FROM THE EDITOR

Certainly, there's more to life than just money. When you turn your attention away from financial issues, however, economic decision-making is still in full view. This issue of *EcoNZ@Otago* focuses on the interrelationship between economics, health and wellbeing. We explore the link between economic insecurity and obesity (an epidemic of increasing concern). We also look at the dangers of binge drinking and how effective alcohol pricing policies can reduce its ill effects. The life satisfaction of New Zealanders during the Rugby World Cup is calculated and compared with changes in another measure of prosperity: Gross Domestic Product. Finally, we investigate why people in India may invest in livestock despite their low (and often, negative) return. *Highlights* – short commentaries on economic issues – accompany selected articles.

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IN THIS ISSUE

Does economic liberalisation cause obesity?

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Obesity often leads to adverse health and social outcomes. Rising obesity rates around the world in recent years has sparked a surge of economic research to determine the causes of excess weight gain. Many studies focus on food markets: high-calorie foods are becoming cheaper and more widespread. However, we can learn a thing or two about obesity from the biological processes associated with weight gain. In nature, fattening is an optimal response to food scarcity; animals store energy as fat to survive periods when resources are in short supply. Humans are no different. Economic insecurity plays a significant role in explaining trends in obesity for many affluent countries. This result implies there may be policy prescriptions for curbing obesity rates other than intervening in food markets.

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HEAVY HITTERS

Obesity rates in many wealthy countries have risen dramatically since the 1980s. In 2007, the United States led the pack with 33% of the population classified as obese (Body Mass Index [BMI] > 30). New Zealand followed close behind with 27%. The UK and Iceland were tied with 24%. Australia, Canada and Spain each had obesity rates in excess of 15% and rising. These trends are concerning since obesity is related to several adverse health conditions, such as cardiovascular disease, type-II diabetes, sleep apnea and cancer. Obesity can also be socially stigmatising, often resulting in increased anxiety, poor self-esteem and depression. To curtail the spreading obesity epidemic, we must first know the cause.

Many attribute weight gain to an increase in the availability and affordability of high-calorie fast-food. While the proliferation of fast-food restaurants in wealthy countries might be a contributing factor to increases in obesity rates, the evidence is mixed. Moreover, these studies sometimes forget that weight management is, in part, a *biological* process that may not be particularly sensitive to changes in food prices or availability. Consider this: in order to maintain a stable body weight over the course of a year (to within, say, 0.5 kg), a typical adult must restrict his energy intake to within 0.4% of energy expenditures. Most of us are able to accomplish this impressive feat rather easily, not by counting calories or monitoring food costs, but simply by responding to feelings of hunger and satiety. Biologists refer to this process of weight maintenance as *energy homeostasis*, and the biochemical signalling mechanisms our bodies use to generate those well-calibrated pangs of hunger are now reasonably well understood. If we are to understand the causes of the changes in obesity rates observed around the world, a better understanding of the origins of the biological systems we rely upon to tell us when to eat seems a good place to start.

HORMONES AND EMOTIONAL EATING

For some time now, scientists have known of a mouse that rapidly gains weight at birth due to a genetic mutation. Under free-feeding conditions, this mouse remains morbidly obese throughout its life. Curiously, despite its high caloric intake, the *"obese-type"* mouse also exhibits all the symptoms of clinical starvation – including decreased body temperature, torpor, diminished immune function, infertility, and even an enhanced ability to detect sugar in food. This paradox was resolved in 1995 with the discovery of the hormone *leptin*. In normal mice, leptin is secreted into the bloodstream by fat cells, providing the central nervous system with a biochemical indicator of available energy stores. We now know that the *obese-type* mouse lacks the gene needed to produce leptin, short-circuiting this process and convincing the brain that starvation is perpetually imminent.

The leptin gene was quickly identified in humans, though the particular genetic mutation that causes fattening in the *obese* mouse is exceedingly rare in people. Although it is not thought to be a major cause of human obesity, leptin deficiency nevertheless offers a view into the manner in which evolutionary forces can influence human behaviour: via genes, which calibrate the molecular signals that regulate metabolism and are perceived as emotional states such as hunger, satiety, depression, stress, and the palatability of food. It also points to the key function of body fat in the evolutionary history of foraging animals: as a hedge against the risk of starvation.

FAST AND FAMINE

If the primary function of stored body fat in foraging animals (including humans) is to safeguard against periods when food is scarce, why aren't we all obese? While the ability to survive periods of fasting is a benefit of weight gain, there are also costs. Fattening can increase an animal's metabolic requirements and reduce its mobility, making it less attractive to mates and more susceptible to predators. In the evolutionary calculus of Darwinian fitness, an optimal fattening strategy should weigh the costs against the benefits of weight gain based on the current and expected availability of food. As food shortages become more likely, all else equal, we should expect stores of body fat to increase.

In natural settings, a number of environmental factors can trigger a fattening response. For example, a gradual reduction in the *photoperiod* (length of a day) usually indicates that winter (a time when food is particularly scarce) is coming. In response, many species tend to put on weight when the photoperiod starts to decrease, before food availability declines. In fact, seasonal variation in body fat is still observed in humans.

Cues from the physical environment are not the only factors that can trigger fattening. In many species, social interactions (such as competition for food or cooperation in foraging activities) are important determinants of food scarcity and can affect weight gain. For example, certain bird species (specifically *parus montanus*, the willow tit) will typically share foraging sites, which are organized according to dominance hierarchies. In these hierarchies, the dominant birds have first access to the most productive feeding areas while the subordinate birds are forced onto the less productive peripheries. Field studies show that the subordinates tend to be *fatter* than the dominant birds as food shortage is a greater risk for them. Interestingly, if food becomes sufficiently scarce the weight of the dominant birds will exceed that of the lesser ones.

What does a biological perspective suggest about the causes of the modern obesity epidemic? In some ways this perspective seems to turn the conventional wisdom on its head. The reliable abundance of caloric energy available today should, according to evolutionary logic, cause us to become thinner, not fatter. But it is also possible that rising obesity could reflect increases in risk to material well-being – i.e., the degree of *economic insecurity* – faced by households in recent decades.

NOT SO SURE

We can test whether or not economic insecurity is related to weight gain by looking at the labour market experiences of individuals and their weight over time. At the individual level, workers who have experienced periods of low income or unemployment are, in fact, more susceptible to weight gain. In a study of 2,500 working-age males over a 12-year period, Smith et al. (2009) found that a 1% increase in the probability of job loss led to a weight gain of around 0.27 kg. For each year in which annual income decreased by 50% or more, an average weight gain of 2.27 kg was observed. Townsend et al. (2001) found a similar result for women with low income: only 41.1% of those who identified themselves as 'food-secure' were overweight while 48.3% of those who identified themselves as 'mildly food insecure' and 51.5% of those who identified themselves as 'moderately food insecure' were overweight.

We can also evaluate the connection between economic insecurity and weight gain at the economy-wide level. If such a relationship exists, then countries perceived as 'less secure' should have more instances of obesity and higher average BMIs. Offer et al. (2010) show that this relationship does in fact exist in high-income countries: a 1-unit increase in an 'economic security index' relates to a 0.28% reduction in obesity rates. They further divide economic security into components to identify what *type* of economic insecurity is most strongly connected to weight gain. They find that 1-unit increases in indices for income security and representation security (legal and union rights – the ability of workers to bargain collectively) result in 0.4% and 0.31% reductions in obesity rates respectively. (Other measures of economic security including unemployment risk, control/autonomy at work, and job-related risks were not significantly correlated with obesity.)

Offer et al. (2010) argue that insecurity is higher in countries that have adopted *market liberalism* (an ideology combining free market activity with personal liberty and human rights) versus countries which subscribe to *social liberalism* (an ideology with personal liberty and human rights, but with more state-regulated industries). Their hypothesis is that the competitive forces associated with free markets undermine personal economic stability which then induces weight gain. Table 1 shows that countries thought to be 'market-liberal' do have higher obesity rates than those with stronger government involvement.

