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## **Consumption-based emissions policy: A vaccine for the CPRS 'trade flu'?**

# 1.2



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## Introduction

Australia's Carbon Pollution Reduction Scheme (CPRS) is 'the GST from hell'. It hits exports, exempts imports and cuts Australia's competitiveness. It's more likely to drive emissions (and jobs) overseas than reduce emissions globally. Naturally, it's been poorly received across-the-board. Its national 'trade flu' effect explains why the Kyoto Protocol has failed. We need a more globally acceptable policy model. Crucially, China has pointed the way.

The debate about climate policy design isn't over. At least three issues are unresolved.

First, is an emissions trading scheme (ETS) better than a carbon tax? I favour a carbon tax. It delivers emissions reductions with less (or no) 'wastage' via 'emissions shuffling' (more politely called 'emissions trading'). It is better at delivering predictable carbon price increases, clearly and consistently signalling the need to shift investment towards lower emissions technologies. This signal is required for a switch to a low-emissions economy.

Second, the most important debate by far is about the **best national emissions base for policy**.

The contenders are **national emissions production** and **national emissions consumption**. Either works under the very first policy idea leading up to the 1992 United Nations Framework Convention on Climate Change (UNFCCC): a globally applied carbon tax. Sadly, this idea didn't survive the 1992 UNFCCC. Worse, under the 1997 Kyoto Protocol, non-harmonised national action was formally approved. A national emissions production base will fail under this differentiated approach. 'First movers' suffer competitiveness losses compared with 'late movers'; effectively taxing their exports and subsidising their imports. This negative protection generates activity and job losses for little or no net reduction in global emissions. That's what the global hullabaloo about 'trade-exposed' industries is all about. That's why the Kyoto Protocol has failed.

An emissions consumption policy base neutralises adverse trade competitiveness effects, and is World Trade Organization (WTO) compliant. The prisoner's dilemma – the 'I'll cut my emissions after you cut yours' syndrome – is no longer an impediment to a

global deal. Such a deal should be the ‘main game’ in Copenhagen in December 2009. Australia’s main role there should be to present a policy model that all countries can adopt as soon as possible. Anything else would be irresponsible. The CPRS doesn’t qualify as a solution to ‘trade exposed’ industry concerns. A national consumption-based model does. It would greatly improve odds for a global deal. Australia should champion this tweaking of the CPRS to get others on board. China has already signalled broad support for a consumption-based approach.

The third debate is about global emissions abatement targets and their allocation amongst countries. Carbon taxes and emissions trading schemes rely on the price of carbon as the instrument to deliver abatement outcomes. National carbon prices are the true measure of national emissions abatement efforts and deliver appropriate burden sharing. Under a uniform global carbon price, countries with large, high-emissions energy sources, and high-income countries with high per capita consumption (and carbon footprints to match) face the largest adjustment burdens. This seems fair. It’s also reasonably easy to monitor.

A national emissions consumption-based carbon tax best delivers all these outcomes. This is a viable path to where the global community started: the original vision of a uniform global response.

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## 1. Australia’s CPRS: what’s the problem?

Suppose the Australian government actually told voters it would introduce a new GST, but with a really nasty twist. Unlike all other GST systems, this new GST:

- would apply to Australia’s exports
- would fully exempt Australia’s imports
- would be introduced unilaterally, that is, regardless of what other countries do.

You might think this would be crazy. It would. The Howard Government introduced a GST, but it exempted exports and taxed imports. The ‘nasty’ GST outlined above amounts to negative protection – ‘the GST from hell’.

The Australian government’s CPRS will operate just like that. It will affect Australian exports and exempt its imports, rather than the other way around. Naturally, this reality is not highlighted in government information on the CPRS, but it is the reality. This is also the reason for all the deals for (an arbitrarily select group of) emissions-intensive trade exposed (and other) industries. The CPRS entrenches a culture of business lobbying for distorting, efficiency sapping ‘special deals’.

Smart countries won’t adopt policies delivering negative protection. In the 12 years since the Kyoto Protocol policy model was ‘agreed’, the evidence supports this conclusion. Australia shouldn’t, either.

Negative protection is the reason why the CPRS – and the European model on which it is loosely based – are not well received. This paper explores more globally acceptable policy alternatives.

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## 2. Focus: a policy model where the economics actually *work*

This paper leaves the debate about the physics of climate change to professional scientists, but it does assume:

- global warming is happening and that man-made contributions are significant
- emissions can be measured
- policy action can reduce the severity of this problem.

Given these assumptions, a global policy response is needed, something so far lacking. Indeed, securing a genuinely global, comprehensive policy deal should be the ‘main game’.

