



IMPACT OF ECONOMISTS ON THE ENVIRONMENT

Brian Tunstall

Key Words: climate change, global warming, business model

Abstract

The role of economists in addressing the environment is examined in relation to climate change. Issues examined include assigning environmental expertise to economists, and the use of business models to address problems that have arisen through the application of business models.

Introduction

Economists were not previously identified as being expert on the environment but that changed with climate change¹. Many economists are identified as being expert on climate change as there is now status and money in addressing the environment. This provides an opportunity to examine the role of economists in addressing the environment, and their impact upon it.

Disciplinary Expertise

The emergence of climate change has seen the development of instant experts from across a spectrum of disciplines. However, the credentials needed to become a climate change expert are undefined due to the rapid development and diffuse nature of the issue. Producing anything on the topic has often been taken as providing expert status as there is no definitive means of determining the veracity of any material or comments.

The usual situation is that expertise derives from position in an establishment organisation where the personal credentials used to obtain that position arose well before climate change. The expertise relates to disciplinary activities that were not directed at addressing climate change but which are now presented as being central to the topic. If they are not central to climate change there is no basis for claiming expert status on the topic.

The public media has contributed to this situation by using expert status to provide credibility for articles. As there is no definitive means of determining whether what has been said is right journalists have covered themselves by claiming expertise for their sources of information. The value assigned to articles directly relates to the expertise assigned to the sources of information where this value is tangibly expressed by way of monetary returns.

¹ The term climate change is used throughout as that terminology is entrenched in economic considerations. However, there can be climate change unrelated to human activities. The term global warming has previously been used for land use induced climate change.

Given the wide range of topics addressed under the umbrella of climate change the world now has an extraordinary number of experts to address the issue. However, most topics address peripheral social issues when the core issue is, how is climate change produced by human land use?

This issue is core as climate change can only be remediated by addressing its cause. Effort expended addressing symptoms of climate change may provide symptomatic relief but can never provide a cure. Moreover, expending effort addressing symptoms greatly reduces the ability to provide a cure and, with land use induced climate change, could prevent a cure ever being found.

Addressing the core issue necessarily involves the physical sciences, but it also involves biological sciences due to the role of vegetation. The basic relevant physical science is physics, but the diffuse group that laid claim to issue has been identified as being climate scientists. While biologists have been prominent in addressing impacts of climate change there have been few addressing processes associated with its cause.

The ancillary issues involve the consequences/impacts of climate change, and the provision of remediation. Engineers have addressed means of reducing emissions with existing technologies, and chemists have focused on carbon sequestration. Biologists have mainly addressed potential means of remediation through carbon sequestration and reducing emissions of biologically produced greenhouse gasses, and the consequences of observed and predicted changes in climate for biota. Economists have addressed remediation through the use of monetary mechanisms. All remedial actions have been based on the assumption that climate change is primarily caused by an increase in atmospheric CO₂ due mainly to the burning of fossil fuels.

The global situation with climate change is the same as occurred with dryland salinity in Australia. It was assumed that the cause was known and the focus was on remediation. The research on salinity developed 'market based instruments' and 'practical tools', all of which have been useless as they don't address the cause. They have at best provided symptomatic relief but at great cost. One cost was the need for ongoing research, but the main costs derive from the ongoing degradation due the failure to address the cause.

If conclusions as to the cause of climate change are wrong then remedial actions are at best useless. In general they will be detrimental because of the ongoing degradation that arises through the conduct of research and remedial activities that cannot provide benefit.

Economics cannot be used to address either physical or biological processes associated with any topic. Economics are therefore useless in determining either the cause or the means of remediation. Any suggestion that economists can be expert in climate change is therefore irrational with normal use of the English language.

Within universities economics is commonly identified as being a social science. Whether it is in any way scientific is debatable but there is a fundamental difference between economics and science based disciplines that is absolute. Physics and biology are natural sciences where the correct answer is given by nature. Economics is a human construct wherein there is no correct answer and never can be.