Table 1 – Market Liberalism and Obesity

	Obesity Rate (%)		Rate of Change (% per year)
	1990	2005	
Market-Liberal Economies			
Australia (2005)	10.9	20.0	0.61
Canada (2007)	15.1	18.6	0.32
New Zealand (2007)	13.5	25.8	0.82
UK (2006)	13.8	22.7	0.59
USA (2006)	20.0	32.6	0.84
Social-Liberal Economies			
Austria (2006)	10.0	14.8	0.34
Denmark (2005)	8.0	14.2	0.41
Finland (2007)	10.3	17.3	0.47
Japan (2006)	2.2	3.8	0.11
Netherlands (2007)	7.1	12.7	0.37
Sweden (2007)	7.2	13.2	0.40
Switzerland (2007)	6.7	9.9	0.25

Source: Smith (2012).

Controlling for long run trends and other economy-wide characteristics, Offer et al show that countries with free-market policies have 4% higher obesity rates on average. Smith (2012) notes that countries that have recently deregulated many state-owned industries (the most striking examples of which include New Zealand and Iceland) have experienced dramatic increases in obesity rates. This would seem to suggest that while neo-liberal economic policies can improve efficiency, they may also impose costs in terms of health well-being by shifting risk onto the general population.

Table 2 – Minutes of work needed to buy a Big Mac™

	1997	2000	2003	2006	2009
Market-Liberal Economies					
Australia (Sydney)	14	13	19	14	14
Canada (Toronto)	12	13	14	14	12
New Zealand (Auckland)	NA	15	19	14	19
UK (London)	20	18	16	16	13
USA (Chicago, Los Angeles, New York)[a]	10	12	11	12	13
Average	*14*	*14*	*16*	*14*	*14*
Social-Liberal Economies					
Austria (Vienna)	17	16	15	16	17
Denmark (Copenhagen)	20	19	16	18	17
Finland (Helsinki)	30	25	19	19	27
Japan (Tokyo)	9	9	10	10	12
Netherlands (Amsterdam)	19	16	16	19	19
Sweden (Stockholm)	22	19	19	21	20
Switzerland (Geneva, Zurich)[a]	15	16	15	16	16
Average	*19*	*17*	*16*	*17*	*18*
Average (excludes Japan)	*21*	*19*	*17*	*18*	*19*
Global Average	*37*	*36*	*37*	*35*	*37*

Notes: [a] Averaged.
Source: UBS (1997, 2000, 2003, 2006, 2009).

And what about the availability of high-calorie foods? Growth in the fast-food industry may well have been a contributing factor in the prevalence of obesity in many wealthy countries. However, data suggest that increased availability of fast-food items has not been uniform across these countries. If we compute the amount of labour time (minutes spent working) needed to purchase a particular fast-food item (specifically, a Big Mac™) as a proxy for the availability of high-calorie foods in the countries listed in Table 1, we see that high-calorie foods

are more available in the market-liberal countries on average (see Table 2). Although there are some exceptions, such as Japan where fast food seems more available yet obesity rates are low, a connection between the rigour of competition in an economy and access to fattening foods does seem to exist. In an attempt to estimate the relative sizes of the insecurity effect and the food availability effect, Offer et al. (2010) control for both economic security and the price of Big Macs™ in their study. They find that their index of economic security seems to dominate, with the Big Mac™ effect becoming statistically insignificant.

CONCLUSION

The modern obesity epidemic has become a global economic issue. The causes remain subject to debate and research is ongoing. It is becoming apparent that in recent decades those countries (including New Zealand) that have most aggressively pursued economic liberalisation have concurrently experienced the most dramatic increases in obesity rates. In biological perspective, this finding is unsurprising: market-liberal economic policies tend to shift economic risk onto workers and households, and the 'natural' response to such risk is to gain weight. This may come as good news for the fast food industry, but it complicates things for policymakers. Is it better to be wealthy...or would we rather be healthy?

QUESTIONS TO CONSIDER

1. Based on the above article, predict how obesity rates might have changed in Eastern Europe during the 1990s as countries there moved from socialist to free-market economies?

2. How would obesity rates fluctuate during business cycles (economic booms and recessions)? Does the availability of inexpensive fast food inhibit or exacerbate these fluctuations in fattening?

3. Describe how unemployment insurance might reduce obesity rates? Describe how a policy encouraging workers to save more of their take-home wages might reduce obesity rates? Which countries enact these types of policies?

FURTHER READING

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Economists know all about 'the finer things in life'. People derive quite a lot of happiness (*or experienced pleasantness* [EP]) from the consumption of goods and services. In economics, we typically assume that EP depends only on a product's inherent characteristics and the state of the person consuming it. For example, how much EP you would get from drinking a soft drink would depend only on the chemical composition of the beverage and how thirsty you happen to be at the time. The problem solved by the consumer is to choose which goods and services to buy to maximise EP subject to a limited budget. Recently, however, neurobiologists have discovered that changing properties of a product which are unrelated to its natural characteristics can affect EP. This changes how we think about economic decision-making.

Consider this: does knowing the ingredients in a product affect how much EP you derive from it? Lee, Frederick and Ariely (2006) conducted an experiment where they offered patrons at a bar two types of beer: a common brew and the same brew with a few drops of balsamic vinegar. They divided taste testers into three groups. One group had no information about the beers' ingredients ("blind"), one group was told which beer had the vinegar in it before tasting both ("before") and one group was told which beer had the vinegar in it after tasting both ("after"). If knowing about the vinegar has no impact on preference, then the outcomes from taste tests should be the same across groups. If knowledge about the "special ingredient" influences tastes, then the results from the blind group should differ from the other two groups. If expectations affect the tasting experience, then results should differ between the "before" and "after" groups. The study showed that revealing the ingredient did affect EP, but only if the tasters were told *before* they tried the beer. In other words, expectations changed the reported pleasure tasters received from their drinks.

McClure et al. (2004) attempted a similar experiment, but wanted to explore the role of cultural influences on EP. They conducted a taste test with Coke® and Pepsi®, two products very similar in chemical composition but each with its own cult following. This study went a step further by conducting functional magnetic resonance imaging [fMRI] while subjects were tasting to identify the effect consumption of each drink had on brain function. In these experiments, participants revealed which drink they preferred and were then subjected to either blind taste tests or taste tests with information about which cola they consumed. It was shown that consumers who preferred Coke® experienced greater brain activity in the prefrontal cortex, hippocampus and midbrain when they knew they were drinking it (versus when they did not know it was the brand they tasted). This suggests that knowledge of the brand can actually produce a *physical* response during consumption.

What may be more pertinent to economic decision-making is the affect that *price* may have on EP. Plassman et al. (2008) conducted a study similar to that of McClure et al. (2004) using wine. They performed blind taste tests with fMRI scanning for 5 different types of wine. They also conducted taste tests after revealing the prices of the wines to the subjects to see if their preferences depended on cost. There were two innovative elements of this study. First, there were actually only 3 different types of wine. Two of the wines were re-administered to the subjects but were assigned different prices before doing so. Second, the fMRI focused on the area of the brain believed responsible for EP (the medial orbitofrontal cortex [mOFC]). The taste tests revealed that subjects exhibited more activity in the mOFC when they tasted a high-priced wine versus the same wine with a lower price tag. Consumers expected a higher quality wine to have a higher price and physically generated an enhanced experience when drinking the more expensive brands regardless of their actual composition.

Research on the neurological responses to consumption indicates that EP depends on more than the intrinsic characteristics of goods and services we consume. Knowledge about products biologically affects our consumption experiences. This suggests that purchasing decisions made by individuals (maximising EP subject to a budget constraint) are more complex than first believed. Something to think about before your next drink.

