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A MAGAZINE ABOUT CONTEMPORARY ECONOMIC ISSUES FOR EVERYONE

FROM THE EDITOR

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

In this issue, we explore how economists can distinguish between what people *want* to do and what they actually do. We also look at how the Union for the Mediterranean may affect Turkish trade flows and foreign direct investment and the impact of squid fishing on the Hooker sea lion population. We profile this year's recipients of the highest award in the field of Economics, the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, and recognize the achievements of Economics students at the University of Otago. *Highlights* – short commentaries on economic issues – accompany selected articles.

The contents of previous *EcoNZ@Otago* issues 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 edition of *EcoNZ@Otago,* 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, 9054.

DAN FARHAT

INSIDE THIS ISSUE

Akrasia

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'I can resist everything except temptation'
Oscar Wilde

In recent years, many economists have seen the need to make some of their models more psychologically plausible. There may often be a difference between what people *want* to do, what people *actually* do, and what people wish they had done after the fact. This article describes how economists attempt to extract the true motives behind people's choices (both the ones they made *and* the ones they wish they had).

DECISIONS, DECISIONS

Taken literally, Neoclassical economic theory implies that people are ultra-rational: they are unerringly efficient in using the resources at their disposal in order to achieve well-defined objectives.[1] They never make avoidable mistakes, and it can never be said that they could have done better. In some circumstances, this might be a useful approximation to reality, but it is now recognised that observed behaviour is sometimes inconsistent with ultra-rationality. For example, the Neoclassical model is very poor at predicting how people deal with risk (Starmer, 2004). These deficiencies have given rise to a new field of research – behavioural economics – which draws on insights from other human sciences, such as anthropology and psychology, in order to improve the explanatory power of models of economic behaviour.

One interesting area in behavioural economics is the study of temptation. Many people admit that sometimes they do things which, on reflection, they

would rather not have done. Such weakness sometimes amounts to a lack of prudence (for example, over-indulgence in beer or chocolate), and sometimes to a lack of virtue (for example, jumping a queue in the supermarket). Philosophers and theologians have paid a great deal of attention to this sort of behaviour, and the work of some classical philosophers, such as Plato and Aristotle, provides a starting-point for the study of temptation by modern economists.[2]

In classical thought, the propensity to give in to temptation is known as *akrasia*; its opposite is *enkrateia* ('self-control'). Interpretation of these concepts varies. In Plato's *Protagoras*, Socrates argues that a supposed failure to exercise *enkrateia* is just an excuse for the absence of some other virtue. Claiming regret for having jumped the queue at the supermarket is disingenuous: if we really valued the virtue of waiting our turn, then we would never have jumped the queue in the first place. This is the Neoclassical economic view: the ultra-rational individual is always completely efficient in achieving her objectives, and therefore her true preferences are always revealed by her behaviour.

In the *Nicomachean Ethics* (Book VII), Aristotle challenges this line of argument. According to Aristotle, there are two psychologically plausible reasons why people's behaviour might not always reveal their true preferences: impetuosity *(propeteia)*, and weakness *(astheneia)*. *Propeteia* is an extreme form of short-sightedness, implying that behaviour observed today is inconsistent with tomorrow's genuinely expressed preferences. In modern behavioural economics, this idea is embodied in models with 'hyperbolic discounting' (Ainslie & Haslam, 1992; Rubinstein, 2003). *Astheneia* entails a more radical departure from Neoclassical theory. It requires that we think of people as having two kinds of preferences: basic preferences that are revealed by their behaviour (just right now, I do want to jump the queue), and meta-preferences that describe what sort of basic preferences they would like to have ('I wish I weren't a queue-jumper').

LET'S TAKE A VOTE

Isn't *astheneia* just a fiction? How on earth would we ever find evidence that these meta-preferences were genuine, if they are not apparent in people's behaviour? A solution to this problem is suggested by Tullock (1971), drawing upon research on the theory of voting. In a large referendum or first-past-the-post election, the probability that any one individual's vote will be decisive – that it will matter for the outcome of the election – is tiny. People are therefore likely to vote in a way that expresses their meta-preferences. The example that Tullock gives is a decision about whether to donate $100 to charity. Perhaps some people would like to be the type to make such a donation, but *astheneia* prevents them from actually doing so: when faced with the choice, they can't resist keeping the money. Now consider a large referendum in which everyone votes on whether the government should impose a $100 *per capita* tax to raise money for charity. The expected cost to any one individual of voting for the tax is very small, because the probability that the individual's vote will be decisive is very small. This weakens the force of temptation, so we should observe some people voting for the tax, even if they don't ever make private charitable donations; such behaviour is known as 'expressive voting'. Moreover, everything else being equal, the proportion of people voting for the tax should be greater in larger electorates, where the probability of being a decisive voter is smaller.

This idea has given rise to a number of experiments which try to find evidence for *astheneia*. In one type of experiment (Cason & Mui, 1997; Eichenberger & Oberholzer-Gee, 1998), a subset of the participants is given a choice about how equitably a pool of money is to be distributed across all participants. A vote on the distribution produces a significantly more equitable result than when the choice is an individual one, which indicates an expressive voting effect. In another type of experiment (Tyran, 2004; Feddersen *et al*., 2009), the conditions of the vote are varied so that the probability of any one participant's vote being decisive varies. Here the results are mixed, but with evidence for expressive voting when participants are given a wide range of choices about how equitable to be. A few experiments (Carter & Guerrette, 1992; Fischer, 1996) provide evidence more directly related to Tullock's example by varying the probability of being decisive in a decision about whether to make a charitable donation. Again, there is some evidence for expressive voting. Overall, these experiments indicate that *astheneia* is a real-world phenomenon.

CAST YOUR BALLOT

One common feature of all of these experiments is that different participants behave in different ways. Some make choices consistent with Tullock's expressive voting hypothesis time and time again; others never do. What explains this variation? A recent set of experiments at the University of Otago (Etang *et al*., 2010) suggests some answers.

In the Otago experiments, student participants were asked to make both of the choices from the Tullock paper. Having completed a small questionnaire about social activities and attitudes, and having then been endowed with some money by the researchers, each participant was asked what fraction he or she wished to donate to the charity *Save the Children*.[3] In a separate exercise, participants were asked to vote on a collective donation. In one version of the experiment, the individual decision was made first; in the other version, the voting happened first.[4] Participants' decisions turn out to be correlated with both the responses to the questionnaire and the order in which the decisions were made.

Comparing the votes of participants who voted first with the donations of those who made the individual decision first reveals a strong expressive voting effect for certain types of people. Among those who are members of some type of social club or religious group, who say that they are happy with life and who say they trust other people, the average level of charity in the vote is significantly higher than the average individual donation. (The size of the difference depends on the combination of individual characteristics, and is as high as 80% of the initial endowment for the happiest and most trusting club members.) For other types of people – in particular, those who are not members of any club, or who are only members of a sports club – there is no statistically significant expressive voting effect. On average, this second type of person is significantly less generous than others when voting, but not when making an individual donation.