This paper focuses on climate change policy design, having particular regard to the real-world context in which it must be applied, and paying particular attention to incentive effects associated with different policy models.

At the outset, it should be emphasised that I no longer accept the hand-wringing summarised in what Ross Garnaut labelled the ‘prisoner’s dilemma’ (Garnaut 2008, xviii). This notion – more accurately summarised as the ‘I’ll cut my emissions after you cut yours’ syndrome – is largely if not wholly a product of poor government choices about the appropriate policy model under the 1997 Kyoto Protocol. It is not, as some would have you believe, some sort of global ‘market failure’.<sup>1</sup>

The main themes are as follows:

- The policy model chosen must reflect the context in which it will be applied. In particular, a model suitable if all nations act together may well fail if they do not.
- Economic incentives associated with the policy model chosen, also determined by the context in which it is applied, can have powerful effects hampering the securing of a global deal. Indeed, in my opinion these incentive effects are central to an understanding of the failure of the 1997 Kyoto Protocol to date (and, probably, in future).

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### 3. The vision leading up to the 1992 UNFCCC: a consistent policy model

What are the lessons of history?

One of the very first climate change policy models envisaged in the lead-up to the 1992 UNFCCC made sense. That model:

- focused on national production
- was applied by all countries at the same time
- was a globally harmonised carbon tax.<sup>2</sup>

In this context, a national production-based model was fine.

Because all nations applied the same carbon tax at the same time, there were no adverse national incentive effects, even using a national production model. By definition, the 'I'll cut my emissions after you cut yours' syndrome did not apply.

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### 4. The 1997 Kyoto Protocol: a really dodgy detour or just the son of UNFCCC?

The 1997 Kyoto Protocol white-anted the internal consistency of the pre-UNFCCC vision in two ways:

- An ETS mechanism for putting a price on carbon emissions replaced the carbon tax (at the insistence of the United States (US) which, under George W Bush, then 'jumped ship'). The ETS, per se, was no great disaster. It was just messier and reliant on governments having the courage to limit emissions permits enough to impose a significant carbon price. But combined with the other change (see below), it helped secure policy failure.
- More important by far was the formal agreement that different countries could implement climate change policies at different times (ie the rich developed countries were to act first and others, some time later).

In particular, this second change to the original vision set the Kyoto Protocol up for failure because the original national production-based policy focus was retained under Kyoto. The internal consistency of the original pre-UNFCCC policy model was shredded. The combination of a national production-based model and non-harmonised national action produced the 'I'll cut my emissions after you cut yours' syndrome. Ross Garnaut's prisoner's dilemma is really a government policy failure, not so much a market failure. The policy failure was choosing the wrong policy model.

The rest of the story is well known. Efforts to secure a global climate policy deal under the terms set out in

the Kyoto Protocol in 1997 have since foundered. They have:

- degenerated into national posturing and moralising, including at international fora; plus
- fruitless and unresolved arguments about national burden-sharing (see below); plus
- ad hominem attacks, bordering on quasi-religious frenzy in some cases; plus
- non-transparent, tendentious policy analysis (including by governments and in Australia); and
- adoption by some of targets set in the far distant future without credible measures to deliver them.

The Kyoto Protocol has been a cynical politician's dream. Promise the earth beyond your term of office and never be held accountable for delivery.<sup>3</sup> The now-delayed CPRS is a good example.

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### 5. Some basic emissions accounting relationships

The sorry history just summarised is more easily understood if we grasp some basic emissions accounting relationships.

First, anthropogenic greenhouse gas emissions are associated with, and embedded in, economic activity.

Second, economic activity can be measured in three ways under national accounting systems. It can be measured via national production (GDP), via national expenditure (GNE), or via national income. The first two of these, especially, provide industry and product-specific measures of economic activity. Combined with good carbon accounting frameworks (still a global work-in-progress), they can be used to measure national production of, or expenditure on (consumption of), greenhouse gas emissions.

Third, by definition, globally, national production and expenditure (and income) add up to the same thing. (If they don't, a 'statistical discrepancy' is added to make sure they do.) Figure 1 illustrates this global equivalence between GDP and GNE.

Note also that globally, exports must equal imports (absent interplanetary trade and helped by a 'statistical discrepancy' as needed). It follows, by definition, that there are at least two paths to reducing global emissions: by targeting national production of emissions via a GDP-based policy, or by targeting national consumption of emissions via a GNE-based policy. Globally applied policies targeting either path can produce the same global emissions abatement result.

