A Comparative Analysis of the Environmental Tax Reforms of China and Australia

Authors’ note: This is one part of a two-part series that critically analyses and compares the individual responses of two major countries in the Asia-Pacific region to the issues of environmental degradation and climate change. The responses of both China and Australia have used fiscal policy and market mechanisms as the two dominant means of meeting their emission reduction targets. This part of the series focuses on the two countries’ use of environmental tax reforms, while the other part examines their environment-related market-based reforms.

1. Introduction

China1 and Australia, two major economies in the Asia-Pacific region, are both ecologically fragile countries confronted by significant environmental degradation and climate change issues. In many ways, the responses of the two countries to these threats have been similar: both have joined the Asia-Pacific Partnership on Clean Development and Climate (AP6)2 and both have signed up to pollution reduction targets under the Kyoto Protocol. In common with many countries around the world, the two countries have employed both market mechanisms and tax reforms as the main means of fulfilling their commitments under the Protocol. Nonetheless, the great contrasts between the economies, cultures, legal systems and politics of China and Australia have led to considerable differences between the environment-related market systems and environmental taxes currently pertaining in the two countries.

With respect to environment-related market systems, developments in both countries have continued apace. China, since the endorsement of the Clean Development Mechanism (‘CDM’) one of three major market mechanisms recognised by the Kyoto Protocol, has become the world’s predominant supplier of CDM carbon credits.3 With increasing support from the Chinese Government, the European Union4 and the Asia Development Bank,5 three major clusters of carbon exchange platforms have been established, in Beijing, Tianjin and Guangdong Province, with Hong Kong as a strategic partner.6 Further, Shenzhen City in Guangdong province has developed a carbon trading scheme, which covers 635 companies

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1 “China” here refers to the People’s Republic of China (PRC), excluding the Hong Kong and Macau Special Administrative Regions and Taiwan on account of their separate legal and tax systems.
2 Australia, China, India, Japan, South Korea and the USA are parties to the AP6. Funded on a voluntary basis, its objectives are to help achieve the goals of the United National Framework Convention on Climate Change (UNFCCC). It has established no targets, and uses a ‘bottom-up’ approach, by investing in the development of technology through industries and businesses.
3 UNDP, ‘UNDP: Risø’s CDM Pipeline’ (Feb 2012). Recent data shows that China’s market share of CDM carbon credits constitutes over 40% of global credits. <http://www.cdmpipeline.org>.
5 Han, Olsson, Halliding & Lunsford, ‘China’s carbon emission trading: An overview of current development’, Forbes, n.6, 2013, 18-21. The Asian Development Bank has assisted and funded the development of the Tianjin Climate Exchange and Beijing’s carbon finance district.
6 David Lunsford, Christine Loh, ‘Hong Kong’s Participation in the Carbon Intensity Reduction Activities and Carbon Trading Pilots in the Pearl River Delta Region’, Civic Exchange and Energy Environment Solution, May 2012. Given Hong Kong’s sophistication in financial market development, Mainland China’s authorities are eager for Hong Kong to participate in the development of regional carbon trading schemes.
and has an emission reduction target of 21% of CO₂ per dollar of GDP. However, credit oversupply problems continue to cast a shadow over the ultimate success of the carbon market mechanism.

Australia, one of the world’s largest emitters of CO₂ per capita, is committed under its Kyoto Protocol agreement to a reduction in its GHG emissions to a target of 108% of the 1990 level by 2008-2012. Following a huge debate between the choice of either a carbon tax or a system of emissions trading to achieve this target, the government eventually chose the latter. Australia’s emissions trading system (unfortunately misleadingly referred to commonly as a “carbon tax”) was established by the Clean Energy Bill 2011, and has adopted a two-stage approach. The first stage commenced in the 2012/13 financial year with an initial carbon emission price at $23 per tonne which will gradually rise at 2.5 percent each year until the end of the 2014/15 financial year. From then on, the carbon price will undertake its transition to the fully flexible emissions trading scheme. Although the number of potentially affected enterprises has been reduced from over 500 to 351, the newly-elected Liberal Coalition Government has vowed to repeal the Bill. Notwithstanding the political turmoil surrounding Australia’s carbon pricing mechanism, the ‘cap-and-trade’ system sets out a framework for an international linking system, adjustment of carbon targets, and a scheme for industrial assistance for those affected by carbon pricing, which can provide lessons for the international community on policy making regarding reducing carbon emissions.