Comparing the votes of participants who voted second with the donations of those who made the individual decision second also reveals some striking results. Among the 'clubby' types, the private donations are significantly more generous than the votes, and the difference is of a similar size to the one in the first decisions. (For the 'un-clubby' types, there is again no significant difference.) How are we to interpret these results? One explanation is that having recently voted expressively encourages people to be more generous in their subsequent individual donations. Perhaps the expressive vote produces a 'warm glow' that subsequent selfishness would extinguish. Also, perhaps, having recently made a selfish individual choice produces a 'cold shower' that prevents any warm glow being kindled in a subsequent vote.

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1 Many textbook expositions of Neoclassical economics also assume that these objectives are completely selfish, but this is not an essential part of the theory.
2 For a review of modern philosophers' approaches to the subject, see the entry in *The Stanford Encyclopedia of Philosophy* (http://plato.stanford.edu/entries/weakness-will/index.html).
3 Financial constraints meant that the amount involved was $20, not the $100 of Tullock's example.
4 In this version of the experiment, the result of the vote was not announced until the individual decision had been made.

THE RESULTS ARE IN

These results from the Otago experiments raise a number of questions. First of all, does the association between 'clubbiness' and expressive voting reflect a treatment effect or a selection effect? Is it the club membership that creates the meta-preferences, or is it just that people with such meta-preferences are attracted to clubs? If the former, then the promotion of social activities can have a large effect on the way that people vote in elections and referenda. Secondly, if there are 'warm glow' effects from expressive voting, how long do they persist? If they persist for any length of time, then providing frequent opportunities to vote – for example, having more referenda on local government issues – will change the decisions that some people make in other aspects of their life.

QUESTIONS TO CONSIDER

1. Would the existence of *akrasia* justify a government intervention to prevent people from being tempted to do things that are bad for them (for example, smoking)?
2. What are the pros and cons to having a large number of people voting on an issue? What are the pros and cons to having a small number of people voting on an issue?
3. Why might members of clubs wish to be more generous? Why might people who wish to be generous choose to join clubs?

USEFUL WEBSITES

For more information on the *Save the Children fund*, see www.savethechildren.org.nz.

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HIGHLIGHT: SOCIAL INSECURITY

The modern notion of 'social security' began in Europe during the late 19th Century and stems from ideas regarding the state's obligation to provide for the economic welfare of its citizens. Most countries with developed social security programmes today are primarily interested in caring for low-income, elderly people during their retirement years. To do this, governments have chosen between two regimes: pay-as-you-go social security and fully-funded social security. Pay-as-you-go social security is a scheme in which taxes are taken from the incomes of the current young population and transferred to the current old population. Fully-funded (*or privatised*) social security requires individuals to save a certain amount in a private account, which is then invested in capital and financial markets. The principle plus interest on their account is then paid out to them during their golden years. Recent pessimism about the ability of the United States to maintain its pay-as-you-go programme has made the fully-funded regime more appealing to many economies world-wide.

However, many economists are questioning whether or not the fully-funded social security programmes adopted by some countries are truly "fully-funded". During the 1990s, Mexico was one of eight Latin American countries to announce its intention to switch from a pay-as-you-go system to fully-funded social security. In the new regime, Mexican workers contribute 6.5% of their wages to an individual account. The government then adds 5.5% of the minimum wage to the account for each worker, which is paid out of the government's general revenue (i.e. from tax collections). The individual accounts are managed by private investment companies (Administradores de Fondos de Ahorro – AFOREs) which are monitored by the Mexican government through the Comisión Nacional del Sistema de Ahorro para el Retiro (CONSAR). AFOREs invest the funds into a portfolio of low-risk assets to earn the workers a stable rate of return on their retirement savings.

The types of 'low-risk assets' that form the bulk of the worker's portfolios are what concern economists. In 1999, more than 66% of the investment portfolios was in inflation-indexed government bonds (CONSAR requires that AFOREs invest at least 51% of the portfolio in these sorts of assets). Another 22% was held in treasury bills. Only 3% was held in private assets. This is a worrisome allocation of wealth since it can require manipulation of government bond issuances to sustain. When workers reach retirement age, the government bonds held in their accounts are liquidated so that they may draw upon their savings. If the government is forced to issue new bonds to younger workers so they can make payments to retirees, then the system has reverted to a privatised pay-as-you-go regime: young workers are 'taxed' by being forced to buy government bonds whose proceeds are used to pay the elderly. Because portfolios are limited by CONSAR as to how much private debt they may contain, if the proceeds from new bond issuances are not used for other forms of government spending (and are just transferred to the old) then the social security programme is just pay-as-you-go in disguise. This possibility has cast doubt on whether Mexico has effectively switched to a fully-funded regime or has just transferred management of the pay-as-you-go system to private firms (the AFOREs). Although fully-funded social security regimes may be preferred to pay-as-you-go systems in theory, it may not be so easy to distinguish between them in practice.

Interested in social security in Mexico? See page 14 for references and further reading.

Turkey is now in the Union, but it's the "Union for the Mediterranean"

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Turkey signed the *Union for the Mediterranean* agreement in July of 2008. This agreement is the latest tool used by the EU to strengthen regional relationships and to narrow the social and economic gaps between Mediterranean countries. By implementing specific programmes designed to improve infrastructure, enforce the rule of law, and enhance education, the Union for the Mediterranean is expected have a significant impact on the economies of the member countries. This article explores the potential of these projects to affect trade and FDI flows. While we may expect the agreement will have a positive impact on both trade and FDI, empirical and theoretical evidence yields mixed results.

FINALLY PART OF THE CLUB?

In 2008, after fierce debates and lengthy negotiation, Turkey signed the Union for the Mediterranean (UfM) agreement. The UfM, which was launched at the Paris Summit for the Mediterranean in July of 2008, is a *multilateral* partnership between the 27 member states of the European Union (EU) and the 16 countries from the Mediterranean Basin.[1] This agreement, which is complementary to other *bilateral* relations such as the European Neighbourhood Policy, is the latest instrument used by the EU to strengthen regional relationships and to narrow the social and economic gaps between Mediterranean countries. The UfM can be interpreted as the last stage of the Euro-Mediterranean Partnership (EMP) which was enacted in 1995. The objectives of the EMP, also known as the *Barcelona Process*, are to promote peace, security, stability and prosperity throughout the Mediterranean region as a whole.

By providing a more realistic approach to achieving the goals set by the *Barcelona Process*, the UfM is expected to have significant impacts on the economic performance of the member nations. To discuss these implications, we first briefly look at the particulars of the EMP and the UfM. Then, by placing a particular emphasis on Turkey, we scrutinise the UfM to see if there is scope for influencing trade and foreign direct investment (FDI).

LET'S (RE) NAME IT?