Raise your glass: Tracking alcohol affordability to inform alcohol policy

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Hazardous alcohol use is associated with a wide range of adverse health effects and social outcomes. There is plenty of evidence that alcohol consumption is sensitive to alcohol prices, suggesting that policies affecting the cost of alcohol also affect alcohol use. However, New Zealand currently lacks any system whereby alcohol price data are collected and there is no regular and systematic reporting on changes in the affordability of alcohol over time. From analyses of already existing data, we demonstrate that alcohol is becoming cheaper in New Zealand and that discounted alcohol is both widely available and not much more expensive than non-alcoholic drinks. Without ongoing surveillance of alcohol prices, it is difficult to know what policy changes to increase the cost of alcohol may be required and when they should be implemented.

CHEERS! ... NOT SO CHEERFUL

In New Zealand, hazardous alcohol consumption has been in the political spotlight for several years. Hazardous alcohol consumption includes both 'binge' drinking (drinking to intoxication, or more than the recommended alcohol intake at any one session) and drinking above the daily or weekly recommended thresholds. Around a quarter of New Zealand drinkers typically binge when they drink alcohol (but more than half of young drinkers aged 18-24 do so) (Ministry of Health, 2009). Reducing this trend has been the focus of recent law reforms, starting in 2009 when the Law Commission published its first issues paper on alcohol laws (Palmer et al., 2009).

These reforms are deemed necessary because hazardous alcohol consumption contributes to many harms which are not offset by the benefits of low to moderate drinking (Wilson et al., 2011). The harms associated with excessive drinking include:

- alcohol-associated criminal offences (assaults, murders, sexual assaults, domestic violence) that burden the policing and justice systems;
- health harms, including alcohol-related cancers, liver disease, injuries, alcohol poisoning, addiction and dependence, etc, which also burden the healthcare system;
- collateral damage to others, e.g. to children through foetal alcohol spectrum disorder, child abuse, and to all age groups from crime or violence;
- societal harms, through reduced workplace productivity, reduced educational achievement, strained social and family relationships;
- anti-social and nuisance harms, such as noise, litter, broken glass and property damage.

The Law Commission recommended a range of policies to help address the drinking culture in New Zealand (Palmer et al., 2010) which included increasing the price of alcohol. This was based on evidence that policies affecting alcohol price are effective in influencing alcohol consumption, and hence reduce adverse outcomes due to hazardous alcohol use (Wagenaar et al., 2009; Wagenaar et al., 2010). Price controls may be particularly effective in targeting heavy drinkers, who spend considerable sums on their habit, and youth drinkers, who tend to have limited income to spend on liquor (University of Sheffield, 2008).

Several options for increasing alcohol prices could be implemented. One is increasing the alcohol excise tax, which is applied to all alcohol manufactured or imported into New Zealand. The amount of the tax varies according to the percentage of alcohol (i.e. spirits are taxed at a higher rate than beer because the alcohol content of spirits is greater). Another is through the introduction of minimum pricing, where a unit of alcohol cannot be sold for less than a set minimum price. Some have recommended a special tax or pricing regulations for ready-to-drink alcohol preparations (RTDs, i.e. sugary, spirit-based alcoholic drinks popular with young drinkers).

In their 2009 report, the Law Commission recommended that alcohol retailers and producers be legally required to provide sales and price data so that the impact of excise tax changes could be monitored and the effectiveness of a minimum pricing scheme could be investigated. This data is yet to be made publically available. In its absence, we undertook an investigation to determine how alcohol price controls could be an effective policy strategy using already existing data collected by Statistics New Zealand (SNZ) for the Consumers Price Index (CPI). In these surveys for the CPI, prices of alcoholic beverages are collected monthly. Data collectors from SNZ personally gather alcoholic beverage prices from outlets within the 15 main urban areas during a week-long period that ends around the middle of each month (Statistics New Zealand, 2010). Using this data, we can explore trends in alcohol prices within our country.
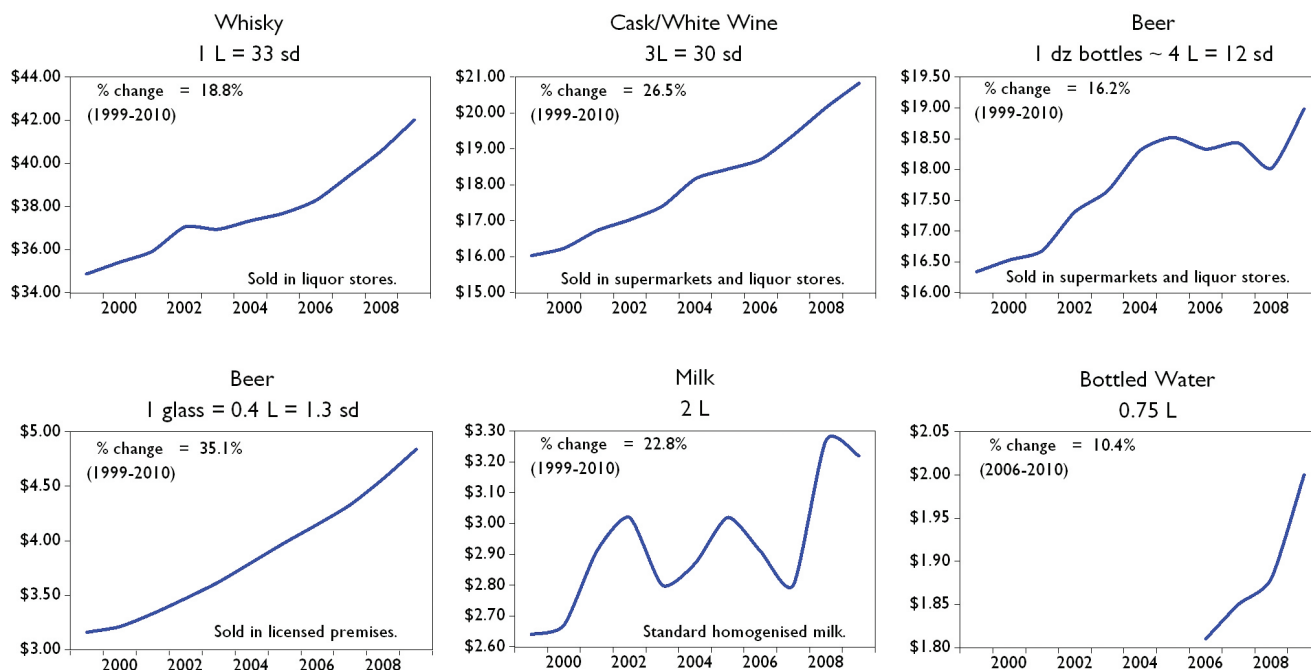
THE NEXT ROUND IS ON ME

Using the data from SNZ, we found that the average price of alcohol has increased over the past ten years (Figure 1) and the greatest increase (by percentage change) has been for a glass of beer at a licensed premise and for cask/white wine (data on RTDs were not available). For comparison, we also looked at several non-alcoholic beverages for which data were available (milk and bottled water). The price of two litres of milk also increased over this time, proportionately a little more than a litre of whisky or a dozen bottles of beer.