The significance of this difference relates to testing. Science depends on testing whereby theory is compared with a long standing reality that is largely unaffected by humans. With economics theory can only be compared with a transient reality that is constantly changing through the influence of prevailing theories. With economics both the theory and outcome are

anthropogenic and interconnected hence there is circularity in comparisons between them. The testing essential to the development of science cannot be applied in economics.

Economics

Economics is similar to the legal system and governments in being a human construct. It has no reality outside human societies and was initially developed as an aid to trade.

Economics evolved through money becoming an intermediary in the barter system. While money represented a practical convenience it also became an entity in its own right as profit could be made solely by addressing money. The initial focus was money lending but money trading by way of speculation on currencies has grown with international trading.

The business view of economics is making profit from money. All aspects of the business are represented by money regardless of any consideration other than their use in making a profit. Intangibles such as good will are categorised in the same way as tangible assets such as property, plant and goods.²

The objective with a business is to maximise profit. The role of economics has been to analyse the money flows to identify limitations to achieving this goal. The analysis is based on a simple³ start-rate model that allows identification of limitations to maximising profit. The tangible limitations relate to state, as by way of the size of an identified money pool such as plant. Flows are manipulated by altering the states.

The business model has been complicated by regulatory arrangements imposed by governments. These have been implemented for a diversity of reasons with the key ones being taxation and maintenance of 'market forces' or 'free trade'.

Maintenance of market forces is meant to prevent the development of monopolies and cartels. However, as monopolies and cartels are the most effective means of maximising profits they are a normal and universal market force. Government regulations are designed to counter normal market forces so as to increase the level of competition.

The use of economics to provide environmental solutions invokes the assumption that the environment can be assigned a monetary value. However, as the environment is essential for all life the issue is as arises with water. When used by business water has a tangible value based on the value of goods produced, but there is no such basis with urban use.

Water is essential for people to survive but it has no economic value when used domestically as it is not used to make a profit. Attempts to assign a monetary value to domestic water use based on a business (profit) model invoke arbitrary decisions that reflect personal views rather than any rational construct. A business model is constructed to address profit and cannot rationally be applied where there can be no profit.

Some economists suggest that water should be 'freely' traded so as to comply with a business model. With the sole focus for business being to make a profit, consumers would then pay the maximum the business thinks it can obtain. Monopolies and cartels are almost inevitable with the supply of water given the physical constraints to its supply and distribution.

² All components of a business are assigned a monetary value to allow the analysis of money flows as this allows oranges to be compared with apples. Economically they are treated as being the same when environmentally they are different as different crops have different growth requirements and their food value differs considerably.

³ The structure of the model can become complex but the process remains simple. The simplicity arises from the conversion of all considerations to a common denominator in money.

Application of a business model to climate change resulted in the promotion of carbon trading as being the best means of reducing carbon emissions from land use. The rationale used has been:

- Climate change is caused by increase in the level of atmospheric CO₂, therefore remediating climate change involves reducing carbon emissions from land use.
- A business model provides the most efficient means of reducing carbon emissions.
- The most effective and efficient business model is to place a price on carbon emitted to the atmosphere with the price being determined through free trade.

The first point is wrong⁴, and there is no definitive basis for determining the validity of the second two points. However, the *prima facie* case is that all are wrong.

The most efficient means of reducing carbon emissions is through regulation but this can have undesirable consequences. Energy production provides the simplest example whereby capping carbon emissions could produce energy shortfalls. A business model is assumed to prevent this through cost penalties forcing producers into improving efficiencies and/or alternate technologies. However, given the influence of existing investments, and time lags in developing alternatives, the initial effect of cost penalties is solely to increase costs to consumers.

One consequence of current business models is that the main polluting companies will increase profits if subject to additional costs. Business models focus on percentages, particularly with profits. Where all companies are subject to the same cost increases the costs are passed on but with a profit percentage being applied to the increased costs.

Imposing a cost for carbon will increase the monetary returns for many large companies without there being any need for new investment. It is therefore hardly surprising that many large companies favour a cost for carbon. It is equally not surprising that the bulk of small companies further down the delivery chain oppose it as their opportunities to pass on costs are restricted. The social consequences are significant as small companies are by far the major employers.