How different are the EMP and the UfM? The goals set by the EMP include: (i) the creation of an area of peace, stability, security and shared prosperity; (ii) full respect for democratic principles, human rights and fundamental freedoms; and (iii) promotion of understanding between cultures and civilisations in the Euro-Mediterranean region. The three chapters of the EMP (Political Dialogue, Economic Cooperation and Free Trade, and Human, Social and Cultural Dialogue) as well as a fourth chapter (Migration, Social Integration, Justice and Security, which was introduced at the 10th Anniversary Euro-Mediterranean Summit in Barcelona, 2005) remain central in Euro-Mediterranean relations. The UfM adopts the EMP goals as its own, yet stands apart from the original agreement.

What, exactly, makes the UfM distinctive? The UfM introduces a number of concrete projects at the regional level to achieve the goals laid out by the EMP. These projects include the de-pollution of the Mediterranean and the promotion of alternative energies (e.g., Mediterranean solar plans) to enhance the lives and livelihoods of people in the region. Plans for the construction of maritime and land highways for easy and secure transportation of goods and people, and improvements in civil protection to help prevent, prepare and respond better to disasters are included. Investments into higher education and research (e.g. the establishment of a Euro-Mediterranean University) to contribute to cross-cultural understanding and to encourage cooperation in higher education are also a part of the agreement. Further, projects that assist the existing entities in partner countries through the Mediterranean business development initiative to support micro, small and medium-sized enterprises are proposed as well.

Although there has been consensus among the partners to some extent, the UfM has faced several obstacles stemming from concerns and conflicts between its members. In its first stages, European states (in particular Spain, Italy and Germany) were concerned that the UfM would challenge the philosophy, set-up and practice of the existing EU relations with its southern neighbours (Balfour, 2009). Further, the Arab-Israeli conflict had delayed the acceptance of the co-presidency of Israel. In interviews with representatives from southern member nations, Khatib (2010) identified this issue as a critical factor in the UfM's success. As these conflicts and concerns arise, their potential to result in boycotts of summits strengthens and the process of enacting the projects proposed by the UfM slows.

Should the UfM be successful, however, the member countries would benefit from stronger regional economic integration in all its aspects, greater openness and transparency, economic and political stability in the region, increased financing of investments in infrastructure and research and development, improved economic growth, enhanced development of tourism, and stronger enforcement of the law (including helping the partner countries fight corruption as well as illegal migration, maintaining a strong institutional environment, etc.). An interesting question is how these potential benefits of the process affect trade and FDI flows between the partner countries.

ROOM FOR IMPROVEMENT?

Data on FDI outflows from Turkey for the period 2000-2009 indicate that South Mediterranean countries' share in total FDI outflows from Turkey ranges from 0.2% to 4% (except for the year 2008, when it reached about 7%). During this period, most FDI was undertaken in the service, energy and manufacturing sectors. Similarly, in the same period, South Mediterranean countries' share in Turkey's total exports was around 3% (except for the last year, 2009, in which it increased to 7%). In other words, flows of goods and assets out of Turkey into other South Mediterranean countries are currently 'small'. We would expect that these would increase under the programmes initiated by the UfM.

There are different channels through which we might observe an increase in trade and/or FDI flows in Turkey. Economic growth and/or convergence, especially in terms of the institutional environment, constitute one channel. Related literature on economic growth in the Mediterranean along with empirical evidence suggests that Turkey's economic structure is significantly different from the economic structure of many other Mediterranean countries. If the UfM succeeds in generating stronger economic integration, reduced transactions cost for goods and assets along with increased purchasing power for the population would result. In turn, trade and/or FDI flows would increase.

Another channel through which trade and/or FDI flows might increase is financial integration. Financially integrated markets allow less-advanced countries to better utilise resources and to access capital at lower costs. The financial capital is then directed towards investment projects which enhance economic activity. International capital flows, such as remittances sent by migrants, are important in generating and accessing financial capital.[2] According to the economics of migration, a household can reduce the family's financial dependence on a single market by sending a family member to work in a foreign country. This type of risk diversification is relevant in countries where public social security is inadequate, and where private capital markets are not well-functioning (Vogler & Rotte, 2000). In the short- and medium-term, remittances from family members working abroad are mainly used for consumption purposes. Well-functioning financial intermediaries are necessary to channel remittances into productive investments. The projects proposed by the UfM may create these in the long-term.

Improved financial integration may also result in less immigration to the EU. Trade liberalisation, accompanied by capital market liberalisation and the deepening of financial markets, may reduce the level of risk faced by households in the Mediterranean nations. As a result, there is less incentive to immigrate to Europe. Immigration is at the forefront of the EU's attention as the immigrant population in the EU is significantly large. At the end of the 1990s, 3.5% of the population (18 million) in the EU was of immigrant origin (Aubarell & Aragall, 2005), many of whom were from the Mediterranean and the Middle East/North Africa (MENA). The South and East Mediterranean (SEM) countries today have an aggregate emigrant population of some 12.7 million, 64% (8.2 million) of which are in the EU (CARIM, 2009).

Migration *to* the Mediterranean partner countries also might be a factor enhancing trade and/or increasing FDI. This can occur through two broad channels. First, immigrants might stimulate trade by helping the country reduce transaction costs, which is referred to as the *information bridge hypothesis* (Dunlevy, 2006). Immigrants have better knowledge of laws, business networks and the spoken language in their home countries which aid in international transactions. Second, immigrants prefer to buy goods that they were used to consuming before having emigrated.[3] With the immigrant comes increased demand for goods produced in his/her home country, which is referred to as the *transplanted home bias effect* (White, 2007). If the UfM projects result in increased migration to/within Mediterranean nations (through better or easer transportation, for example), we would expect increased trade flows to occur as well.

HOW FAR CAN IT GO?

How much of an improvement to trade/FDI flows *can* the UfM achieve? Although there are mixed empirical results, especially for some African countries, FDI inflows to the Mediterranean Basin generally increase with infrastructure development as it decreases transaction costs. FDI inflows also rise with an increase (decrease) in transparency (corruption), and with economic and political stability as there are costs associated with a risky business environment.

Changes to trade flows and FDI flows, in theory, may not occur together. Asiedu (2002) and Greaney (2003) show that openness of countries may have a *negative* impact on FDI. If foreign firms attempt to save on high trade costs and avoid protectionist rule by undertaking FDI and building production facilities in other countries when trade restrictions are in place, we would expect a fall in FDI when the trade restrictions are relaxed.

On the other hand, Keller & Levinson (1999) claim that as trade barriers diminish, firms may be more able to outsource parts of their manufacturing operations, which can increase FDI. Markusen & Venables (1995), Markusen & Maskus (1999), Lipsey (2000), and Cuadros *et al*. (2001) argue that openness can trigger both trade and FDI. If two countries are sufficiently asymmetric in factor endowments, the convergence of the countries' characteristics initially leads to an increase in the volume of trade. Over time, an increase in the relative importance of FDI leads to increased FDI flows. The volume of trade, however, then declines. Markusen (1995) notes that there is mixed evidence about the exact relationship between trade and FDI overall. While we can hope that the UfM programmes will improve *both* trade *and* FDI flows, it is difficult to say for certain if it will.