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Figure 1 – Average[a] price ($) of alcohol, milk and bottled water in New Zealand, 1999-2010.
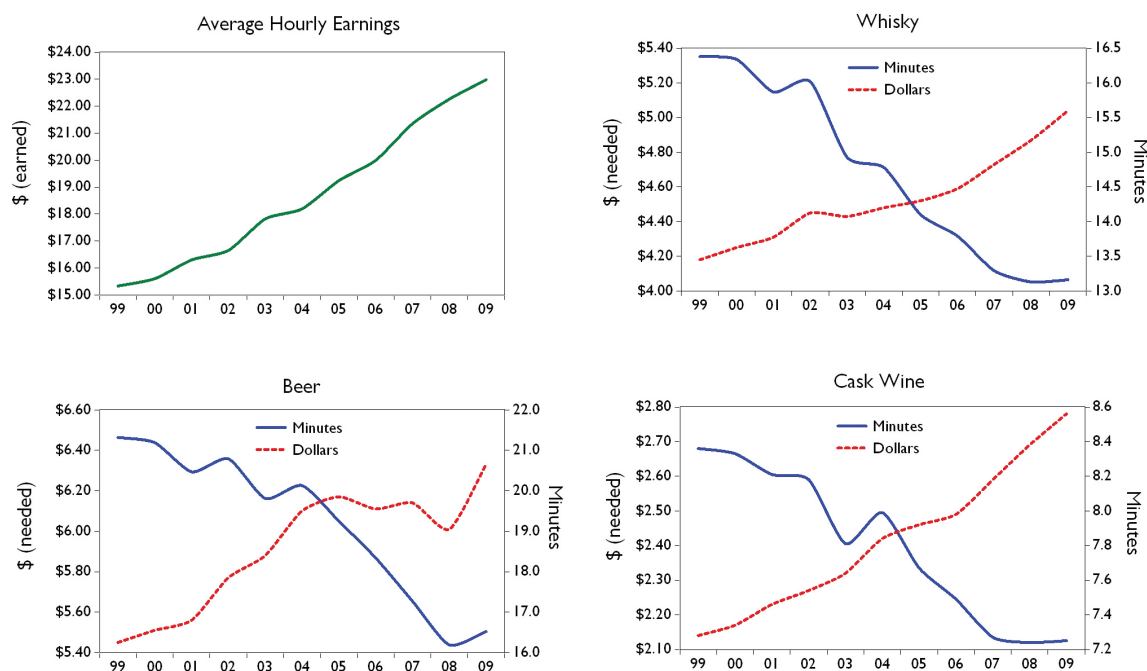

Notes: [a] Data is average over the quarters. sd = standard drink (1 standard unit /10g alcohol).
Sources: Imlach Gunasekara & Wilson (2010).

We also took data on average hourly earnings from the New Zealand Income Survey, which collects detailed annual information on gross income from working-age New Zealanders (Statistics New Zealand, 2009). Using this information, we were able to show not only how the *cost* of alcohol has changed over time, but also how alcohol *affordability* changed over time as measured by the amount of time spent working that it would take to earn enough money to buy four standard drinks. Consuming four standard drinks in an hour is sufficient for an adult of average size to reach the limit for drunk driving in New Zealand.

Although the price of alcohol has *increased* over the past decade, the affordability of alcohol has actually increased, due to increases in average hourly earnings outstripping the percentage increases in alcohol prices. This is shown in Figure 2 which presents the minutes taken to earn sufficient alcohol to reach the legal blood alcohol limit (currently at 80mg/dL) based on a value of four standard drinks for an average adult. For example, in 1999, it would have taken a person who was earning the average hourly wage 16.4 minutes to earn enough money to buy sufficient whisky to become intoxicated, but in 2009, it would have taken only 13.2 minutes. Of note is the absolute affordability of cask wine – if this type of alcohol is used to get drunk, it would cost only $2.78, or 7.25 minutes of work time, for an average adult to be unfit to drive in 2009.

Figure 2 – Alcohol affordability in New Zealand – Dollars needed and number of minutes taken to earn enough wages to pay for sufficient alcohol to reach the legal limit for intoxicated driving[a], 1999 – 2009.

Notes: [a] For the average person, 4 standard units (120ml of whisky, 4 glasses (4 × 100ml) of cask wine at 12.5% alcohol, 4 × 330ml beer bottles at 4% alcohol).
Sources: Average hourly earnings - New Zealand Income Survey (Statistics New Zealand, 2009). Alcohol costs - Imlach Gunasekara & Wilson (2010).

We have shown, without access to detailed sales price data, that alcohol has generally become more affordable in the last decade. However, our results are somewhat simplistic in that we considered "gross hourly earnings" and New Zealand adults are subject to variable income tax rates. As a result, our estimates may be over-estimating the true alcohol affordability. On the other hand, alcohol can be purchased on special at prices well below the average prices shown in Figure 2. To demonstrate this, we accessed a specific website which documents specials and discounts on alcohol offered from outlets throughout New Zealand (www.lips.co.nz – accessed on 20 September, 2 October and 9 October 2010). We calculated the price per unit using the formula:

number of standard drinks[3] = volume of container (litres) × % alcohol by volume (mL/100mL) × 0.789

We found that over this period of time, white cask wine could be bought for as little as $16.99 (62¢ per standard drink at 11.5% alcohol; other specials on 13% alcohol content cask wine translated to 63¢ per standard drink) and a standard 750ml bottle of wine could sometimes be bought for $5 (65¢ per drink). Similarly, a 12 pack of beer with 5% alcohol content could cost $9.99 (64¢ per standard drink) (Imlach Gunasekara & Wilson, 2010). When the costs of RTDs were monitored over a longer period of time, the cost of a standard drink was 69¢ (Sloane et al., 2011).

We can compare these prices to those for non-alcoholic beverages; for example, a 250ml glass of milk cost 43¢ using the average 2010 CPI prices and a glass of bottled water cost 67¢. It is important to note, however, when comparing the prices of alcoholic and non-alcoholic beverages that a straight comparison of volume (i.e. comparing 1 litre of wine with 1 litre of water) is not sensible. The reason for this is the same as why comparing the price of a litre of wine with a litre of whisky is not appropriate without adjusting for differences in alcohol content across different types of alcohol. No one would treat a litre of whisky in the same way as a litre of water, or drink it in the same way (or if they did, the consequences could be fatal).

To adjust for alcohol content, we compare the price of a *standard alcoholic drink* (10g of alcohol) with the price of a standard glass of non-alcoholic beverage (250ml). We monitored discounted non-alcoholic beverages for two months as advertised online by a supermarket chain (www.woolworths.com) to find their cheapest price. The average cost of a 250ml glass of milk at the most discounted price was 42¢ (range 30-51¢). Sparkling grape juice cost on average $1.39/250ml (range $1.16-1.46). The result: a glass of wine can cost not much more than a glass of milk, and much less than a glass of sparkling grape juice! (Sloane et al., 2011).

CLOSING TIME

The affordability of alcohol has increased over time. In fact, some alcohol is cheaper than bottled water, grape juice and almost as cheap as milk (or perhaps milk is over-priced; that is a topic for another time). These findings provide additional support for the current recommendations of the Law Commission. Provided that consumers reduce their alcohol consumption sufficiently in response to an increase in prices, reducing harms from alcohol abuse may be achieved through new pricing policies. The magnitude of this reaction depends on the current price of alcoholic beverages, which is now quite low. The need to have an alcohol price surveillance system that collects all relevant price data and regularly reports it to the public and policy makers is clear given these trends. Ad-hoc unfunded research (as reported here) should be replaced by a routine government-funded surveillance system.

QUESTIONS TO CONSIDER

1. Wine takes much more time and cost to prepare than grape juice. How, then, can supermarkets or other retailers sell wine at a cheaper price than sparkling grape juice?

2. How effective would a tax on RTDs be in reducing youth drinking? If the price of RTDs increased, but cheap beer and cheap wine were still available, would this change the drinking behaviour of youth?

FURTHER READING

G Palmer et al. (2010), Alcohol in our lives: Curbing the harm, *Review of Regulatory Framework for the Sale and Supply of Liquor*, Law Commission Report 114, Wellington, available at www.lawcom.govt.nz.

USEFUL WEBSITES

Read more about the New Zealand drinking culture and its consequences at www.alac.org.nz.

