

The relationship between the economic downturn and alcohol and other drug use and harm

New Zealand Drug Foundation evidence review

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Introduction

In New Zealand as with across much of the world, there is considerable interest in the global economic downturn and its effects. At the same time, alcohol and drug issues have featured prominently in recent public and political discourse, in part due to parallel Law Commission Reviews that are underway – one looking at legislation related to alcohol, the other reviewing the 1975 Misuse of Drugs Act. Yet there has been surprisingly little attention given to how the economic downturn might impact on alcohol and drug use, specifically, or on health and social issues, more broadly.

This evidence review was undertaken in the context of a worsening global economic downturn amidst concerns that an economic slowdown might be associated with a change in the pattern of alcohol and drug use. Anecdotal reports from service providers suggest that economic recessions are accompanied by increased demand for drug and alcohol services as people struggle to cope with stress due to unemployment, financial problems and low morale. Concomitant fiscal pressures during difficult economic times also place additional pressures on treatment and prevention providers, forcing some to contemplate cutting back services. What may emerge during a recession, then, is a double-edged sword scenario whereby service providers confront the prospect of diminishing resources together with increased demand.

While not intending to undervalue the importance of listening to those working on the coal face in drug and alcohol services, it is essential that any serious attempt to examine the relationship between the economy and drug and alcohol use begins by reviewing the existing literature in this area. Any possible recommendations for policy must be grounded on robust evidence rather than guided by what might seem intuitive or on the basis of anecdotal reports. The review of evidence presented in this report forms the basis for the NZ Drug Foundation's policy on alcohol and drug use during an economic recession.

Objectives

This paper sets out to review the evidence relating to the relationship between macroeconomic change and alcohol and illicit drug use. Specifically, it aims to ascertain whether an economic downturn is associated with an increase in alcohol and illicit drug use (as anecdotal reports seem to suggest) and if so, what this might mean in terms of harms and overall health. The relationship between the economy and tobacco was not specifically assessed. This is not intended to be an exhaustive systematic review of every relevant study ever done. Rather, it aims to synthesize in a readable and succinct manner the major recent international research relating to if, and how, the downturn in the economy might affect alcohol and drug use and their associated harms.

Sources of evidence

The primary sources of evidence used for this review were the published medical, psychological, social science and health economics literature, which were searched via various online databases. Several leading international experts were asked for their assistance in identifying and obtaining the key published literature relating to this area.

There is a vast body of literature looking at socioeconomic disparity and health. This body of literature was not the focus of this review. Rather, efforts were directed at identifying evidence that looked specifically at the relationship between macroeconomic change and alcohol and drug use. However, literature that evaluated the relationships between macroeconomic change and overall health and mortality was also included.

In the absence of any New Zealand-specific research, the review sought to identify the seminal international literature that might be relevant to the New Zealand context. Only literature published in the English language was searched.

Secondary sources of evidence included data from Statistics New Zealand.

Findings

The primary literature dealing with the relationship between alcohol or illicit drugs and macroeconomic changes is complex and generally involves econometric analyses and complex statistical methods that make interpretation at times challenging. Before considering how economic changes might specifically impact on alcohol and drug use, it is useful to consider the literature examining the broader relationship between the economy and overall health. Hence, this section has been divided into three main parts. The first part looks at the literature relating to macroeconomic changes and overall health, the second focuses on alcohol and the economy while the third reviews the evidence on illicit drug use and the economy.

Overall health and the economy

There is little doubt that the decline of mortality observed in developed countries throughout the twentieth century is linked to various factors associated with social and economic advancement. However, there is no consensus on which particular aspect is the major cause of the mortality decline. Over and above its long-term falling trend, mortality has oscillated over time. This has led to research in the US and Europe investigating whether fluctuations of the economy might be related to these oscillations in mortality.