QUESTIONS TO CONSIDER

1. What has been said, and what has been accomplished in 15 years? What does statistical data tell us about economic and political stability, transparency, living standards, and civil rights in the Mediterranean countries?
2. The UfM process aims at promoting understanding between cultures and civilizations in the Euro-Mediterranean region. What cultural values do European countries and South and East Mediterranean countries share?
3. South and East Mediterranean countries have a large aggregate emigrant population that is around 13 million, approximately 8 million of which are located in the EU. Do people suffer from stereotyped perceptions of each other? How might a Mediterranean Union, or rather, Union for the Mediterranean affect the mutual perceptions of each other?

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USEFUL WEBSITES

Information about the UfM process is available at www.enpi-info.eu/medportal/content/341/Union for the Mediterranean.

The UfM Secretariat Documents are available at www.ufmsecretariat.org/en/institutional-documents.

FEMISE, A Euro-Mediterranean Network: www.femise.org/en.

ANIMA, Investment Network, Country Perspectives: www.animaweb.org/en/pays-accueil.php.

1 These 16 countries from the Mediterranean Basin include Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Israel, Jordan, Lebanon, Mauritania, Monaco, Montenegro, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey. Turkey signed the UfM agreement after having been assured that it would not be regarded as an alternative to membership of the EU.

2 Some NZ$ 9.2 billion is *officially* transferred each year from Europe to eight Mediterranean countries (between NZ$ 15 and NZ$ 18 billion including *informal* transfers). These remittances from Europe therefore far exceed total flows of net FDI (NZ$ 8.3 billion a year, 2000-2003) and official development assistance (NZ$ 5.6 billion a year, 2000-2003) received by these countries.

3 We shall note that living conditions prior to emigration decisions affect demand for imported goods as the number of immigrants will be affected. Also purchasing power of immigrants, their specific needs, and the availability and competitiveness of imported goods affect demand for imported goods.

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HIGHLIGHT: A TALE TOO SEEDY

The state of Nevada legalised gambling in the 1930s. For four decades, it was the only state in the United States where one could find a legal casino, most of which were located in the desert city of Las Vegas. The gambling industry as a whole has a reputation for debauchery and corruption, so prior to the 1970s the majority of casinos in Nevada were small, independently-owned establishments with little access to conventional financial resources. In 1969, Nevada allowed large companies (such as Hilton and MGM) with access to vast amounts of investment capital to own gambling permits. Huge resort-style casinos were subsequently built on the Las Vegas Strip. By 2008, the 24 largest casinos on the Strip had captured approximately 84% of total Las Vegas casino revenues (approximately NZ$ 8.03 billion), and roughly 49% of state-wide revenues (or NZ$ 16.34 billion, which is approximately 9% of New Zealand's 2009 GDP).

On the other side of the country, gambling restrictions were also starting to ease. Gambling became legal in Atlantic City, New Jersey, in 1976. Eager to reap the benefits of casinos without the unpleasant social impacts (such as crime, drunkenness, etc.), the size of gaming establishments was set so that only investors with large financial resources could own and operate them. By the late 1990s, Atlantic City had caught up with and nearly overtaken Las Vegas in terms of gaming revenues. Like Las Vegas, the industry was dominated by as few as 11 firms earning NZ$ 6.37 billion in gaming revenues alone in 2008.

In both cities, the largest firms came to dominate the gaming industry principally because of economies of scale. Firms that exhibit *economies of scale* can produce output more cheaply as they grow in size (for example, a casino twice the size can accommodate more than twice the customers). In addition to *economies of scale*, casinos also exhibit economies of scope in which larger casinos can produce a larger variety of products (such as hotel, night clubs, shows, etc.). We call an industry where a few firms come to dominate because of economies of scale or scope an *oligopoly*. The difference between the oligopoly that has emerged in Las Vegas and the one that has emerged in Atlantic City is the sea of smaller gambling establishments (called a *competitive fringe*) which continues to engulf the Las Vegas Strip. In Nevada, the gaming commission sets few restrictions on new casinos entering the industry whereas the size restrictions in New Jersey allows for only large establishments and bars small entrants.

The features of the gambling industry in each city affect their character and therefore their tourism revenues. The mom-and-pop gaming halls that are allowed to flourish in Las Vegas earn the city a reputation as a gambler's paradise and vacation hot-spot. As a result, the city tends to cater to young, inexperienced gamblers who are more frivolous with their cash. Atlantic City, on the other hand, tends to attract mostly older patrons, many of whom are either seasoned gamblers or are visiting for purposes other than gambling (just to take in a show or dine at a restaurant, for example). These structural differences result in dramatically distinct prescriptions for economic policies, such as how taxes are collected and how public funds are spent, in each community. This just goes to show that even small differences at the start can have major impacts on how markets develop and grow.

Interested in the casino industry in Las Vegas and Atlantic City? See page 14 for references and further reading.

Economic incentives for sea lion by-catch in New Zealand

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In New Zealand, Hooker's sea lions often get caught and die in trawl nets within the southern squid fishery. To limit the impact of fishery activities on the sea lion population, the Ministry of Fisheries closes the fishing season once a maximum number of sea lion deaths is reached. This number is calculated by assuming a constant mortality rate per tow and, in recent years, the industry has been attempting to circumvent this regulation by increasing the time per tow. In this study, I construct a theoretical model that captures the characteristics of the squid fishery and the imposed regulation. I also suggest that adding a spatial dimension to the current regulatory framework will lead to more efficient behaviour. I show that despite retaining an upper limit on sea lion deaths, the profit-maximising squid industry has the incentive to seek out areas of high squid density relative to sea lion density.

Fishing activities by commercial vessels have always led to the unintended catch of marine mammals (Read *et al*, 2006). Fishermen often discard the captured animals dead (or mortally injured) when they have no economic value or are protected by law, something known as by-catch (Hall, 1996). Read *et al*. (2006) estimate the global by-catch to be in the hundreds of thousands of marine mammals, mainly due to the rapid growth of fisheries worldwide over the last decade.

New Zealand's fisheries are managed by an individual transferable quota (ITQ) system which assigns fishermen the right to harvest a percentage share of an overall catch limit equal to the amount of ITQs owned. In 2008, arrow squid was one of the top 10 export species worth NZ$ 71 million (SeaFIC, 2010). A large fraction of this catch is taken by trawl from an area south of the New Zealand mainland around the Auckland Islands, which also happens to be the main breeding grounds of the rare Hooker's sea lion. The species preys on squid in the same area and around the same time that most of the trawling for squid occurs. As a result, sea lions are often caught and drown in the trawl nets (Breen & Kim, 2005) and have been classified as 'threatened'. To protect the sea lions, the Ministry of Fisheries has imposed a controversial regulation that impacts the profitability of the squid industry. In this study I apply a theoretical bioeconomic model to capture the characteristics of the squid fishery, to evaluate the effect of the current regulation on the behaviour of fishermen and offer some policy advice on how to make regulation more effective.