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In 1860, a PhD student named Albert Neimann published a thesis on the process used to isolate cocaine from the coca leaf. During the next 50 years, cocaine use (both medicinal and recreational) spread across much of Europe and North America. As both an analgesic and a stimulant, the tremendous economic potential of cocaine was often exploited by employers who encouraged their labourers to use the drug as a means for increasing productivity. Cocaine use, which became 'the' drug of the poor working-class, quickly gained a reputation for inciting crime and violence. From the late 1890s onward, many cities actively sought to prohibit the sale and consumption of cocaine, arguing that it produces a *negative externality* (adversely affects those who neither produce nor consume it). In 1914, the Harrison Narcotics Tax Act (which limited the sale of cocaine for non-medicinal use) gave American supporters of cocaine prohibition the legislation they needed to curtail recreational cocaine use. A century of anti-drug legislation then ensued.

The 'economics' behind drug control is straightforward. By making the sale of cocaine illegal, the available supply of the drug falls. This leads to sharp increases in cocaine prices and reductions in the quantity consumed. These effects can be amplified by strong enforcement of prohibition laws. However, there are several unintended consequences associated with making a good illegal.
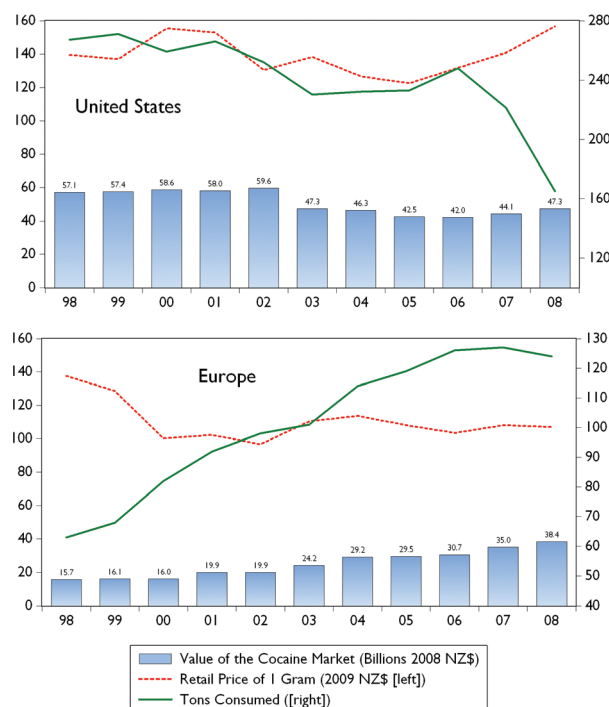
Banning a product limits competition. All except those most willing to break the law (i.e. the most violent and dangerous sellers) are cut out of the market. For these remaining suppliers, profits are huge. (In 2009, estimated profits for cocaine traffickers was approximately $44.6 billion in North America, $30.2 billion in Europe, $23.6 billion in South America and $1.05 billion in Africa.) As a result, already dangerous suppliers have incentives to become even more

Figure 1: The Cocaine Market in the United States and Europe 1998 - 2008
Source: UNODC (2011)

extreme in protecting their highly lucrative businesses. Also, increasing cocaine prices can make users more dangerous. When drugs become less affordable, addicts often turn to crime or prostitution to obtain funds. In addition to handling drug possession cases, law enforcement must also tackle these increases in drug-related crime.

As the risks associated with cocaine transactions rise, suppliers attempt to make the most of the inventory they have. Often, relatively pure cocaine is mixed with diluents ('cut') to increase the product's weight. By lowering the purity in this way, sellers can temporarily maintain revenues while lowering costs per gram. Inevitably, this practice reduces the value of the drug over time (as with any product: lower quality equals lower price). As an alternative, producers can mix pure cocaine with an *adulterant* – a chemical which can enhance the drug's pharmacological properties. In 2009, up to 70% of tested cocaine samples in the US contained the adulterant *levamisole* (which is used by veterinarians in South America to kill parasites in animals). Levamisole, if used frequently or in large doses, lowers white blood cell count and inhibits the body's ability to fight infection. In addition to the adverse health outcomes associated with cocaine itself, hospitals must now deal with the effects caused by the chemicals mixed with it.

Although there are hidden consequences, cocaine prohibition has had recent success in the US. Purity has fallen (from 69% to 49%) and retail prices per gram have risen (from approximately $131 to $158, unadjusted for purity) from 2006 to 2009. Over this period, cocaine prevalence has fallen (from 2.5% to 1.9% of the population over 12 years old using in the past year) as has the annual quantity of cocaine consumed (from 248 tons to 157 tons). The European experience, however, has been quite different. During the same period, purity has remained stable (around 37%) while prices have actually *fallen* (from approximately $120 to $112, unadjusted for purity). Cocaine prevalence has remained steady in Europe (around 1.2% of the population over 15 years old using in the past year) as has the annual quantity consumed (around 126 tons). Long-term trends (Figure 1) indicate prohibition outcomes in Europe have been less promising compared to the US since the late 1990s. Around the world, however, higher prices are generally correlated with lower consumption (for example, 1 gram of cocaine costs $233 – $560 [2008] in New Zealand and only 0.6% of the population used it during 2008) suggesting the market mechanisms underpinning prohibition do work.

Interested in the economics of drug prohibition? See page 14 for references and further reading.

Wellbeing: The foundation for a vibrant future

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Wellbeing is fundamental for a vibrant economy. In that sense, governments and local bodies are employed to enhance and maintain societal wellbeing. However the evaluation of the economy or the performance of governments and local bodies is often measured in dollars and not in wellbeing terms. There seems to be a need to identify the relevant unit of analysis. This article reports and discusses the results of a study that examined the effect of the 2011 Rugby World Cup on New Zealand in both wellbeing and GDP terms.

WHO IS RESPONSIBLE FOR OUR WELLBEING?

Wellbeing is the quality of life experienced by people in a community. To determine an individual's wellbeing, a person is often asked how satisfied they are with their life overall according to a preset scale (for example, on a scale of 1 to 10). To measure a community's wellbeing, individual responses are aggregated. For a community, wellbeing is maintained at a set level by a mechanism called *homeostasis*. Factors affecting wellbeing homeostasis are physical, economical, emotional, psychological and environmental. When these factors are maintained at their optimal levels, people enjoy a sense of security, trust, connectedness, and plenty of employment opportunities. In most western countries, homeostasis for wellbeing is between 75-80%, suggesting that people are about three-quarters satisfied with their lives (Cummins, 1998).

Maintaining a high level of community wellbeing is critical to buffer effects of misfortunes, such as economic downturns and earthquakes. When the magnitude of misfortunes is too large to bear, a breakdown occurs in the community, as observed in Egypt and more recently in Libya. In these countries, the rulers were implicated for the breakdown and were removed from power along with their allies. In democratic countries, however, such large scale outcries of citizens are not observed. This is because democracy provides the option of ousting a party or individual from governing through the election process. Having a standardised wellbeing measure can provide an evaluation of how the politicians are faring. Such a measure can help citizens make an informed decision on Election Day.

WELLBEING VERSUS GDP

Economists and social scientists have started to recognise wellbeing as a means to provide a more comprehensive assessment of an economy than GDP. For this reason, there is a move in many western countries to monitor wellbeing. Nicolas Sarkozy, the President of France and one of the proponents of wellbeing, is calling for an abandonment of GDP in favour of a wellbeing measurement. He goes to the extent of blaming the prominence given to GDP for causing the financial crisis (Aldrick, 2009).