While conventional wisdom is that mortality falls when the economy temporarily improves and increases when it weakens, the literature looking at macroeconomic changes and health has produced mixed findings. Early studies based on time-series analyses revealed a positive relationship between measures of health and economic conditions¹ but these studies have been faulted on technical grounds.² Interestingly, and perhaps counter-intuitively, recent studies from developed countries have found a negative relationship

¹ Brenner 1975; Brenner 1979

² Gravelle et al 1981; Wagstaff 1985

between economic conditions and health - mortality declined during periods of economic recession.³

A seminal study using unemployment rates as a macroeconomic proxy and analyzing US data for 1972 to 1991 showed strong evidence that health improves when the economy temporarily deteriorates.⁴ Specifically, a 1% point increase in the state unemployment rate decreased total mortality by 0.5%, with reductions in 8 of 10 specific causes of fatalities, with suicide representing an important exception. Subsequent research in the US using similar methods but different samples or times frames has generally produced similar findings.⁵ Research analyzing the effect of state unemployment and economic growth rates on mortality in Germany⁶ produced findings that were broadly similar to those from the US research.

While most of the evidence relating to economic changes and health is limited to relatively short periods of two decades or less during the last quarter of the twentieth century, one recent study has examined the relationship between economic fluctuation and mortality in the US throughout the twentieth century.⁷ This influential piece of research found that the decline of total mortality and mortality for different groups, ages and causes accelerated during recessions and was reduced or even reversed during periods of economic expansion – with the exception of suicides which increased during recession.

Many proposed mechanisms have been suggested to account for the apparent increase in mortality that accompanies economic growth.⁸ Hazardous working conditions and job-related stress are likely to have negative effects when work hours are extended and when there is increased hiring of inexperienced workers and accelerated production. Some products of economic activity such as traffic congestion and pollution present health risks. Deaths may also increase because individuals adopt less healthy lifestyles during periods of heightened economic growth. The relationship between the economy and alcohol consumption is dealt with in the next section. However, severe obesity, smoking and physical inactivity have been shown to increase with economic growth.⁹ Lifestyles may also become less healthy when economic conditions improve due to less time for exercise and cooking meals at home. Higher mortality during temporary economic expansions does not imply negative effects of permanent growth. Data generally indicate that rising permanent incomes are associated with reduced mortality, although this effect is not seen with some types of analyses.

Alcohol and the economy

The conventional view has been that recessions lead to a decline in emotional well being and an increase in social pathology, but the evidence connecting macroeconomic conditions to problem drinking has historically been weak. Several studies conducted over the last 15 years have looked at the relationship between macroeconomic changes and alcohol in some detail and there is now a considerable body of evidence from which to

³ Neumayer 2004; Ruhm 2000; Ruhm 2003; Ruhm 2005a; Ruhm 2005b

⁴ Ruhm 2000

⁵ Ruhm 2003

⁶ Neumayer 2004

⁷ Tapia Granados 2005

⁸ Ruhm 2005 Commentary

⁹ Ruhm 2005 Healthy Living in Hard Times

draw. These studies have used varying methodologies – some have used aggregate data on alcohol-related mortality while others have used micro level data on alcohol consumption.

The relationship between drinking alcohol and macroeconomic conditions is complex as many factors come into play at the same time. For example, reduced income as a consequence of unemployment may contribute to a reduction in consumption of alcohol. However, the increased stress of losing ones' job may lead to self-medication with alcohol, although the evidence that alcohol does reduce stress is equivocal.¹⁰ Counterbalancing this effect is the possibility of work-related stress putting employed persons at greater risk of alcohol abuse. The impact of employment on alcohol abuse, therefore, is theoretically ambiguous. Most of the existing studies in this area do not attempt to differentiate between the different factors that may have an effect on drinking. Rather, they aim to provide an overall picture about the underlying connection between consumption of alcohol, alcohol-related mortality and macroeconomic conditions.

An early American study investigated the relationship between macroeconomic conditions and two alcohol-related outcomes – liquor consumption and highway vehicle fatalities for 48 states between 1975 and 1988.¹¹ This study found that alcohol consumption and traffic deaths vary procyclically, with a major portion of the effect of economic downturns attributed to reductions in incomes. The methodology of the study has been faulted by another group of investigators who chose to re-examine the effect of the business cycle on alcohol consumption.¹² This team confirmed the original findings of pro-cyclical alcohol consumption, this time using a more robust analytical model. However, they conceded that aggregate consumption data does not show the distributional effects of changes in drinking caused by economic cycles. For example, an overall decline in aggregate consumption could mask an increase in harmful drinking among a minority of individuals.