The 1992 UNFCCC model chose national production as the target. It could have chosen national consumption (emissions embedded in GNE) as the target. Either would be equally effective if all countries acted at the

**FIGURE 1:**  
EMISSIONS EMBEDDED IN GLOBAL GDP = EMISSIONS EMBEDDED IN GLOBAL GNE



**FIGURE 2:**  
EMISSIONS EMBEDDED IN NATIONAL GDP ≠ EMISSIONS EMBEDDED IN NATIONAL GNE



same time using the same policy instrument (eg a globally harmonised carbon tax.) Under the pre-UNFCCC global carbon tax model, choosing production or consumption as the policy target didn't matter.

But Kyoto (and before it, the UNFCCC) allowed for non-harmonised national action. From 1992, and especially from 1997, the choice was crucial. The wrong choice – national production – was made.

Figure 2 illustrates the problem thrown up by the Kyoto Protocol (eg for Australia).

Under a national production approach, a carbon tax (price) applies to a country's exports, not to its imports. Any country acting unilaterally effectively imposes a carbon export tax and offers a carbon import subsidy. This is a policy imposing negative protection on its national production. Its trade competitiveness is undermined compared with countries not taking the same action.

Under a consumption approach, a carbon tax (price) does not apply to a country's exports and border tax adjustments (BTAs) apply to its imports. Any country acting unilaterally effectively leaves its export pricing and competitiveness unchanged and, if properly designed,

imposes a carbon tax on its imports that is the same percentage of value as that imposed on the competing locally-produced substitutes.<sup>4</sup> This is a policy imposing zero protection on its national production. Its trade competitiveness is unaffected compared with countries not taking the same action.

This is at the heart of the problem with the Kyoto Protocol.

Non-harmonised national policy action based on a production model is the real-world policy context. It sets up 'first movers' for losses of trade competitiveness. It gives 'late movers' a trade competitiveness 'free kick' and in so doing, positively encourages them not to follow suit. Worse, the loss of competitiveness shifts activity and jobs – and embedded emissions – to countries not acting, at least at the margin. This 'carbon leakage' means that the net reduction in global emissions resulting from 'first mover' action might be very small, zero, or even negative.

These 'incentive effects', derived from the policy context, will likely kill prospects for a global deal.

Why should individual countries act under a Kyoto-type production model? There's no guarantee such action will reduce *global* emissions. It could do the opposite. The only certainty is a loss of trade competitiveness and a leakage of economic activity, jobs and emissions to those countries not acting.

This is the genesis of the 'I'll cut my emissions after you cut yours' syndrome. Applied globally, it means nothing gets done.

This is the result expected from 'first principles', and is the result in practice (see below).

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## 6. The importance of incentive effects in policy design

Incentive effects associated with policy design are the bread and butter of applied economists. They also underpin economic theory (most if not all of which can only work by making assumptions about human behaviour), even though some suggest 'behavioural economics' is a new, untrodden field.

Sometimes allowance for these incentive effects seems not to be well incorporated into policy decisions. For example, suddenly imposing a large tax increase on one from a long list of close substitutes to reduce its consumption, but not on the others, seems likely to produce poor outcomes. Using a recent Australian example to illustrate, selecting the alcohol included in so-called 'alcopops' for heavier taxation, but excluding other alcoholic beverages, is simply a way of generating increased incentives to consume alcohol through products other than 'alcopops'.

This is not the policy's intent (which is to reduce alcohol consumption and 'binge drinking'). The incentive effect embedded in the policy design undermines its purpose.

Getting the design wrong in the climate change policy field can be much more serious than this.<sup>5</sup>

In the climate policy field, broad-based carbon price instruments necessarily entail perhaps the largest and most complex single government policy intervention in economic activity outside wartime. It will be costly to administer and to comply with effective policies of this type.

Even so-called 'market determined' carbon prices under an ETS require substantial government involvement in monitoring and policing compliance with emissions permits (plus, of course, tough decisions on emissions caps if serious carbon prices are to be established). It is therefore crucial to design such policies with full attention to their policy context and associated incentive effects.

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## 7. The policy design reason for the failure of Kyoto

Stripped to its core, the policy design reason for expecting the Kyoto Protocol model to fail is disturbingly simple and obvious:

As soon as non-harmonised national action became the agreed policy context, policy design should have been adjusted to neutralise the resulting adverse incentive effects associated with the initial national production-based focus.

Specifically, international trade-neutrality should have been immediately restored by switching the policy design to target national consumption of emissions.<sup>6</sup>

Governments failed to make this essential adjustment to policy design in 1992 and again in 1997.