A SQUID'S LIFE

Arrow squid have some unique characteristics. They only live for one year and exhibit rapid growth in the latter stages of their life cycle during which fishing occurs (Breen & Kim, 2005). All squid hatch between July and August and spawn once in their lifetime shortly before they die. This means every squid fishing season is based on a completely new stock with individuals of the same age (Ministry of Fisheries, 2009). Given their biology, the best way to represent the 'natural biomass' curve (number of squid times their weight in each month, assuming there is no fishing) is by using the single cohort model of Beverton and Holt (1954). By accounting for natural mortality as a function of time, the predicted weight-at-age relationship and the size of the cohort, I show using this model that a natural biomass function (shown as B0 in Figure 1) for squid follows a strong peak-shaped pattern with a slow take off and a sharply decreasing drop close to the end of month 12.

To construct the optimal harvest activity, it is convenient to assume there is a single owner who owns the resource. In New Zealand, this assumption is fairly realistic. Deepwater interests have been combined into a single, efficient management company since 2005. The Deepwater Group Ltd. represents the interests of 14 deepwater companies, where shareholders agree to an annual business plan based on their ITQ holdings. The company aims to optimise economic value for its constituents, so the fishers' management problem can be modelled as that of a single owner that we can refer to as the "squid industry".

Following Beverton and Holt's model of a single cohort harvest, but adapted to squid, I am able to derive the optimal biomass path for squid as shown as B*(t) in figure 1. This optimal path represents the amount of squid the squid industry would want to harvest during a season if it was maximising economic rent. Figure 1 shows the bioeconomic model can explain the characteristics and the current harvesting behaviour of the squid industry well. B*(t) intersects the natural biomass curve B0 relatively late in the life cycle of squid and displays a sharp decline in line with the peak-shaped pattern of the natural biomass curve. Squid are left to increase in natural biomass until 6 months or so after they hatch, and are then intensively harvested from January to May, shortly before they die in June and July.

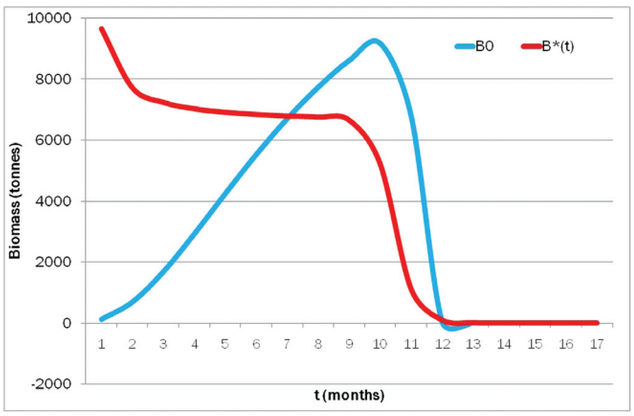

Figure 1- Natural and optimal biomass path of arrow squid.

CATCH ME IF YOU CAN

The sea lion by-catch problem has led the Ministry of Fisheries to impose a regulation known as the "fishery-related mortality limit" (FRML). Every year the Minister decides on an upper limit of 'permitted' sea lion deaths at which the squid fishing season will be closed. This upper limit is based on a proxy of the fatal interaction between squid vessels and sea lions (Ministry of Fisheries, 2008). For example, based on effort data in 2003, the Ministry calculated a strike rate of 5.3%, meaning for every 100 trawl tows reported by squid vessels, 5.3 sea lions are presumed killed and counted against the FRML. If the FRML is set at 113 sea lion deaths, the fishery is shut down for the season after about 2,130 tows.[1] The application of the FRML is controversial. Conservation agencies demand a zero "kill quota" given that sea lion populations are declining and pointing out that each female sea lion killed in trawl nets equates to 3 sea lion deaths if that female is pregnant and has one pup to feed on shore (Forest and Bird, 2008). The squid industry is equally dissatisfied, arguing the squid fishery is one of New Zealand's most valuable export fisheries.

But does the current regulation provide the appropriate incentives for the squid industry to avoid killing sea lions? The Ministry observed that the median tow length had increased steadily from approximately 4 hours to 5.8 hours from 2003 to 2006. This is exactly what we would expect given that the FRML imposes a *restriction on effort*. If the number of tows per season is ultimately limited to around 2,130, we would expect vessels to spend more time per tow to increase the size of the catch. This changes the nature of the optimisation problem. The imposed restriction forces the industry to find an optimal way to distribute the number of tows they are allowed during the season rather than identifying what the optimal number of tows in each month is. The strength of bioeconomic analysis lies in the identification of these underlying mechanisms.

With the help of a simple theoretical model I derive an equation that reflects the intuitive insight as to why the median tow length has been observed to increase steadily over some time. With a fixed restriction on the *number of tows* during the season, the squid industry realises that it can raise its profits by making *each of those tows longer*, i.e. the regulation provides an incentive to raise profits by investing in capital that increases fishing capacity at the beginning of a season.

TO THE RESCUE

Recently, the Ministry increased the strike rate from 5.3% to 5.65% to account for the increase in the median time per trawl tow (Ministry of Fisheries 2008). This limits the number of tows per season to around 2000. But the bioeconomic model suggests that reducing the number of tows will simply result in vessels increasing the time spent per tow on average. How can the Ministry of Fisheries implement regulation that provides the industry with the incentive to avoid killing sea lions rather than to focus on circumventing regulation? Ideally, there should be a 'cost' to killing sea lions during harvest activity which fishermen should have to pay for directly. However, the Ministry has put a lot of work into the current regulation. Therefore, policy advice to reduce sea lion mortality in absolute terms should be based on the existing regulatory framework to start with.

Currently, the Ministry does not account for the location of squid catch when calculating the strike rate. Data collected by the Ministry of Fisheries show sea lion by-catch varies by location *within* the southern squid fishery. In other words, sea lion by-catch is higher in some areas than in others. I suggest applying a system of space-dependent strike rates, which more accurately reflects the differences in the likelihood of squid and sea lion catch. Recall that a lower strike rate implies a higher maximum cumulative number of tows per season and vice versa. It follows that vessels that fish in locations with a low likelihood of sea lion by-catch (and thus a lower strike rate) can increase the amount of effort they are allowed during a season. The question arises: but doesn't this also mean that the likelihood of squid catch could be lower in those areas? This could offset any potential economic gains. It is possible to show using the bioeconomic model that I develop that this will likely be the case. However, the model I construct also shows that the extent of this 'relative density effect' is determined by what I call a *squid-sea lion catchability ratio*.