Given the criticisms directed against studies focusing on aggregate measures of consumption, several other studies looking at the relationship between macroeconomic changes and alcohol have analyzed individual micro level data.¹³ The earliest study to do so looked at whether unemployment has a causal effect on alcohol consumption and dependence symptoms, using data from the 1988 US National Health Interview Survey.¹⁴ Outcomes assessed included average daily consumption during the previous two weeks and a summary measure of number of symptoms related to alcohol dependence during the previous year, in working-age adults. After eliminating bias from potential reverse causality, evidence was found that non-employment significantly reduces alcohol consumption and dependence, probably due to income effect. However, involuntary unemployment had a mixed effect – job loss increased consumption of alcohol in the overall sample but reduced dependence symptoms among single respondents. The authors caution that increased alcohol consumption is not necessarily an adverse outcome for persons who are light drinkers to begin with and conclude that their findings provide little evidence that a recessionary environment will increase alcohol abuse.

A more recent study examined detailed consumption data from more than 700,000 respondents who participated in the Behavioural Risk Factor Surveillance System (BRFSS)

¹⁰ Winton et al 1986

¹¹ Ruhm 1995

¹² Freeman 1999

¹³ Ettner 1997; Ruhm & Black, 2002; Dee 2001

¹⁴ Ettner 1997

surveys between 1984 and 1995.¹⁵ This study replicated prior evidence showing that an economic downturn is associated with a reduction in overall drinking, however, it also found that binge drinking increases during a recession. The estimated increases in the prevalence of binge drinking during recessions were quite large, with a 5% increase in unemployment inducing an 8% increase in the probability of binge drinking. Binge drinking increased even in those who remain employed during economic downturns, leading the authors to conclude that stress was a major contributory factor, rather than an increase in leisure time. The apparent increase in binge drinking during a recession in this study has been attributed to various shortcomings in the study design and data, prompting additional research using the BRFSS data.¹⁶ This subsequent research confirmed that overall drinking decreases in bad economic times. Almost all of this reduction was due to changes in the consumption of existing drinkers rather than from the movement into and out of drinking. Additionally, the authors showed that the decrease was concentrated among heavy consumers, with light drinking actually rising.

In addition to the US-based research discussed above, two important studies from Finland have looked at the relationship between macroeconomic changes and alcohol.¹⁷ The first study used register-based data from Statistics Finland and found that alcohol-related mortality increased during the economic boom in the late 1980s and decreased slightly during the recession of the early 1990s.¹⁸ The second more recent Finnish study used both aggregate data on alcohol-related mortality and micro level data on alcohol consumption during recent decades.¹⁹ The aggregate data reveal that an improvement in economic conditions produced a decrease in alcohol-related mortality, with a 1% increase in the employment rate leading to an approximately 2-5% decline in alcohol-related mortality. An exception to this pattern occurred during the severe recession of the early 1990s during which alcohol-related mortality declined. The micro level data on alcohol consumption from this study show that an economic expansion was associated with a substantial increase in alcohol consumption, with a 1% increase in the growth rate of regional GDP leading to an approximately 0.3-0.4% increase in alcohol consumption. In explaining these findings, the authors argue that alcohol-related mortality and self-reported alcohol consumption may be delinked in the short-run business cycle context. They suggest that binge drinking, which is most closely associated with alcohol-related mortality, is not captured in survey based data on consumption. Overall, the authors concluded that the Finnish evidence is not entirely consistent with US research, though they did replicate findings that alcohol consumption is procyclical.

Illicit drug use and the economy

Although there is now a considerable body of literature looking at alcohol and the economy, the situation for illicit drug use and the economy is very different. This is no doubt partly a reflection of the difficulty in researching any aspect of illicit drug use, stemming from the illegality of the behaviours of interest. Despite an extensive literature search and queries to leading international experts working in this field, only one published study evaluating the relationship between economic changes and illicit drug use was

¹⁵ Dee 2001

¹⁶ Ruhm & Black 2002

¹⁷ Mäkelä 1999; Johansson 2006

¹⁸ Mäkelä 1999

¹⁹ Johansson 2006

identified.²⁰ This study used individual-level data from the US National Longitudinal Survey of Youth of 1997 to estimate how teenage substance use including marijuana, cocaine/hard drugs and alcohol varies with changes in state-level economic measures.