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## 8. Evidence-based policy: the real-world proof that Kyoto is a failed policy model

The Kyoto production-based climate model has been tested for 12 years since the Protocol was established in 1997. Evidence of its failure to date is summarised in the broad indicators outlined in Box 1.

### Box 1: Indicators of poor policy performance under the Kyoto Protocol since 1997

- Only in early 2005 did enough countries 'ratify' the Protocol officially for it to 'enter into force'.
- Major emitting countries have taken little or no broad-based climate policy action.
- Most of those countries that have accepted national emissions targets are likely to miss them by a mile.<sup>7</sup>
- Countries adopting an ETS (notably Europe) have not effectively capped their emissions.
- Those same countries have either over-allocated permits or accepted volatile/low carbon prices.
- The current carbon price in Europe is very low. The initial Australian price – AU\$10 – will be lower.
- Those countries adopting ETS policies have 'carved out' large portions of national emissions production.
- Concerns about loss of trade competitiveness in trade-exposed industries have been the cause.
- These have led to threats of BTAs on imports from countries without an ETS.

This sorry history gives little confidence that the situation will be improved if the same model is pursued in Copenhagen in December 2009.

Is there a practical 'Plan B'?

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## 9. Is a national emissions consumption approach practical?

Opponents of the proposed national emissions consumption-based policy have argued that such an approach is both unrealistic and inconsistent with WTO rules. The second objection is dealt with in the next section. The first is dealt with here.

The basis for the assertion of impracticality is that countries cannot know the emissions intensity of imports and therefore cannot know what BTA to make to them. If that objection were valid, it would be a heavy blow against a consumption approach.

However:

- This criticism is irrelevant.
- The only data needed to calculate the appropriate Australian border tax adjustment (BTA) for a specific import are (i) the Australian carbon price (or tax), expressed in AU\$/tonne, and (ii) the Australian emissions intensity of the locally-produced version of the imported product concerned (measured in tonnes per unit of product).
- No overseas information is required. The same Australian information will be required or available (eg for monitoring) under an Australian production-based approach anyway.
- These two pieces of information, multiplied together, deliver a carbon cost in Australian dollars per unit of the product concerned.
- Dividing that carbon cost by the carbon cost-exclusive price of the Australian-produced product delivers an ad valorem equivalent carbon cost adjustment (as a percentage rate based on the carbon cost-exclusive price).
- This same derived percentage rate is then applied to the imported substitute as an ad valorem equivalent BTA, just like a GST.
- Attempts to tax imports at *different* ad valorem equivalent rates than locally produced substitutes (especially if higher) would indeed run foul of current WTO rules.
- More generally, carbon costs are recorded as a one-item addition to Australian Tax Invoices. These entitle GST-registered businesses to input tax credits (ITCs) on such costs, as they pass them down the supply chain. At the export point, the carbon cost is also rebated, thereby 'zero-rating' exports. Imports attract an appropriate BTA as described above. In

turn, this provides an ITC for business purchases and a rebate when imports feed into exports.

- Ultimately, therefore, the cost passes on to final consumption, just like the GST.<sup>8</sup>

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## 10. Is an emissions consumption approach WTO-compliant?

Designed properly, a national emissions consumption-based climate policy is both trade competitiveness-neutral and WTO-compliant.

The simplest explanation is that the national emissions consumption model should operate in precisely the same way as a product-differentiated Value-Added Tax (VAT) or, as these are labelled in Australia and New Zealand, a GST. See the section above.

Here, the product differentiation solely reflects differing *Australian* emissions intensities in production.

Both VAT and GST systems are trade competitiveness-neutral and WTO-compliant.<sup>9</sup>

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## 11. A qualitative evaluation of policy alternatives: broad policy design principles

In order to evaluate alternative policy options, it's useful to set out some principles to provide a framework for such an assessment. This framework could also describe a road map for a more successful outcome in Copenhagen in December 2009 than now seems likely.

The 1992 UNFCCC goal: *Stabilising greenhouse gases at levels that would prevent dangerous anthropogenic interference with the climate system* should be the Preamble for any analytical framework (and any Copenhagen deal). We need to know where we are going.

Acceptance that countries probably won't act simultaneously should also appear in the Preamble. We should recognise reality, not be mugged by it.

An agreed framework of principles to guide policy design comes next. The following seven principles might seem like obvious 'motherhood' statements. That's good. It means there's a good chance countries can agree to them.