One area where wellbeing has been embraced is marketing. The service-dominant logic (or S.D.Logic) way of marketing attempts to facilitate activities fundamental to customer wellbeing (Vargo & Lusch, 2006). The focus is no longer on trading currency for commodities, but exchanging customers' knowledge and skills for business' knowledge and skills. This gives rise to the idea of co-creation, which permeates into the distribution network and makes the market innovative, ethical and heavily dependent on maintaining and honouring relationships. If these are the traits that drive economic activity then wellbeing needs to be the unit of analysis (and not just dollars). In the remainder of this article, the results of a study that assessed an event acclaimed to benefit the New Zealand economy, the 2011 Rugby World Cup, in both GDP and wellbeing terms is reported.

WELLBEING, THE ECONOMY AND THE 2011 RUGBY WORLD CUP

The 2011 Rugby World Cup (RWC) was one of the premium events in recent history for New Zealand and provided an ideal case study to compare GDP-based and wellbeing-based measures of welfare. The RWC was expected to inject much needed activity into the New Zealand economy through ticket sales and merchandising. Furthermore, with the All Blacks winning all its pool games and the final, the national spirit was high during this period, providing an opportunity to find out whether such elevated national spirit affected the wellbeing in the country.

Four separate surveys were carried out during the 2011 RWC. The first survey occurred during the week following the opening ceremony, the second and third during the round-robin games and the fourth in the week following the final game. Wellbeing was analysed for the five main cities in New Zealand (Auckland, Wellington, Christchurch, Dunedin and Hamilton). This was done to factor in the after-effect of the February 2011 earthquake in Christchurch.

All five cities had a mean of 5.0, on a 7-point scale (see Table 1). After the earthquakes in Christchurch, one would have expected wellbeing for this city to be lower than the others. This however was not the case as no statistical difference was present between Christchurch and the other cities. There may have been a departure from wellbeing homeostasis at the time of the earthquakes, but it appears that homeostasis was restored by this measurement (which highlights the resilience of the people of Christchurch).

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Table 1 – Wellbeing measurement in five New Zealand cities

	Auckland	Wellington	Christchurch	Dunedin	Hamilton	Total
Survey 1	5.00	4.90	5.04	4.99	4.92	4.97
Survey 2	5.00	4.94	5.02	4.92	4.94	4.98
Survey 3	4.95	4.89	4.98	4.94	5.00	4.95
Survey 4	5.02	5.01	4.97	4.96	5.12	5.00

In the week that followed the RWC, radio talk shows, television programmes and newspapers were overflowing with the All Black's 8-7 victory over France. The jubilation in the country was evident in the victory parades at Auckland, Wellington and Christchurch. One would have thought the happy mood in the country would be reflected with a spike in the wellbeing measurement. However, wellbeing in the week following the final was no different to those of the previous weeks. This observation confirms wellbeing's homeostatic nature of not being affected by external changes. GDP for the September and December quarters in 2011 grew by 0.7% and 0.3% respectively. The increase came largely from one industry category comprised of retail, accommodation and restaurant businesses out of a total of 12 (Statistics New Zealand, 2011). The RWC was good for these three types of businesses as measured by GDP, but it had no affect on wellbeing, at least for the samples we studied.

THERE'S MORE TO LIFE

These results from our study of the impact of the Rugby World Cup on New Zealand suggest that simply observing GDP is not enough to gauge a nation's wellbeing. Perhaps there may be some truth in what Nicolas Sarkozy is saying. It is imperative to continue to assess our happiness and wellbeing, and not just our wealth, especially when making decisions that affect our future.

WHAT'S NEXT?

The General Assembly of United Nations, on 25 August 2011, passed the "Happiness: Towards a holistic approach to development" resolution. This resolution is requiring member states to establish measurements and indicators of wellbeing (United Nations, 2011). While there is recognition at all levels more evidence based research is needed to establish wellbeing as the framework for policy making. We have commenced that effort by drawing attention to wellbeing and GDP centred on a major sporting event in New Zealand. Our aim is to continue develop the wellbeing construct with correlates to key economic and social indicators. We hope to generate evidences and create metrics to grow our economy and society based on a wellbeing paradigm.

One council that is convinced of wellbeing and not waiting for further evidence is the Dunedin City Council in New Zealand (Dunedin City Council, 2012a). This council is currently consulting its citizens on its wellbeing strategy for the next 10 years (Dunedin City Council, 2012b). Readers from this fair city have the opportunity to participate in the consultation process and be the proud contributors of the wellbeing paradigm, when it becomes main-stream.

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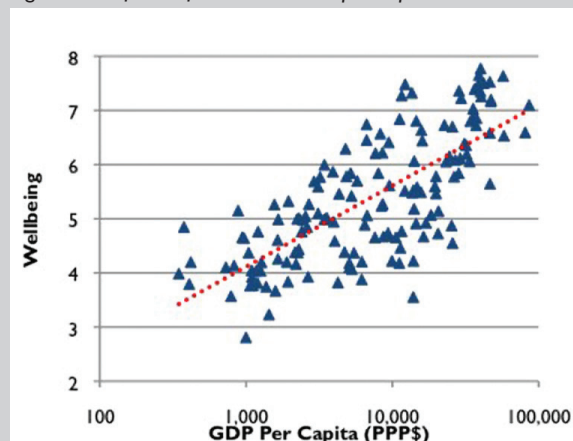
Are people happier in rich countries? Higher economic productivity, after all, usually results in more time spent at work (and less time with friends and family), a greater degree of urbanisation (and the ills that go with it, such as traffic and crime), and a consumer culture (where a person's self-worth is determined by their possessions). These can increase stress, reduce health and lower a worker's overall wellbeing. How can we measure 'happiness' (if we can measure it at all)? Is there a correlation between wellbeing and income? What can a country do to increase their overall happiness? The area of economics which studies quality-of-life is aptly named *happiness economics* and seeks to find the relationship between self-reported life satisfaction and a variety of social and economic variables.

The easiest way to measure a person's life satisfaction is to ask them directly. For example, the Gallup World Poll asks 1000 respondents in each of 150 countries to assign a number to their current lifestyle (with 0 representing the worst possible life and 10 representing the best). New Zealanders on average say 7.22; in Australia, 7.41; in the US and the UK, 7.16 and 7.03 respectively. In some countries, wellbeing is alarmingly low (for example, Togo [2.81], Tanzania [3.23], and Botswana [3.55] indicate the lowest levels of wellbeing). When we compare average life satisfaction to GDP per capita (Figure 1), the two appear positively related at first. In other words: $ = :).

However, an individual's self-reported wellbeing may not fully account for the state of the environment. Although a high GDP might result in more personal happiness, it can also result in an increase in pollutants (a by-product of many production processes). How can this be accounted for in a national happiness measure? The New Economics Foundation (2012), a think-tank for economic and social issues established in 1986, constructs what is known as the *happy planet index* (or HPI) as:

HPI = (life satisfaction × life expectancy)/ecological footprint

Figure 1 – Life satisfaction and GDP per capita

Source: New World Foundation (2012)

'Ecological footprint' is measured as the amount of land in hectares per capita needed to sustain a country's consumption patterns. If we rank countries according to their HPI, New Zealand comes in at #28 (coincidentally, we have the 27th highest GDP per capita: both rich and happy!). Australia comes in at #76 (16th highest GDP per capita), the US comes it at #105 (the 6th highest GDP per capita) and the UK comes in at #41 (20th highest GDP per capita). #1 is Costa Rica (with only the 63rd highest GDP per capita). Suddenly, the richest countries appear less happy once the state of the environment is considered.

There are a variety of important social, political and economic indicators associated with national happiness. Using 11 of these (including education, housing availability, civic engagement and life-work balance in addition to income, life satisfaction and the environment), the OECD has developed The Better Life Index (www.oecdbetterlifeindex.org) to measure national welfare for 36 countries. If you visit their website, you can create your own index of national happiness using the attributes you feel are most important and compare how the 36 countries perform. When we combine all of the indicators (weighted equally), Australia comes in at #1 followed by the US (#3), New Zealand (#9) and the UK (#12). When we eliminate income from the mix, the US and the UK drop to #11 and #13 respectively, while New Zealand jumps to #5.