The consequences of developing a carbon market are the same as for a currency market. Most carbon trades will involve speculation on the market with the only guaranteed winners being those taking a commission on trades. Also, the absence of an established regulatory system, and the vagaries associated with addressing carbon, greatly increase the opportunities for rorts. Corruption will be rife without there being any surety that the key objective will be achieved.

A premise behind developing a cost for carbon promoted by environmentalists is that it will promote the development of alternate technologies that are currently considered too expensive. This premise does not arise with the bulk of business as with a business model production costs are not the sole determinant of viability. With current business models, where profits are expected in a short period, the initial capital outlay can be the prime determinant of viability. With current business models existing businesses always have a strong advantage over potential competitors, and this advantage is boosted by political lobbying made possible by profits.

The effect of lobbying has been evidenced in proposed concessions for major energy producers that effectively nullify the effects of developing a carbon trading scheme, at least in the short

⁴ This does not necessarily negate caps to carbon emissions. It identifies that global warming cannot be remediated by controlling carbon emissions.

term. Instead of constraining the excesses of business, government is being used to promote them. The proposed emissions trading schemes represent the worst of all possibilities for society whereby business can manipulate a government imposed constraint to their advantage and is being given government support to do so.

The Social Cause of Global Warming

Modern agriculture is the prime cause of global warming, and the agricultural business model illustrates the role of economics in causing environmental damage. Labour initially constituted the main recurrent cost in agriculture, and with the business model has been minimised through mechanisation.

With dryland farming the economies of scale determine a need for large areas to accommodate large implements. Agriculture now involves extensive areas of cleared land and, with cropping, the land can remain bare for most of the time. This is a key factor in the development of global warming.

Land is kept bare to 'control' weeds and to accumulate water in the soil for later use by a crop. Keeping land bare causes soil degradation by promoting the loss of organic matter and accelerating erosion. The consequences of this soil degradation are manifold but one is a reduced capacity of the soil to hold nutrients. The application of fertiliser is therefore an essential component of this farming regime, where the fertiliser applications typically accentuate the soil degradation.

The need for fertiliser application is generally based on calculations of cost benefit. The cost of purchasing and applying the fertiliser is compared with the expected increase in returns from a crop. Fertiliser application has been based on a very short term assessment of benefits by way of the performance of a single crop.

Clearing has occurred for grazing as well as cropping where the clearing is justified on the basis of a large increase in the growth of herbage. However, the increase in herbage is effectively transient as it arises through the release of nutrient resources developed in the woody vegetation. Moreover, the exposure of the soil to rain and radiation associated with clearing and grazing causes soil degradation.

The degradations associated with clearing were not considered when calculating the business economics as profits from the short term increase in pasture are more than sufficient to justify the cost of clearing. The reality that the cleared system could, and usually does, become far less productive than the uncleared state, was never considered.

The economic model applied to agriculture is the same as for other businesses in relating to the short term return on investment (ROI). The objective is to maximise profit which is most readily achieved by expediting the returns. Returns are derived over time and the simplest way of increasing profit is to decrease the period for returns. Mechanistically this involves increasing the frequency of a production cycle.

The need to expedite returns is also promoted by a financial system that profits from money. Developing a business almost invariably involves a capital outlay where the eventual cost of a capital investment depends strongly on interest paid on loans. There is a financial incentive to maximise the short term returns from any development so as to minimise the realised capital cost. With cropping this cycle of borrowing and repayment can be annual.

The main difference between agriculture and other businesses is that the core asset, the land, cannot be replaced. The land can be improved or degraded but, excepting shifting agriculture,

the land must produce in perpetuity⁵. As short term gains in agriculture are invariably at the expense of long term viability the current economic models have strongly promoted the land degradation primarily responsible for global warming to the point of being the prime cause.

Attempts by farmers to escape this downward spiral in the condition of their land are suppressed by the application of economics. Most farms have considerable debt and lenders must be convinced that proposed farming activities will be profitable in the immediate future. Those in financial institution use the same short term economic model that led to the degradation as they consider it to be appropriate. Alternate management practices that address long term development are not considered to be financially viable and so are not funded.