National policies should:

1. Raise relative prices for carbon, but minimise effects on real national incomes.

2. Make the same contribution to lower emissions globally as they do nationally.
3. Minimise 'free rider' impediments to a global deal.
4. Be comprehensive to minimise avoidance and internal 'carbon leakage'.
5. Be trade competitiveness-neutral.
6. Allow countries freedom to choose between approaches, subject to principles 1 to 5.
7. Minimise national compliance and administration costs.

Some brief comments on these principles follow:

- The first principle addresses the *instrument* through which broad-based climate change policies must operate: a price on carbon. Emissions must be made costly. The target is an increase in the relative price of carbon emissions, not a reduction in real living standards. The intent, as far as possible, is to deliver similar living standards at less longer-term environmental cost.
- The second principle seems obvious, but is worth stating explicitly. Every country must make a net contribution to lower emissions relative to business-as-usual (BAU). There is no point in adopting policies that simply shift the same level of emissions from one country to another. Such 'churning' does nothing to deal with the problem to which climate change policy is directed.
- The third principle goes to the heart of the design defects reflected in the failure of climate change policy efforts to date. If 'first mover' countries are condemned to suffer competitive disadvantage relative to 'late mover' ('free rider') countries because of the policy model chosen, a truly comprehensive, global, climate change policy deal will not be consummated. We know this from the evidence of the last decade or so. Global recession won't improve the odds in future. Policy design must root out 'free rider' or 'late mover' trade advantages as far as possible.
- The fourth principle underlines the need to minimise 'escape clauses' that weaken intra-national policy effectiveness, undermine a principled approach, and invite interminable 'rent seeking' for special 'carve outs' (eg as in Australia and Europe at present).
- The fifth principle is another way of expressing the third and fourth principles combined, but added for clarity. Climate change policy should not be protectionist, either between or within countries. But it should be trade competitiveness-neutral. 'First movers' should not suffer job losses and 'carbon leakage' because they are 'first movers'. Policy must be WTO-compliant, but 'first movers' should not be asked to give a trade 'free kick' to 'late movers'.
- The sixth principle seeks to give individual countries the maximum discretion, subject to these broad principles, in choosing the precise modalities that best suit them in dealing with climate change.

- The seventh principle is self-explanatory. Effective climate change policy, almost by definition, will be one of the most interventionist and detailed engagements undertaken by governments in the operation of their economies ever seen. Policies that secure the largest benefit at the lowest administrative and compliance costs are needed. These costs, at best, will be significant anyway.

This framework allows evaluation of alternative policies.

An ETS-only, production-based model won't comply with principles 1–6 (or, quite likely, even principle 7).

A consumption-model (allowing a choice between a carbon tax or an ETS approach) would comply with the first six of these seven principles, and in the case of principle 7, be superior to an ETS-only, production-based model.

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## 12. A quantitative evaluation of policy alternatives: a proper, transparent review

Qualitative evaluations are fine as far as they go.

However, for practical policy-making, the best possible *quantitative* assessment of alternative policy options is essential for evidence-based decisions delivering the best benefit-cost outcomes.

In Australia, and elsewhere, the official quantitative assessments that have been published seem to be to some extent tendentious and incomplete:

- Treasury modelling (at least that which has been published) seems to have focused on long-term 'equilibrium' outcomes, and had little if anything to say about transition or adjustment paths.
- Treasury modelling seems mainly (only?) to have looked at the effects of a loose approximation to the CPRS and not at alternative policy options. This precludes the required ranking of benefit-cost outcomes across different policy options.
- Certainly, such an official benefit-cost ranking has not been published.

That said, Treasury made the following observation in its modelling report (Commonwealth of Australia 2008):

'[Emission] Allocations based on production are likely to result in higher welfare costs for Australia than allocations based on consumption.'

If this is correct – even in long-term equilibrium – what are its full implications? Could it imply likely modelling support for a national consumption base? Is



it consistent with Minister Wong's repeated assertions that the production-based CPRS is the lowest-cost policy option for Australia?

We do not need to labour under uncertainty in this area. Rather, we should follow the Centre for International Economics (CIE) Managing Director, David Pearce's recommendation for a comprehensive quantitative review of all feasible policy options (CIE 2009).

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### 13. Conclusion

At present, there are at least three unresolved public debates about the design and objectives of broad-based, price-oriented climate change policies – the debate is *not* over.<sup>10</sup> These debates are as follows:

1. A debate about the best policy instrument, with a carbon tax and an ETS (or some hybrid of the two) as the focus.
2. A debate about the most appropriate policy base, with national emissions production or national emissions consumption as the contenders.
3. A debate about appropriate global greenhouse gas concentration targets and national burden sharing of abatement to achieve those targets.