Squid vessels can target areas of catch with high levels of squid catch 'per captured sea lion' and thereby increase economic gains. Under a policy of space-dependent strike rates the industry has the flexibility to adjust its effort spatially to maximise profits. The more effective the Ministry of Fisheries and/or the squid industry becomes in identifying areas of high squid-sea lion catchability ratios and devising space-dependent strikes accordingly, the greater the scope for maximising economic gains while limiting the amount of sea lion by-catch. Further, there will be less pressure on expanding the capacity of unregulated inputs such as the median duration of tows.

The history of fisheries management has shown that input restrictions provide incentives for fishermen to circumvent regulatory measures rather than focus on efficient ways to conserve marine resources. The same finding applies to the Ministry of Fisheries' upper limit on sea lion deaths in New Zealand, which indirectly restricts the total number of tows squid vessels may undertake during a fishing season. I believe if we are to solve the issue of marine mammal by-catch in the long term, rational fishermen behaviour has to be taken into consideration when imposing regulation.

QUESTIONS TO CONSIDER

1. Do you think the government is doing the right thing by imposing a fishery-related mortality limit on the squid fishery?
2. What other types of regulation could address the issue of sea lion by-catch?
3. Can you think of other natural resource restrictions imposed by the government that provide incentives for people to circumvent the regulation?

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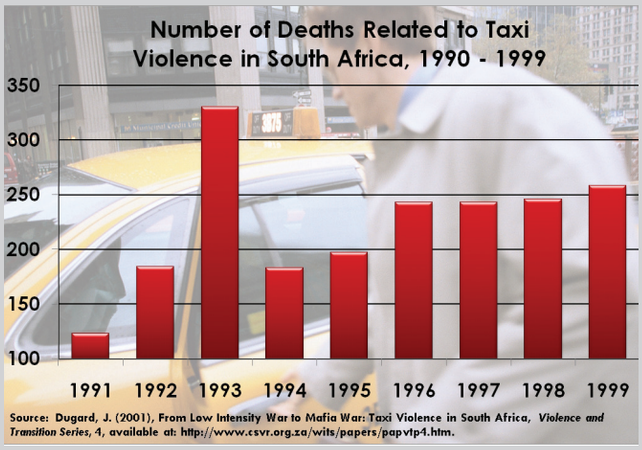
1 Vessels with 'Sea Lion Exclusion Devices' are given a discounted strike rate and the exact FRML varies from year to year, but for the purpose of this analysis it is not so much the numbers that matter but the resulting incentives.

HIGHLIGHT: TAXI WARS



Prior to 1987, the Motor Carrier Transportation Act of 1930 granted the transit authority in South Africa a monopoly on public transportation. Stringent licensing restrictions made it nearly impossible for private taxi drivers to operate legally. Public buses and trains were both expensive and insufficient for many communities (many users spent up to 20% of their incomes and several hours each day travelling). As a result, the demand for taxi service was high, as was the incentive to operate illegal taxi services. In the late 1980s, the South African government decided that its participation in the transportation industry was excessively costly and over-politicised. Believing that the free market could now provide transportation services more effectively, the transit authority rapidly eased the restrictions on private taxis (a process known as *deregulation*). This policy was not entirely economic in nature. On one hand, many officials hoped that free entry into the taxi industry would result in increased capital accumulation for black South Africans, simultaneously giving them a stake in the economic system and easing tendencies towards revolution. On the other hand, the policy also gave the apartheid government a means to stratify black society in the open market by giving them access to a certain industry.

A flood of taxi servicers entered the market hoping to get rich. These drivers usually operated large, 15-seat vehicles (known as *kombis*), ran late-night and rural services, and travelled to locations that buses and trains did not. The government provided taxi drivers with very little guidance on quality of services and, as a result, the road-worthiness of vehicles remained quite low to cheapen the operation costs while passenger loads became dangerously high to maximise sales.

Without any guidance from the transportation authority on operation location or price controls, operators banded together and formed 'taxi associations' to compete over taxi drivers and routes. In 2003, the taxi industry serviced nearly 60% of South African commuters, earning approximately R 12 billion (NZ$ 2.2 billion) per year. Taxi association executives can earn millions from sales and membership fees annually, much of which is unreported since monitoring is not enforced. Competition in the industry grew so fierce that many of these associations resorted to violence and extortion in order to secure rights over the most profitable areas. Taxi associations became more like mafia organizations in order to establish some structure to the taxi market, often hiring hit men to use against rival associations, to keep members in line, and to use as protection against enemies. (Being a hit-man for a taxi association also became quite a lucrative profession in the 1990s. A hit man could earn R 80,000 (NZ$ 14,800) for the assassination of a rival organisation executive, R 4,000 (NZ$ 740) for a taxi owner, R 2,000 (NZ$ 370) for a taxi driver, and R 1,000 (NZ$ 185) for a passenger.)

In 1999, the South African government responded to the escalating taxi-related violence by proposing to increase investment in public transportation and re-creating the taxi industry from scratch. These policies have been slow to take effect and are hotly contested by taxi associations. In the meantime, catching a cab in South Africa may be cheap and convenient, but can result in a one-way trip to the morgue.

Interested in the South African taxi industry? See page 14 for references and further reading.

SPOTLIGHT: JAN-JAN SOON, A RECENT PhD GRADUATE

Jan-Jan joined the Department of Economics at Otago University as a PhD student in June 2007. Prior to this, Jan-Jan has earned a Bachelor and a Master's degree in Economics, as well as an MSc in Decision Science. She wrote her PhD thesis on the return intentions of tertiary-level international students.

Jan-Jan is currently working on a comprehensive data compilation of the Malaysian brain drain. Her research interests now include areas such as migration economics, labour economics, and applied microeconometrics, with special interest in discrete choice and sample selection modelling.

Jan-Jan completed the requirements for a PhD in economics at Otago University and graduated in December 2010. After completing her PhD studies, Jan-Jan has returned to Malaysia and resumed her lecturing position in the Department of Economics at Universiti Utara Malaysia. For more information about the activities of current graduate students in the Economics Department at Otago University, visit www.business.otago.ac.nz/econ/staff.

Keeping your eye on the prize: 2010 Nobel Awards in Economics

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Peter Diamond, Dale Mortensen and Christopher Pissarides are the winners of the 2010 Nobel Prize in Economic Sciences for their analysis of markets with search frictions (The Nobel Foundation, 2010). Diamond is recognised for constructing the theoretical foundations of search theory while Mortensen and Pissarides are recognised for expanding these theories and applying them to labour markets. This article summarises the contributions made by Diamond, the applications constructed by Mortensen and Pissarides, and how research on search frictions has contributed to our understanding of markets.

FINDERS, KEEPERS

The traditional view of markets suggests that buyers and sellers come together efficiently to trade goods and services. As a result, markets should 'clear': the amount supplied by firms should equal the amount demanded by consumers at advertised prices. In reality, however, this is often not the case. Excess demand or excess supply of products is a persistent feature in many different sorts of markets.