Should we continue to associate income with happiness? While the Happy Planet Index suggests that the correlation between happiness and income is not necessarily positive and the Better Life Index suggests that adding wealth into a measure of total happiness can have a big impact on the results, the main lesson these indices teach us is that happiness can be whatever we define it to be (provided enough data is available). We should look at per capita GDP when evaluating a nation's overall welfare, but we ought not limit ourselves to that measure alone.

Interested in happiness economics? See page 14 for references and further reading.

Does the continued existence of cows disprove a central tenet of capitalism?

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This article examines the returns from owning cows and buffaloes in rural India (an informal form of investment). Results from an economic analysis suggest that households generally receive negative returns from possessing these animals. Average estimated profits remain low even when household labour is valued at zero. Why do households continue to invest in cows and buffaloes given their apparently negative returns? Potential explanations for this phenomenon and areas for future research are discussed.

Livestock is a vital asset among poor rural households in developing countries. However, there is little research which has analysed the economic returns to owning livestock. Understanding the profitability of these common household investments is important for two reasons. Firstly, if these types of investments are profitable then households may have low take-up of formal financial products because they have profitable investment opportunities elsewhere. If this is the case, then programmes which encourage households to participate in the formal savings sector are unlikely to succeed unless they provide savings opportunities with returns higher than those available from livestock. Secondly, estimates of these returns can inform lenders, such as microfinance institutions and banks, whether there are profitable projects for them to finance. While the existence of high interest rate loans suggests that some proportion of households earn high returns on investments such as dairy animals, it is difficult to estimate the average return for non-borrowing households without data on profitability.

GOT MILK?

New livestock survey data from northern India (Uttar Pradesh) are used to estimate the returns to owning cows and buffaloes. India provides us with an ideal setting for this analysis. First, India is a developing country, with rural areas having limited access to formal savings or investment services. Second, India has over one-quarter of the world's estimated cattle population of about 1.3 billion. Our survey data provides information on all the major inputs in milk production (including the value of the animal, fodder costs, veterinary costs, and insemination costs) as well as detailed data on animal outputs (including milk, calves and dung). We estimate annual returns to owning a cow or buffalo based on estimates of *accounting profits* (excluding the opportunity cost of labour) and on *economic profits* (including the opportunity cost of labour).

The trend in milk yield at different stages of the lactation period is illustrated in Figure 1 and the distribution of milk produced per day is shown in Figure 2. There appears to be substantial heterogeneity in the daily milk yield across animals. This suggests that there is variation in the length of milking and dry periods between the animals. Such variation may be based on factors such as the animal's health and environmental conditions. Generally, buffaloes produce about 200 litres more than cows during a lactation period. Perhaps this explains why the expected value of a calf born to a buffalo is about 240 rupees more than that of its cow counterpart.

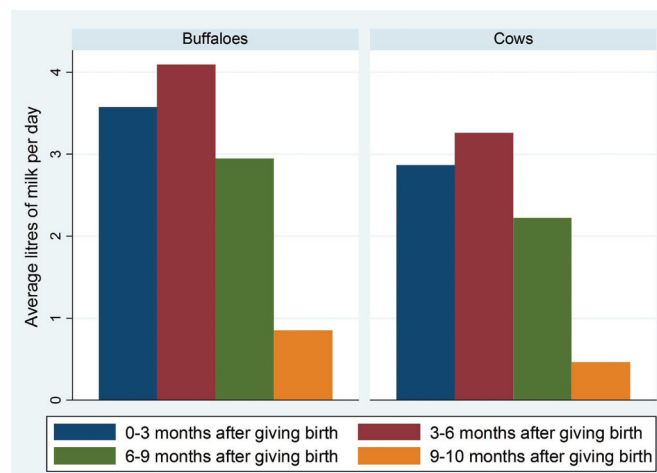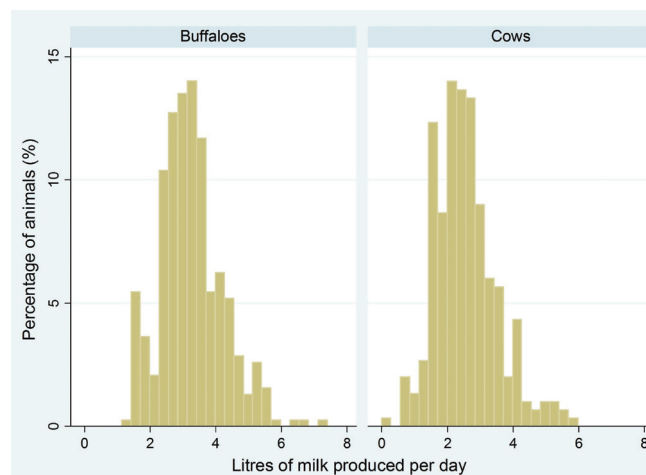*Figure 1 – Trend of milk produced per day at different stages of lactation*

Figure 2 – Distribution of litres of milk produced per day

CRÈME DE LA CRÈME

The data sample we analyse includes 300 cows and 384 buffaloes. The key finding is that households generally earn very low returns on their investments in these animals. Excluding the value of household labour, we estimate returns on the order of –6% for cows and 12% for buffaloes. Including the value of household labour, we find average returns of –64% and –40% for cows and buffaloes respectively. We conduct a variety of robustness checks to rule out measurement error in the value of inputs and outputs as an explanation for our estimated low returns. We replace self-reported values of fodder (feed) with estimated costs from a fodder production company in India and find that estimated returns still appear to be low. We also adjust the data for outliers, but again find that the estimated returns are low. These results are consistent with the finding in de Mel (2008) which shows that female-owned enterprises in Sri Lanka have a marginal return to capital equal to zero. Given that the maintenance of dairy animals is typically managed by the women of the household in India, we suspect that a similar mechanism drives the results in both our analysis and that of de Mel (2008).

HAVING A COW, MAN?

The annual interest rate paid to saving accounts by many formal banks in India ranges from 4% to 10%. As another point of comparison, the nominal yield on ten-year Indian government bonds in 2007 (the year of our survey) was 8.5% (Campbell et al., 2012). We do not find any evidence to suggest that livestock investments have particularly high rates of return. While we do not have data that would allow us to estimate the riskiness of livestock investments, it seems plausible that investing in livestock is substantially more risky than savings in a bank account or in ten year Indian government bonds.

Estimates of low and negative returns present a puzzle: if cows and buffaloes are such a bad investment, why would rural Indian households continue to own them? Here, we discuss theories regarding why households might persist in investing in cows and buffaloes despite their poor returns. Although the data at hand does not allow us to conclusively distinguish these various explanations, we present evidence to suggest that some explanations seem more plausible than others.

Measurement error. Our estimates ultimately rely on household self-reports on the costs and revenues associated with dairy animal production. It is possible households systematically over-estimate costs and under-estimate revenues, and that these biases cause our estimated returns to capital to be low. For example, comparisons between company records and respondents' reports indicate that interview responses over-estimate the number of hours worked (for example, Bound et al., 1994). A possible explanation of this bias is that most people want to present a better self-image to others, stating that they spend more time looking after their animals even when they actually spend less time doing so.

Preference for own-produced milk. Anecdotal evidence suggests that Indian households believe (perhaps rightly so) that home produced milk is of higher quality than purchased milk. Safety regulators have recently reported that much of the country's milk is either diluted or contaminated with chemicals (including bleach, fertilizer and detergents). Adding water to milk not only reduces its nutritional value, but contaminated water may also pose health risks, particularly in India where waterborne illnesses are ubiquitous. Thus, households may be willing to receive low financial returns on dairy investments in exchange for the guarantee of having clean milk available for household consumption.