On the first of these debates, on balance, a (relatively) simple global carbon tax is favoured as the most cost-effective instrument for putting a highly visible price on carbon emissions along the entire supply chain to final demand. One of its major advantages is that when imposed as a predictable, increasing cost on emissions over time, it delivers the closest thing to achieving certainty in this area of climate change policy, plus a clear signal to reduce emissions. This is crucial, especially for longer-term investment decisions.<sup>11</sup> An ETS could be made to work but probably at higher cost. The history of the European ETS is not at all encouraging.

On the second of these debates (far more important than that about policy instruments), and as this paper makes clear, a national emissions consumption base is favoured.<sup>12</sup> This base improves chances of securing a comprehensive global agreement. Surely, this must be the 'main game', not least for a relatively exposed, relatively small total emitter like Australia. It also has equity advantages (for those wishing to pursue such matters) relevant to the burden sharing debate (see below).

There seems to be broad support for the national emissions consumption base, at least in principle, and albeit sometimes only implicitly. Consider the following:

- Gao Li, Director of China's Department of Climate change, recently noted that, '... about 15 per cent to 25 per cent of China's emissions come from the products which we make for the world. ... This share of emissions should be taken by the consumers, not

the producers.' Gao Li believes that this is a '... very important item to make a fair agreement.'<sup>13</sup> Here, naturally I think he is right. Moreover, his arguments apply to all countries exporting goods and services, not just to China. This is the essence of the national emissions consumption approach.

- Recently, Sir Nicholas Stern has indicated he agrees with China's position.<sup>14</sup>
- The US has indicated it will provide exemptions for its exports and impose BTAs on imports from countries not adopting climate change policies, in order to ensure its trade competitiveness is not undermined. Again, this reflects concern about the negative protection inherent in unilateral adoption of a national emissions production model, and is an attempt to neutralise that effect. In this sense, the US is quite close to a national emissions consumption model as proposed in this paper.
- Both Europe and Australasia have incorporated more or less arbitrary 'carve outs' into their ETS policy designs, based on concerns about the so-called 'emissions-intensive, trade exposed' sectors. These have constituted a poorly targeted and administratively cumbersome attempt to deal with some – but not all – of the trade competitiveness problems inherent in a national emissions production model. They constitute a very inefficient and ineffective option for dealing with those problems, but are a stumbling move towards a national emissions consumption model, nevertheless.

The attempts to 'band-aid' over the problems with production models, rather than deal with them in a principled, objective and systematic way, have introduced additional problems for the countries involved. For example:

- The CPRS has generated a frenzy of business lobbying for 'special deals' to insulate them from concerns about the costs of the CPRS on their operations. Not all these concerns relate to international trade competitiveness. The government has encouraged this frenzy because it announced its intention to do such deals (eg with the largest 1000 Australian companies etc).
- Some of the 'behind the border' industry assistance might be close to, if not actually being, protectionist in nature. (However, if so, Australia certainly will not be alone in this regard.)
- The 'carve outs' proposed under the CPRS reduce the national production target base at both ends. Some exports are 'carved out'. Some (fewer?) import-competing products are carved out. These 'carve outs' substantially shrink the total production base actually exposed to the CPRS. Further 'carve outs' – for example, the effective insulation of petrol used in Australia – shrink the target base even further. As a result, any given emissions reduction target is imposed upon a much smaller production

base, therefore requiring a much higher carbon price to deliver the same emissions reduction outcome (and increasing the chances that some of this will shift offshore as ‘carbon leakage’ and job losses). In this context, note that the effective coverage of the European ETS is about 50 per cent of CO<sub>2</sub> emissions and about 40 per cent of total greenhouse gas emissions.

These problems do not arise under a properly designed national emissions consumption-based policy:

- Lobbying for export ‘carve outs’ is not required. Exports automatically are ‘zero-rated’. Lobbying by import-competing businesses is not required either. BTAs on competing imports match (in percentage terms) the emissions abatement costs faced by the domestic producers of those products. (Note, incidentally, that this does not mean Australia’s emissions intensive exports, such as coal, are exempt from the coverage of the climate policy. They are covered under the policies of the consumers (importers) of those products via BTAs in the importing countries.)
- As noted earlier, the consumption model is trade-neutral and WTO-compliant, just like the GST.
- A national consumption (GNE) policy base will be roughly as large as a fully inclusive production (GDP) base. Indeed, especially for large developed economies running large current account deficits, the GNE base can be even larger than the GDP base.

On the third of these debates, accepting the science pointing to specific maximum global atmospheric concentrations as the target (eg 550ppm, 450ppm, 350ppm, or less), it is worth making some brief observations about national burden sharing.

