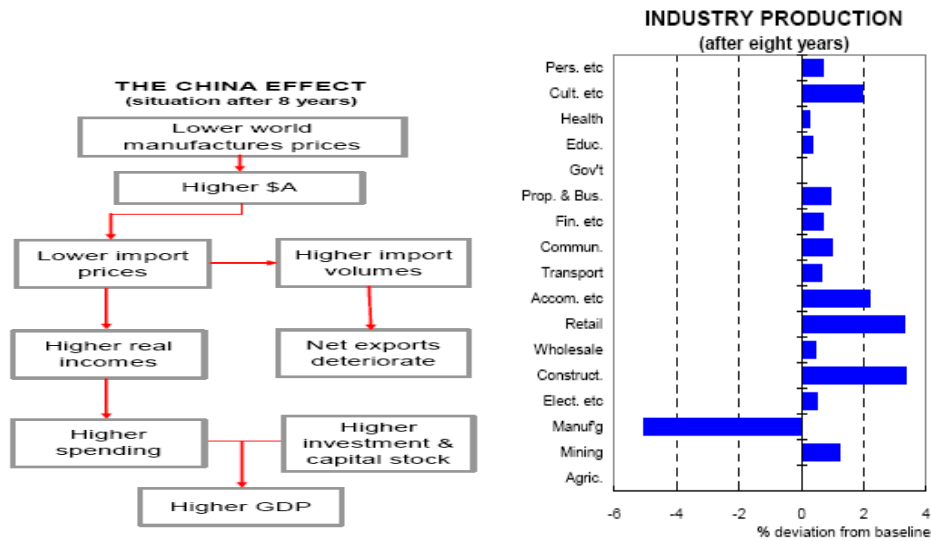
Source: Saul Eslake *The rising price of oil and its economic consequences* ANZ Bank ([http://www.anz.com/business/info\\_centre/economic\\_commentary/RisingPriceofOilAug2005.pdf](http://www.anz.com/business/info_centre/economic_commentary/RisingPriceofOilAug2005.pdf))

The wider impact of the 'China Effect' on the Australian economy has been succinctly presented by Commonwealth Bank economist Joseph Capurso in the 13 March 2006 issue of Economic Issues ('Where is the inflation? China rewrites the inflation equation' <https://www.research.comsec.com.au/ResearchFiles/M/Manufacturing%20MM2.pdf>).

The argument, summarised in Chart 11, basically states that a permanent 1% decline in the world price of manufacturing leads to an appreciation of Australia's currency, a decrease in import prices, an increase in real incomes, and an increase in consumer spending, business investment and, finally, a 2% increase in real gross domestic incomes.

Higher investment, resulting both from stronger consumer demand as well as cheaper physical capital costs, is predicted in all industry sectors except manufacturing. Australian manufacturing represents the downside of this process, with a 5% decline in production after five years.

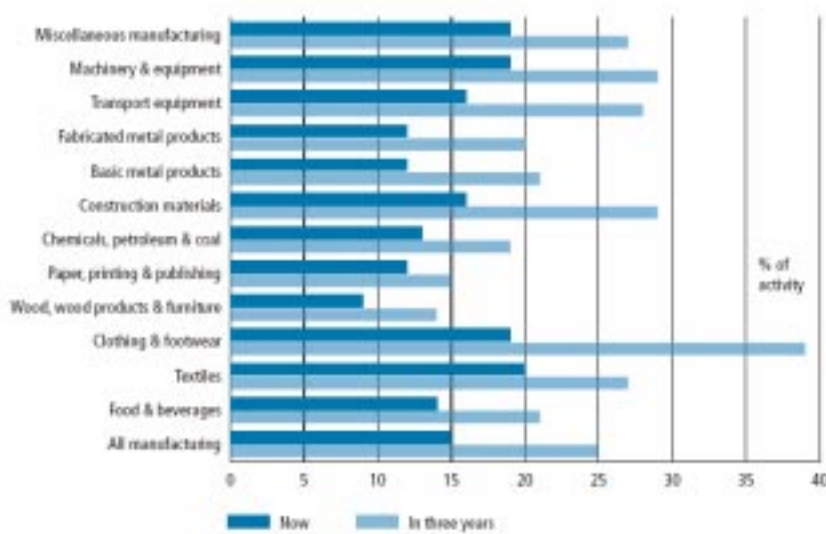
**Chart 11**



The plausibility of these model estimates are borne out in a recent report on trends and prospects for Australian manufacturing (*Manufacturing Futures: Achieving Global Fitness, Australian Industry Group, April 2006*). Imports as a percentage of manufacturing sales have increased from 27% in 1995 to 44% in 2005, while the latest official data shows company profits before income tax in the manufacturing sector grew by just 1.7% in the year to June 2005, compared 13.2% in the remainder of the economy. If the highly profitable food/beverages sector is excluded, manufacturing profits actually fell by 8.8% over 2004-05.