Many farmers are now between a rock and a hard place. Continuing with their existing management practices is not commercially viable and will produce further land degradation. Introducing alternative management practices can be commercially viable but only when evaluated over a long term. An inability to demonstrate rapid returns from an investment means that the funds needed to make necessary adjustments to land management are seldom available.

The above addresses 'western' agriculture on owned land. The historic situation with cropping in societies such as Egyptian and Mayan was similar, but the most extensive land degradation has historically arisen from grazing on shared lands. Livestock have been used to obtain a living from poorly productive lands where the grazing has invariably further reduced the productivity, often to the point of producing desert.

In Australia livestock grazing has reduced once fertile lands to barren landscapes barely able to sustain any livestock within a few hundred years. This has occurred with land ownership⁶ and so does not involve competition for a shared resource.

The above addresses production from agriculture when profitability depends also on demand. Farm businesses are generally small compared to those purchasing produce and, for perishable produce, every farmer is attempting to sell a particular crop at the same time. Buyers have a strong capacity to dictate prices where this increases their profits at the expense of farmers. This control is increasing.

Farmer cooperatives previously provided a means of reducing the power of buyers over returns to farmers but these have diminished with increases in size of individual farms and the buying power of companies. Farmers on small landholdings are caught between a rock a hard place on their journey to oblivion.

Market forces are meant to counteract the above situation through shortages increasing prices. However, this suggested feedback mechanism cannot save farmers that have become bankrupt or have irrecoverably degraded their land in an attempt to survive. The feedback mechanism only cuts in when the damage has been done. At present the damage is obscured by an increasing number of farmers surviving on off farm income.

Loss of farmers is inevitable due to the delay in feedback mechanisms taking effect where these feedbacks are central to the economic models. Indeed, such feedbacks are touted as the prime advantage of control by market forces over regulation. However, the feedback mechanisms associated with market forces can only benefit farmers that survive with sufficient capital to continue development. The logical outcome with application of a strict business

⁵ The nuances associated with financial dealings in land are not addressed here.

⁶ The land tenure may technically be leasehold but it equates with ownership in involving a single occupant.

model is the development of a privileged class of super farmers that are in a position to hold society to ransom due to a shortage of food.

Food shortages and escalating prices are to be expected given maintenance of current production levels and projected population increases. They will likely occur sooner than expected as production capacity decreases with further development of land degradation and hence global warming.

This dire scenario is incomplete as it does not address the quality of food. Land degradation is inescapably associated with reduced food nutrition where the health malaise developing rapidly in developed countries arises from a combination of pollution and poor nutrition.

Economic Environmental Solutions

The economic solution to global warming of a tradable cost for carbon by way of an emissions trading scheme invokes the same economic model that produced the global warming it is meant to solve. This situation is most succinctly summarised by the comment that expecting to solve a problem by doing more of the same is one definition of insanity.

The situation with global warming is clear as the suggested solution addresses a symptom rather than a cause. However, features intrinsic to the business model prevent economics from ever providing environmental solutions. Business was initially opposed to a cost for carbon as it was seen as an impost that would reduce profits. The situation changed when some large businesses realised that a cost for carbon could be used to increase profits both in the trading of carbon and through the ability to pass on costs. Business will only willingly incorporate changes that increase profits hence unprofitable changes necessary to maintain a liveable environment will be opposed, delayed, shelved, or otherwise resisted unless business is financially 'compensated' by government.

With the economic models used business will only address the environment where there is economic benefit, or where mandated by government. The dilemma is that governments are now using economics to determine appropriate environmental regulations where the regulations are based on application of a business economic model. The insanity has become entrenched in the basic fabric of society.

Given the central role of business in society there is a role for economists in addressing the environment. However, it is not in deciding on the appropriate means of addressing environmental issues. Their sole function lies in assessing the likely costs of implementing different actions. Just what those actions are, and their likely efficacy in achieving desired environmental outcomes, are determined by others.