Any translation of a given global emissions abatement task relative to business-as-usual (BAU) into ‘slices of the abatement cake’ to be allocated to specific countries has not been helpful. The alternative proposal (eg by Garnaut) for convergence to equal per capita emissions is also unhelpful. These attempts at national distribution of the adjustment burden are zero-sum games about which agreement is almost certain to be impossible – and impractical. There’s a better way.

Broad-based climate change policies – carbon taxes, cap and trade measures like the ETS, or hybrids – are all specifically designed to put a price on carbon emissions. Price is the policy weapon intended actually to deliver the targeted emissions abatement outcome.

It is therefore sensible to focus on price measures (eg the carbon price or tax in each country) when assessing ‘comparability of effort’ (and burden sharing).<sup>16</sup> In this sense, separate apportionment of emissions shares is not required. Moving to a uniform global carbon price does this job reasonably fairly (see below).

A focus on national emissions abatement relative to BAU is a difficult practical exercise at best. Measuring and agreeing on the national BAU ‘counterfactual’ will

be problematic, for a start. Current debates about arbitrary historical ‘baselines’ or starting points from which emissions abatement will be measured are sterile, often self-serving and probably unproductive. Carbon prices and taxes, in contrast, should be relatively easy to discover as policies are implemented.

Even if such national abatement shares could be decided and measured, there is virtually no chance whatsoever that they would lead to similar carbon price levels across countries if they were pursued. Countries differ substantially in their resource endowments, including endowments of high- and low-emissions energy sources. Large carbon price differences between countries will lead markets to shift resources in an effort to eliminate such price differences (carbon cost arbitrage). Indeed, under Australia’s proposed CPRS, international trading in emissions permits is encouraged, and ‘carbon leakage’ will be another mechanism leading to a similar outcome. (Advocates of absolute or per capita emissions abatement targets and shares seem to have ignored such basic incentive effects in this important area as well.) This incentive-based market response will tend to undermine national absolute or per capita abatement shares, even if these can be agreed, which seems highly unlikely.

For Australia, a global deal on climate change, signified by a substantial and rising global price for carbon, will in any case change global comparative advantage currently enjoyed by some relatively low-cost (as measured) high-emissions energy sources. Selective application of similar carbon prices – as proposed under Australia’s CPRS – will not have this effect. Rather, it will simply shift competitive advantage in relation to such resources to other countries not acting on climate change.

For those worried about equity, a global carbon price, applied to a national emissions consumption base by each country, delivers the following results:

- First, countries with relatively high endowments of high emissions energy sources (eg coal) will incur above-average adjustment burdens, because their competitive trade advantages based on the (hitherto) low cost of such energy sources will be reduced or eliminated, even when there is no ‘carbon leakage’. Australia will probably incur an above-average adjustment burden in this context.
- Second, under an emissions consumption base, relatively wealthy, high-income countries with high per capita expenditures on goods and services (and a high per capita consumption of embedded emissions to match), will pay much more in per capita terms than poorer countries. Australia will probably incur an above-average adjustment burden in this respect as well.
- A uniform global carbon price is the practical option for effective policy, for practical measurement and assessment of national emissions abatement effort,

and for delivery of a tolerable distribution of burden sharing.

- Finally, a global deal based on a common global carbon price applied to a national consumption base achieves a very important end-result.

Through the consumption path, this deal would take the global community back to where it started: the original policy vision – a globally harmonised carbon tax to reduce emissions.<sup>17</sup>