According to Peter Diamond, an important reason why some markets may fail to clear is 'search frictions'. It may take time and effort for buyers and sellers to find each other in the market and to make transactions. For example, at any period in time there are both posted job vacancies and unemployed workers. How is it possible that firm's don't have enough workers and people don't have enough jobs *at the same time*? Employers are looking for employees that fit well into the jobs they have available and are willing to work for the salaries they can offer. Workers are looking for jobs in specific locations or in specific industries that pay reasonably well. The process of searching[1] for jobs and workers requires time and resources, which creates a sort of friction in the labour market: it slows the market's ability to clear. Diamond's theoretical work gave economists insight into how prices for goods are set, whether or not markets with these frictions operate efficiently and how markets may generate poor outcomes even though good outcomes are possible (known as *coordination failures*).

THE PRICE IS RIGHT

In 1971, Diamond developed a straight-forward model in which buyers and sellers must search for each other. Suppose that many identical buyers are in the market to buy 1 unit of a good. These buyers are willing to buy the good as long as its price is below some level, p*. Also assume there are many identical sellers that produce the good at a constant cost. The sellers advertise the price they will charge for the goods in advance. Buyers don't know all the prices offered by every seller, but they do know the distribution of prices (the average, the standard deviation, etc.) and the price of the specific seller they are matched with. The buyer must decide whether or not to buy the good from the seller they are matched with or to move on and find another seller in the hopes of getting a better price. Searching for a new seller, however, comes at a cost. Diamond showed that any positive search cost, no matter how small it is, will result in all the sellers charging the highest possible price, p*. This result, known as the *Diamond Paradox*, differs greatly from the outcome we would expect from markets with many identical buyers and sellers.

Diamond's results suggest that all prices offered by sellers should be the same. In reality, prices for similar goods often vary quite a lot across sellers (known as *price dispersion*). This is true also of wages for the same job (*wage dispersion*). One way to resolve the Diamond Paradox and to generate wage dispersion is to allow workers to be heterogeneous and to let them search for other jobs while they are employed (known as *on-the-job search*). This innovation, developed by Mortensen and others,

results in high-wage firms attracting and retaining more workers than low-wage firms, but at a loss to profits. Not only does wage dispersion arise, but this outcome suggests that minimum wages can increase both the welfare of the workers and employment in the economy.

IN JEOPARDY

Markets won't operate efficiently (produce the optimal quantity of goods and services) if externalities are present. Externalities may arise if individual actions taken by buyers or sellers impact the behaviour of others. Suppose you are an unemployed worker who decides to increase how intensely you search for a job. Of course, searching harder will increase the probability that you will become employed. However, it affects other people as well since you searching harder will make other unemployed workers worse off by reducing the probability they find jobs (referred to a *congestion externality*). Also, when you search harder you make firms better off by increasing the probability they fill an available vacancy (referred to as a *thick market externality*). The presence of these externalities may mean that workers will either search too much or not enough, which causes labour markets to operate inefficiently. Diamond identified the presence of search externalities, which led to further research on generating efficient outcomes in markets where these externalities are present.

1 The 'searching' process generally encompasses the process of 'matching' firms and workers successfully.

Mortensen showed that in order to generate an efficient outcome, all of the benefits associated with matching buyers and sellers need to go to the party that initiated the match (known as the *Mortensen Principle*). This is the case even when interaction is dynamic, and the behaviour of an agent affects the futures of others in the market. However, there is no way to ensure this is the outcome and therefore markets operate inefficiently. Pissarides shows that when workers and employers search for matches, search efforts are generally too low and unemployment is too high. Further, Pissarides shows that often workers are too willing to accept job offers or remain employed when better jobs are available. Both of these results suggest that generous unemployment benefits can improve the welfare of workers and discourage unproductive matches from taking place. These results are the predecessors to an extensive literature on externalities in markets where search frictions are present.

DEAL, OR NO DEAL?

In the early 1980s, Diamond showed that search frictions might lead to coordination failures using a simple model of production and trade. Consider an island where the inhabitants subsist on coconuts. Producing coconuts is done at the cost of climbing a palm tree which varies according to the size of the tree. Inhabitants who climb trees and pick a coconut cannot consume it themselves, but must trade it with another islander who also has a coconut. In the model, inhabitants are only willing to climb trees if there are a sufficiently large number of other individuals who are willing to do the same. If nobody is picking coconuts, then there won't be any potential trading partners in which case going through the trouble of climbing the tree is a waste. As a result, people's beliefs about what others are doing play a crucial role in determining their behaviour and, in turn, affect aggregate outcomes. As a result, multiple equilibrium outcomes are possible, some of which are better than others. Diamond's analysis suggests there is room for policy makers to steer markets towards the better outcomes. This has become particularly relevant for macroeconomists concerned with changing the levels of unemployment in the economy.

Constructing a model based on search frictions (known as the *DMP model*), Diamond, Mortensen and Pissarides have been influential in the analysis of labour markets at the aggregate level. In this model, workers and firms are matched with each other and negotiate wages. These matches are achieved using a special "matching function". Two key components of the matching function aid in deriving tractable results from the model: the number of unemployed workers and the number of job vacancies available. Simple versions of the model suggest that there should be a negative relationship between unemployment and job vacancies (known as the *Beveridge curve*). As Pissarides and Mortensen show, the model can be used to analyse business cycle movements and to understand the process of job creation and destruction in the economy. Further, the model has been used to analyse the efficacy of different sorts of economic policies, such as changes in unemployment benefits and reductions in the 'red tape' associated with hiring workers. How these impact unemployment and the number of job vacancies can be extracted from the model, which has drawn the attention of both economists and policymakers.

Peter Diamond was born in 1940 and received a PhD in Economics in 1963 from the Massachusetts Institute of Technology where he currently serves as a Professor of Economics. Dale Mortensen was born in 1939 and received a PhD in Economics in 1967 from Carnegie Mellon University. He currently serves as the Ida C. Cook Professor of Economics at Northwestern University. Christopher Pissarides was born in 1948 and received a PhD from the London School of Economics where he currently serves as a Professor of Economics and holds the Norman Sosnow Chair in Economics.

Peter Diamond
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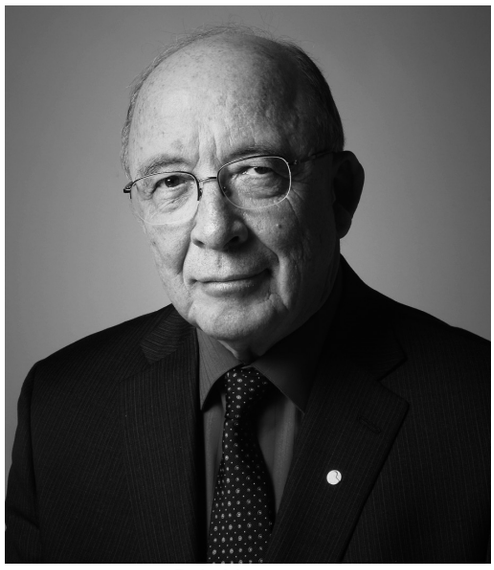

Dale Mortensen
Photo: U. Montan, ®© The Nobel Foundation.