A key response by the industry has been a rapid acceleration of offshore activity, consisting both of production of final goods overseas and the use of imported materials or components in domestic production. Chart 12 shows that over the next three years the percentage of offshore production is expected to rise from 15% to 25%, involving the loss of an estimated 30,000 jobs.

**Chart 12: Percentage of activity derived from offshore production**



Source: AI Group, Survey on Manufacturing Futures, September 2005

### 9. Implication for Victoria and the City of Melbourne

The positive overall implications of the China Effect scenario are unlikely to apply to Victoria, as the downside with respect to manufacturing is likely to have disproportionate effects on this State. In 2003 Victoria accounted for 34% of Australia's 1,150,000 manufacturing jobs (compared to its share of around 25% of total employment), while in the most vulnerable sector of Textiles Clothing and Footwear the State's share stood at 52% (*ABS Manufacturing Industry Australia, 8221.0; Labour Force Australia, 6203.0; Labour Force Victoria, 6202.2*). Manufacturing represents 16% of total production and 15% of total employment in this State, compared to a national average of 13% and 12% respectively (*ABS Australian National Accounts: State Accounts 5220.0*). It is not unlikely, therefore, that this State may experience a relative, and perhaps an absolute, deterioration in its national economic position.

Releasing the *Manufacturing Futures* report, Australian Industry Group chief executive Heather Ridout warned that, on current trends, more than 300,000 jobs would be lost over the next decade, including 100,000 in Victoria (reported in *The Age*.7 May 2006).

The manufacturing sector is no longer a significant employer in the City of Melbourne itself. According to Council's 2004 Census of Land Use and Employment (CLUE), manufacturing employed 14,644 persons in the municipality, or 4.5% of the City's 328,000-strong workforce. Two years earlier, manufacturing employed 15,440 persons, or 4.8% of the total workforce. Longer term trends for the municipality are not available, but they are available for the CBD. In 1982, manufacturing employed 5,631 persons in the CBD, or 3.9% of the CBD's workforce. By 2004, manufacturing employment had declined to 1,743 jobs, or 1% of the total.

This having been said, it would be misleading to suggest that the City's economy would be unaffected by any major shake-out of the manufacturing sector. While the municipal economy has undergone virtual de-industrialisation over the past 25 years, the City's substantial finance and business services sectors has been historically associated with the State's concentration of manufacturing activity - any significant deterioration of the State's manufacturing industry base is likely to have significant negative multiplier effects on the City's finance, property and business services sectors. Furthermore, to the extent that the overall long term effects on the State are on the negative side, there will also be adverse repercussions on the City's substantial retail sector.

Estimating the likelihood, severity and longevity of any such impacts on the City is outside the scope of this paper. As the matters raised here are of vital significance to the City and its major constituents, it is recommended that further research and analysis be undertaken to quantify the likelihood and extent of the problem and propose options for future action.

### 10. Summary and Conclusions

While petrol prices have risen steeply over the past two years, in real terms they are still below the record levels reached in 1980 and represent a lower proportion of average weekly earnings now than they did in that year. Together with a substantial reduction in the energy intensity of production, this explains why the current oil price hike has not had the negative impacts on inflation and economic growth associated with previous experience.

However, the size and speed of recent price increases are substantial and, unlike previous rapid increases, are primarily demand driven. The key drivers are associated with record growth rates in the world economy and more particularly the rapid industrialisation of the Chinese economy.

Coupled with declining rates of new discoveries, reduced capacity and rising international tensions, the longer term outlook is for an upward pressure on oil prices over the next few years, with projected demand growth (especially from China) running up against long term supply constraints.

The short term effects for Australia appear to be some reduction in petrol purchases, as well a small negative impact on retail spending and discretionary expenditures, particularly by lower income households. Australia is expected to be least affected however, as it has a relatively high level of oil self-sufficiency and is a net energy exporter.

Of far greater significance to the Australian economy is the wider context in which current rises in oil prices must be seen, namely the major global shift in the relative prices of resource materials and manufactured products - the so-called "China Effect". As a major exporter of energy and other mining resources, Australia has already experienced, and will continue to experience, a significant turn-around in its terms of trade, together with the consequent appreciation of the dollar and significant improvements in our international ranking of living standards.

The downside of this realignment is significant current and future pressure on Australia's manufacturing sector and the likelihood that the negative impacts of this pressure will be felt disproportionately by the State of Victoria.

Given the significance of manufacturing in this State as a major employer and the high multiplier effects of manufacturing, any significant deterioration of the State's manufacturing sector is likely to have significant repercussions for other parts of the economy, including the City's significant finance, property and business services sectors, as well as City retailing.

It is recommended that these issues be addressed as soon as possible by more specialised research and analysis.