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## Endnotes

- 1 That said, dealing with climate change *is* a diabolical problem, as Garnaut and others have said. The costs of policy responses come early, and the benefits accrue only over a long period of time, and are at best uncertain.
- 2 Unfortunately, in the end, the 1992 UNFCCC itself (see Article 4 – Commitments) already envisaged national timing and policy instrument differences, and referred to developing economies acting only after developed economies. So the 1992 UNFCCC itself got off on the wrong foot by sticking with a national production-based policy model under a non-harmonised response. The UNFCCC vision was for a globally harmonised response to climate change, ultimately, but it set up broad provisions that led to the failed Kyoto Protocol in 1997. By concentrating on the global end-point, but not thinking enough about feasible paths to it, arguably both the 1992 UNFCCC and the 1997 Kyoto Protocol have actually delayed national policy responses.
- 3 Recently, the ACT government announced its 'support' for a zero emissions target for the ACT. No timetable is indicated. No listing of measures to achieve this result is available. The government concedes it will be hard to achieve. The announcement was easily made, but the government's credibility will be exposed after it is long gone.
- 4 A detailed analysis of the consumption-based approach is presented in three policy notes by Geoff Carmody & Associates. Copies of these papers, and related opinion pieces, can be downloaded from <http://www.onlineopinion.com.au/author.asp?id=5613>.
- 5 The 'alcopops' and CPRS policies have important similarities. For alcopops, the substitutes are all other alcoholic beverages. For the CPRS, the substitutes are all of Australia's trading partners not adopting a CPRS-type policy, plus all of the Australian industries 'carved out' from the CPRS coverage. The incentives to shift away from 'alcopops' to other alcoholic beverages are akin to the incentives, under the CPRS, to shift away from affected industries to offshore competitor sources of supply, and to Australian industries 'carved out' from CPRS coverage.
- 6 Some will continue to argue that, '... if we can only close a global deal, the problems of the production-based model will disappear because this achievement will deliver the harmonised global policy response we are seeking'. This is true. The practical problem is in the word 'if'. Moreover, the world is now well aware of the trade competitiveness problems with the production model. After all, most of the debate is about the trade exposed sector and seeking to insulate it from such adverse effects. Incentives to cheat in the light of this knowledge cannot be ignored. If this delusion about a global deal based on targeting national production of emissions continues as the basis for negotiations leading up to Copenhagen in December 2009, it is surely a triumph of hope over 12 years of very clear contrary policy experience.
- 7 The current global recession may well greatly reduce global emissions relative to a more 'normal' growth path by 2012. If so, and to that extent, this will have nothing to do with the effectiveness of the Kyoto Protocol.
- 8 For more details on this reasoning, see *Effective climate change policy – the seven Cs: Implementing design principles for effective climate change policy*. Policy note no. 2, Geoff Carmody & Associates, September 2008, especially section 4 and attachments A and B.
- 9 For more details on this reasoning, see *Effective climate change policy – the seven Cs: Implementing effective climate change policy – ETS or carbon tax?* Policy note no. 3, Geoff Carmody & Associates, October 2008, especially section 2 and attachment A.

- 10 A critical fourth issue is how to objectively measure greenhouse gas emissions associated with anthropogenic activity. 'Carbon accounting' is still a global work-in-progress. Without good carbon accounting, measuring emissions, and compliance with emissions abatement policies, are impossible. This issue must be resolved regardless of how governments choose to deal with climate change. In that sense, it is a given, and a matter for scientific research, development and debate.
- 11 For more information about my reasoning see *Effective climate change policy – the seven Cs: Implementing effective climate change policy – ETS or carbon tax?* Policy note no. 3, Geoff Carmody & Associates, October 2008, especially section 6.
- 12 For more information about my reasoning *Effective climate change policy – the seven Cs: Some design principles for evaluating greenhouse gas abatement policies*. Policy note no. 1, Geoff Carmody & Associates, July 2008, especially section 5.3. See also *Effective climate change policy – the seven Cs: Implementing design principles for effective climate change policy*. Policy note no. 2, Geoff Carmody & Associates, September 2008, especially section 4 and attachments A and B. On WTO compliance issues see *Effective climate change policy – the seven Cs: Implementing effective climate change policy – ETS or carbon tax?* Policy note no. 3, Geoff Carmody & Associates, October 2008, especially section 2 and attachment A.
- 13 "Consuming nations should pay for carbon dioxide emissions, not manufacturing countries, says China", *Guardian*, 17 March 2009.
- 14 See "Nicholas Stern's heresy: Conceding the West's Climate Burden", Geoffrey Lean, *Letter from Europe*, 2 June 2009, <http://www.grist.org/article/2009-06-02-nicholas-stern-climate-china/>.
- 15 See *Effective climate change policy – the seven Cs: Implementing design principles for effective climate change policy*. Policy note no. 2, Geoff Carmody & Associates, September 2008, attachment D.
- 16 See *Effective climate change policy – the seven Cs: Some design principles for evaluating greenhouse gas abatement policies*. Policy note no. 1, Geoff Carmody & Associates, July 2008, especially section 5.4. See also *Effective climate change policy – the seven Cs: Implementing design principles for effective climate change policy*. Policy note no. 2, Geoff Carmody & Associates, September 2008, especially section 5 and attachment C.
- 17 This is where William Nordhaus concludes we should be, too. See, for example, *Economic Issues in Designing a Global Agreement on Global Warming*, William D Nordhaus, Keynote address prepared for the Climate Change: Global Risks, Challenges, and Decisions conference in Copenhagen, March 10–12, 2009.

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