Preference for illiquid savings. In most developing countries, poor people and small businesses are generally excluded from conventional financial institutions like the big commercial banks (Rutherford, 2000). For everyone, keeping money at home is neither safe (can be taken by your spouse or child) nor well-protected from inflation (Banerjee & Duflo, 2007). Moreover, recent research suggests that like everyone else, the poor have problems resisting the temptation to spend money that they have at hand (Ashraf, Karlan & Yin, 2006). Examples of this include buying unneeded products, giving your spouse or child a treat, and helping someone to whom you find it difficult to say "no" (such as relatives, friends and neighbours; it may be difficult to refuse such requests for money if the cash is readily available in the house, but less so if the cash is locked up in a cow). Perhaps one way to mitigate the issue of temptation is to save in illiquid form (cows) even if the returns on savings are very low, as selling a cow to get cash would only be done if the circumstances were sufficiently severe.

True value of time is zero (labour market failure). If labour markets are missing or imperfect, particularly for women, then the true opportunity cost of labour is equivalent to what one can do with own-production or home production. In other words, there is no cash alternative. Mammen and Paxson (2000) argue that there may be costs associated with women working outside of the domain of the family farm or non-farm family enterprise. In addition, customs and social norms may also limit the ability of women to accept paid employment, especially in manual jobs. This implies that the household treats their female labour endowment as effectively non-tradable. One would expect that as the costs of women's time increases as they enter the workforce, the opportunity cost of tending a cow would also rise. However, if there are no opportunities for people to enter the workforce, then the opportunity cost of raising an animal is effectively zero.

Speculative motive to buy (overconfidence). People may also choose to raise cows because of overconfidence in the productivity of animals. For example, households generally believe that the value of the animals they currently hold is higher than the value of those they previously sold. There is some evidence from our sample consistent with this hypothesis, however more research is necessary to determine this conclusively.

Preference for positive skewness in returns. Why do people play lotteries, given their low payout rates and remote odds of winning? Garrett and Sobel (1999) document theoretical and empirical evidence that positive skewness of prize distributions (i.e., people like long-shot bets) explains why risk averse individuals may play the lottery. Similarly, skewness of returns distributions may explain why people hold cows, given that there is a very small probability of making huge profits, and most animals yield negative returns. Our estimates provide evidence for positive skewness in returns.

Providing additional services for the household. Female cows may also be raised in hope that they will produce male calves which can provide draught power for both agricultural operations such as ploughing and tilling the land, as well as for transportation of goods. The wider availability of tractors has likely reduced the need for draught power, but observation shows that a small number of male cows are raised to provide power for field work. These services provide additional benefits of owning a cow which may be neglected when analysing the animal's return.

Preference for worshiping cows. Cows are considered sacred in some religions, particularly Hinduism. In Hinduism, the cow is a symbol of wealth, strength, abundance, selfless giving and a full earthly life. Anecdotal evidence suggests that in some parts of India, the slaughter of a cow may be prohibited and their meat may be taboo. Cows are the most important and most worshipped animals in India to the extent that it is almost easier to get away with killing a human than a cow. It is impossible to incorporate spiritual returns into a return on investment analysis. Almost all the sampled households reported that they were Hindu. Perhaps that is a key reason why people own cows with low economic returns?

MOOORE...

It would be interesting to analyse the returns from cows in other states of India or in other developing countries to see if the estimates vary. It would also be of interest to conduct similar studies in industrialised countries and compare the results. If significant differences are found between estimates from various states of India or developing and developed countries, then studying what factors explain such differences would be another direction for future work. However, taking these results at face value, owning cows as an informal investment strategy seems to generate low or negative returns. This finding is of potential use for schemes by NGOs and governments who promote investment in cows as a way to relieve poverty.

QUESTIONS TO CONSIDER

1. Can you think of any other possible explanation(s) for why households still hold cows even when such an investment is not profitable?

2. Do you think the estimates would be different across different states of India or for developed countries? Why?

FURTHER READING

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Commentary on the New Zealand economy

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	Jun 2012	Mar 2012	Dec 2011	Sep 2011	Jun 2011
GDP (real, annual growth rate, %)	na	1.7	1.3	1.2	1.3
Consumption (real, annual growth rate, %)	na	1.6	1.1	0.8	0.6
Investment (real, annual growth rate, %)	na	5.0	4.6	9.3	9.0
Employment: full-time (000s)	1715	1702	1703	1716	1709
Employment: part-time (000s)	511	529	518	502	504
Unemployment (% of labour force)	6.8	6.7	6.4	6.6	6.5
Consumer Price Inflation (annual rate, %)	1.0	1.6	1.8	4.6	5.3
Food Price Inflation (annual rate, %)	-0.4	0.6	1.7	6.2	7.0
Producer Price Inflation (outputs, annual rate, %)	0.5	1.6	3.4	3.5	4.5
Producer Price Inflation (inputs, annual rate, %)	1.9	2.3	4.2	4.7	4.8
Salary and Wage Rates (annual growth rate, %)	2.0	2.0	2.0	2.0	1.9
Narrow Money Supply (M1, annual growth rate, %)	7.3	4.4	8.0	9.1	10.0
Broad Money Supply (M3, annual growth rate, %)	5.7	5.0	6.5	5.4	7.3
Interest rates (90-day bank bills, %)	2.61	2.74	2.69	2.88	2.65
Exchange rate (TWI, June 1979 = 100)	70.8	73.0	68.6	71.2	70.3
Exports (fob, $m, year to date)	46,683	47,468	47,702	46,798	46,072
Imports (cif, $m, year to date)	47,430	47,201	46,896	46,104	45,073
Exports (volume, June 2002 [not seas. adj.] = 1000)	1191	1196	1203	1173	1177
Imports (volume, June 2002 [not seas. adj.] = 1000)	1706	1760	1666	1692	1663
Terms of Trade (June 2002 = 1000)	1208	1240	1269	1288	1296
Current Account Balance (% of GDP, year to date)	na	-4.8	-4.2	-4.4	-3.7

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

The mild, damp summer has had at least one positive spinoff: favourable growing conditions boosted agricultural production sufficiently to produce an unexpectedly large 1.1% rise in GDP in the March quarter. However, a return to a much more anaemic quarterly growth rate for the remainder of the year is expected, as the easing terms of trade, ongoing concern over the European debt crisis, the strong dollar and fiscal restraint encourage caution among both households and firms.

Naturally, such conditions also imply that inflationary pressures will remain subdued for some time to come. Graeme Wheeler, the incoming RBNZ governor, should have little difficulty keeping inflation within its target band initially and the Official Cash Rate is unlikely to be raised before well into 2013.

Short-term interest rates (like the one shown in our Table) have, of course, been at or near their current low levels for over three years. What is perhaps less well known is that interest rates on long-term securities have fallen sharply over the last year or so.

When the Financial Crisis was at its height and short-term interest rates were in freefall, long-term rates also fell sharply (for example, the rate on 10-year government bonds dropped from 5.8% in September 2008 to 4.5% by February 2009). However, while short-term rates have remained low since then, long-term rates quickly rebounded once the immediate crisis in financial markets had passed and were back to near pre-crisis levels by the middle of 2009. After spending the next two years fluctuating between 5% and 6%, the 10-year bond rate slipped below 5% at the beginning of August 2011 and hasn't looked back. At the time of writing it is just 3.7%.

This fall reflects the flight of investors from the bonds of certain European government to those of countries perceived to be of lower risk. (US, German and Australian bond rates, for example, have exhibited similar falls.) Aside from reducing the cost of financing our government's growing debt, this feature of the Euro Area crisis has also seen mortgage interest rates fall recently to little more than 5%. While this makes life easier for many homeowners – many of whom appear to be taking this opportunity to increase their rate of principal repayment – the corresponding fall in term deposit rates will constrain the spending of those reliant on this source of income.

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