The results from this study offer strong evidence that a weaker economy leads to greater teenage marijuana and cocaine/hard-drug use, and some evidence that a weaker economy also leads to higher teenage alcohol use. For marijuana, a 1% increase in the unemployment rate was estimated to increase the prevalence of annual marijuana use by 4.1%. For cocaine/hard drug use, this increase was 1.2%. The results hold for several sub-populations of teenagers, including males, females, Whites and Blacks. The author also found evidence to indicate that teenagers are more likely to sell drugs in weaker economies, and suggests this is a major contributor for the observed pattern of counter-cyclical substance abuse among teenagers. Interestingly, these results are generally in contrast to previous US-based research on alcohol use in adults which has tended to be pro-cyclical. Although this study appears to be methodologically sound, its author raises several caveats that need to be considered. Of particular concern is the quality of data on self-reported illegal activities such as illicit drug use and sale. Another issue is that the state-level data may be too broad to capture variation in smaller geographic regions. Nevertheless, this was a fairly robustly designed study and stands alone as the only study to have examined this important issue.

Other sources of evidence

While the primary source of evidence for this report was the published literature, it is possible to glean additional information about the relationship of alcohol use and the economy in the New Zealand context from secondary sources such as Statistics New Zealand. Recently released statistics show that sales of alcohol bucked the trend seen for other consumables and remained steady throughout 2008, dipping only slightly in the December quarter. In fact, during 2008, the total volume of alcohol available for consumption actually rose 3.4%, with beer up 3.3%, wine 2.3% and spirits 5.5%.²¹ However, such figures shed little light on actual patterns of alcohol consumption

Conclusions

As uncertainty mounts over the global economic outlook, there are growing fears about the implications of an economic downturn on alcohol and drug use. As rising unemployment and financial pressures push more people towards the margins of society, conventional belief is that more people will turn to alcohol and illicit drug use in an attempt to self-medicate against the extra stresses they face. Indeed, many treatment providers have reported an increased demand for drug and alcohol services during tough economic times. However, the relationship between the economy and drug and alcohol use and harms is a complex one. There are many sometimes contradictory linkages and several possible confounding factors that make it difficult to attribute causality. Nevertheless, an increasing body of research has emerged over the last 15 years that sheds some interesting light on this complex issue.

Recent studies have tended to find a negative relationship between economic conditions and health - mortality appears to decline during periods of economic recession. This

²⁰ Arkes 2007

²¹ Welch 2009

somewhat counterintuitive finding is consistent with much of the evidence looking at the relationship between alcohol and the economy. Alcohol consumption appears to be procyclical, increasing during economic expansions and decreasing during economic contractions. However, the evidence is far from unequivocal and some researchers have suggested that binge drinking and related harms increases during a recession. To date, the only study to have looked at illicit drug use and the economy found strong evidence that teenage drug use increases during weaker economic times.

Unfortunately, there is virtually no New Zealand-based evidence relating to how alcohol and drug use might be related to changes in the economy. Most of the evidence in this area has been obtained from research conducted in the United States or Finland, both very different societies from New Zealand. While it is reasonable to query the relevance and applicability of international findings to the New Zealand context, this research is still useful in providing some indication of how an economic downturn might impact on drug and alcohol use in New Zealand.

Drug treatment services that were already under pressure before the economic recession may face funding cuts during budget crises, which tend to occur more often in weaker economic periods. The finding that teenage drug use increases during weaker economic times is likely to translate into higher demand for drug treatment services. Cutting such treatment services could have detrimental long-term consequences. While the evidence for alcohol use during recessions seems to indicate that overall use decreases during an economic downturn, the possibility that harmful drinking might actually increase provides grounds to argue for maintaining alcohol treatment and prevention services during an economic downturn.