Christopher Pissarides
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USEFUL WEBSITES

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Otago University Prize Winners in Economics

WINNERS OF THE ERKIN BAIRAM MEMORIAL PRIZE FOR 2010

AUREN CLARKE AND DANNIELLE THIAN

In memory of the life of Professor Erkin Bairam (1958-2001) and his many contributions to the Department of Economics and the University of Otago, the Erkin Bairam Memorial Prize is awarded annually to the student with the highest marks across the core third-year honours Economics papers. Born in Cyprus, most of Erkin's working life was spent in the Department of Economics at the University of Otago. At the age of 33, he became one of the youngest full professors to be appointed in New Zealand and by the time of his death had published over 60 articles and 4 books. The winners for 2010 are Auren Clarke and Dannielle Thian (past winners: Aaron Carson, 2003; Madeline Penny, 2004; Ashley Dunstan, 2005; Christopher McDonald, 2006; Tom Graham, 2007; Hugh McDonald, 2008; Samuel Struthers, 2009).

WINNER OF THE SOPHIE KATE ELLIOTT MEMORIAL PRIZE FOR 2010

ROSS WILSON

In memory of the life of Sophie Elliott (1985-2008), the Sophie Kate Elliott Memorial Prize is awarded annually to the fourth-year Honours student with the highest overall grades. After completing a First Class Honours degree in Economics in 2007, Sophie Elliott was due to start her career at the New Zealand Treasury in Wellington but was tragically murdered in January 2008. Sophie was an outstanding scholar and was well-known and respected within the Department of Economics at the University of Otago. The winner for 2010 is Ross Wilson (past winners: Tom Graham, 2008; Hugh McDonald, 2009).

Commentary on the New Zealand economy

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	Sep 2010	Jun 2010	Mar 2010	Dec 2009	Sep 2009
GDP (real, annual growth rate, %)	1.4	0.6	-0.5	-1.7	-2.4
Consumption (real, annual growth rate, %)	1.9	1.3	0.3	-0.5	-0.6
Investment (real, annual growth rate, %)	1.6	-8.6	-16.2	-19.3	-18.6
Employment: full-time (000s)	1694	1684	1680	1659	1659
Employment: part-time (000s)	500	487	493	497	496
Unemployment (% of labour force)	6.4	6.9	6.0	7.1	6.5
Consumer Price Inflation (annual rate, %)	1.5	1.7	2.0	2.0	1.7
Food Price Inflation (annual rate, %)	0.1	-0.7	1.2	1.4	5.4
Producer Price Inflation (outputs, annual rate, %)	4.0	1.3	-0.5	-3.6	-2.1
Producer Price Inflation (inputs, annual rate, %)	3.8	2.0	0.6	-3.2	-5.8
Salary and Wage Rates (annual growth rate, %)	1.6	1.6	1.5	1.8	2.1
Narrow Money Supply (M1, annual growth rate, %)	2.3	-1.4	-0.3	1.3	1.4
Broad Money Supply (M3, annual growth rate, %)	-2.0	-3.3	-3.5	-1.1	2.8
Interest rates (90-day bank bills, %)	3.18	3.07	2.67	2.78	2.77
Exchange rate (TWI, June 1979 = 100)	66.8	67.1	65.1	64.7	64.3
Exports (fob, $m, year to date)	41,796	40,672	39,559	39,672	41,588
Imports (cif, $m, year to date)	40,875	40,079	39,719	40,221	43,257
Exports (volume, June 2002 [not seas. adj.] = 1000)	1127	1160	1161	1130	1143
Imports (volume, June 2002 [not seas. adj.] = 1000)	1558	1503	1489	1450	1421
Terms of Trade (June 2002 = 1000)	1246	1210	1186	1118	1057
Current Account Balance (% of GDP, year to date)	-3.1	-3.0	-2.4	-2.8	-3.2

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

The New Zealand economy spent 2010 continuing to slowly (and not particularly steadily) recover from the 2008/09 recession. After increasing (in mostly small steps) for five successive quarters, aggregate output managed to fall by 0.2% in the September quarter. So what are the prospects for 2011?

The most likely scenario is that the recovery will continue but – and in contrast to our experience in recent recessions of rapid rebounds – it will also continue to be weak and uncertain. The simple reason for this is that the current economic environment is essentially a good news/bad news story and this will delay the emergence of a strong and broad-based recovery for the time being.

For example, the country's international terms of trade (the ratio of the prices received for our exports to those paid for imports) have returned to their previous record levels after slumping sharply during the recession. Providing China and India's economies continue to grow reasonably strongly, commodity prices should remain favourable through 2011 and this will (weather permitting!) boost incomes in the rural sector.

However, the strength of our terms of trade has contributed to the strength of our dollar against the US dollar, the euro and the pound in recent times. This, together with the slowness of the recovery of many of the world's major economies, is making life difficult for many in the tourism industry, as well as non-commodity exporters and firms that supply the domestic market in competition with imports. Those supplying the Australian market, on the other hand, should continue to benefit from its relatively robust economy and favourable exchange rate.

The economic after-effects of the Canterbury earthquakes are also likely to be a mixed bag. The repair and reconstruction process should provide a substantial fillip to the depressed building sector, but the quakes' disruption to trade for many Christchurch firms in the retail and services sector will counterbalance this to some extent in the short term.

Add to this the Government's concern about the size of its fiscal deficit, and the prospect of households keeping their credit cards in their pockets until more debt is repaid and the future looks more secure, and this year looks likely to represent at best only a modest improvement over 2010.

References and Further Reading for Highlights

All Highlights in this issue were provided by Dan Farhat **dan.farhat@otago.ac.nz**

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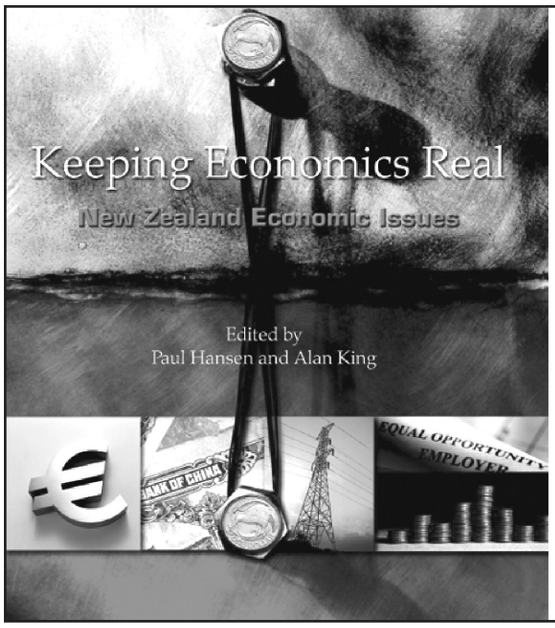

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