During an economic downturn, governments are understandably keen to ensure that resources for health and social services are utilized in a way that maximizes benefits. There are good grounds to argue that investing in drug and alcohol addiction services is cost-effective. It is estimated that for every dollar spent on addiction treatment programmes, there is a \$4 to \$7 reduction in the cost associated with drug-related crimes.²²

This review suggests that the relationships between macroeconomic changes and overall health, drug and alcohol use are complex and, in some cases, counterintuitive. Further research, ideally in the New Zealand context, is urgently needed. Nevertheless, there is international evidence to indicate that illicit drug use is likely to increase during an economic downturn. While the evidence relating to alcohol consumptions and harm is mixed, there are concerns that binge drinking may increase during a recession. When taken together with the observations by service providers who consistently report an increased demand during an economic downturn, this evidence review should be used as the basis for policy recommendations that seek to protect and expand drug and alcohol services during a period when they are likely to come under sustained fiscal pressures.

²² National Committee for Addiction Treatment 2008

Recommendations

The New Zealand Drug Foundation recommends that the government undertake a comprehensive survey of addiction treatment providers across the country to gauge demand for services during the current economic downturn and be prepared to invest additional resources to meet any increase in demand that may be occurring.

References

- Arkes J. Does the economy affect teenage substance use? *Health Economics* 2007;16:19-36 (2007)
- Brenner H. Trends in alcohol consumption and associated illnesses: some effects of economic changes. *Am J Public Health* 1975;65:1279-92
- Brenner H. Mortality and the national economy. *Lancet* 1979;26:568-73
- Dee TS. Alcohol Abuse and Economic Conditions: Evidence from repeated cross-sections of individual-level data. *Health Economics* 10:257-270 (2001)
- Ettner SL. Measuring the human cost of a weak economy: does unemployment lead to alcohol abuse? *Soc Sci Med* 1997;44(2):251-60
- Freeman DG. A note on 'Economic conditions and alcohol problems'. *Journal of Health Economics* 1999;18: 661-670
- Gravelle H, Hutchinson S, Stern J. Mortality and unemployment: a critique of Brenner's time series analysis. *Lancet* 1981; 2(8248):675-9
- Johansson E, et al. Alcohol-related mortality, drinking behavior, and business cycles. Are slumps really dry seasons? *Eur J Health Econ* 2006;7:215-20
- Luoto R, Poikolainen K, Uutela A. Unemployment, sociodemographic background and consumption of alcohol before and during the economic recession of the 1990s in Finland. *International Journal of Epidemiology* 1998;27:623-9
- Mäkelä P. Alcohol-related mortality during an economic boom and recession. *Contemp Drug Problems* 1999;26:369-90
- NCAT. Investing in addiction treatment. A resource for funders, planners, purchasers and policy makers. National Committee for Addiction Treatment 2008. Available from www.ncat.org.nz [last accessed 23 March 2009]
- Neumayer E. Recessions lower (some) mortality rates: evidence from Germany. *Soc Sci Med* 2004 Mar;58(6):1037-47
- Ruhm CJ. Are recessions good for your health? *The Quarterly Journal of Economics* 115(2): May 2000: 617-650
- Ruhm CJ. Good times make you sick. *Journal of Health Economics* 22 (2003):637-58

- Ruhm CJ. Healthy living in hard times. *Journal of Health Economics* 2005;24(2):341-63
- Ruhm CJ. Commentary: Mortality increases during economic upturns. *International Journal of Epidemiology* 2005;34:1206-1211
- Ruhm CJ. Economic conditions and alcohol problems. *Journal of Health Economics* 14 (1995):583-603.
- Tapia Granados JA. Increasing mortality during the expansions of the US economy, 1900-1996. *International Journal of Epidemiology* 2005;34:1194-1202
- Wagstaff A. Time series analysis of the relationship between unemployment and mortality: a survey of econometric critiques and replications of Brenner's studies. *Soc Sci Med* 1985;21:985-96
- Welch D, Acting Government Statistician. Alcohol and Tobacco Available for Consumption: Year Ended December 2008. Statistics New Zealand 2009. Available from www.stats.govt.nz.
- Winton M, Heather N, Robertson I. Effects of unemployment on drinking behaviour: a review of the relevant evidence. *International Journal of Addictions* 1986; 21:1261-83