Environmental tax reforms in China and Australia have also developed rapidly. These reforms, and the differences between the approaches of the two countries, are worthy of study in order to appraise their respective appropriateness and worth and to help policy makers elsewhere in the region decide on the direction of their own reforms. Accordingly, this article undertakes a critical evaluation and comparative analysis of the most significant environment-related tax reforms that the two countries have introduced in recent years.

In particular, the article focuses on reforms in two areas of taxation that are crucial to the environment: fossil fuels/transportation and natural resources, areas in which both countries have established concrete and detailed tax systems. China has recently revealed a series of governmental tax reforms for improving energy efficiency and environmental protection outcomes, including tax breaks on VAT for renewable energies, and preferential consumption tax treatments on the purchase of energy efficient motor vehicles. Since the central government made prosecution for the violation of environmental regulation crimes

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8 Ibid. The report shows Australia as the second largest emitter of CO₂, at 18.77 tonnes of emission per capita, second only to Luxembourg’s 21.75 tonnes per capita.
10 See both Clean Energy Bill Explanatory Memorandum 2011 and Clean Energy Bill 2011.
11 Clean Energy Bill 2011 (C’wlth), ss.111(5) (iii).
12 Australia Government Clean Energy Regulator: Carbon Pricing Mechanism - Liable Entities Public Information Database. According to the database, most potentially liable entities are based in the mining states of Queensland, New South Wales and ACT.
13 Justin Norrie, ‘Australia under a carbon price plan: Q&A with Ross Garnaut’, the Conversation, 30th June 2012.
14 《“十二五”节能环保产业发规划》[China’s 12th Five-Year-Plan on Environmental and Energy Saving Industrial Development Plan], State Council of People’s Republic of China, 16th June 2012. The Industrial Development Plan has illustrated the proposal on reform on the environmental and energy related taxes reform.
easier to instigate, local levels of pollution violation have been reduced. As the world’s largest emitter of greenhouse gases (GHG), China’s environmental tax policy development has been closely monitored by the international community.

The article contains five sections. In Sections 2 and 3, recent environmental tax reforms in China and Australia, respectively, are set out and evaluated. Section 4 then compares and contrasts the two countries’ reforms. A final section concludes by commenting on the two countries’ overall response to their environmental challenges.

2. Environment-related tax reform in China

The severity of the decline in air quality in China has been one of the most noticeable problems in the country during the last decade. Carbon emissions from the industrial sector have been increasing dramatically due to rapid growth in industrial output and relatively low energy consumption efficiency in that sector. In addition, emissions from automobiles and motorcycles have surpassed industrial and domestic sources to become the biggest threat to air quality in many larger metropolitan areas. At the same time, due to rapid economic growth and urbanization, car ownership in China is predicted to exceed 150 million by 2015; this, along with the increased urban population, will further exacerbate air pollution problems. In Beijing alone, currently 63% of CO, 74% of Hydrocarbon gas (HC) and 22% of NOx, are caused by vehicular emissions, on average about 7 to 8 times, 8 to 10 times and 3 to 4 times respectively the pollution levels of developed countries in the 1990s. To curb such a rapidly deteriorating trend, the Chinese government’s future emission reduction strategies encompass incentives, compulsory taxes and levies and penalties.

Since 1994, China has undertaken a series of major tax reforms, consistent with the needs of the largest transitional market-based economy. The changes and revisions to the related legislation encompass resource tax, consumption tax, vehicle tax, urban construction and maintenance tax, and land use tax. The use of carbon-related taxes and levies in China is still at an exploratory stage, and so most of these tax mechanisms are still undergoing major review in preparation for implementation.

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15<<规划环境影响评估条例>> [Regulation on Environmental Impact Assessment of Planning], art.6. The Article 6 of the regulation provides the rights for the Environmental Protection Authorities in China to conduct investigations and enforce the penalties on local violation.
16 European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency, Emission Database for Global Atmospheric Research (EDGAR), release version 4.2. Data under the Report shows that China’s Carbon Dioxide emission consists of the world’s 28.5% total emission.
22 China’s direct or indirect environment-related taxes and levies are generally comparable to its OECD counterparts; they consist of Sulphur Dioxide (SO2) Tax, Water-pollution Tax/Levy, Nitrogen Oxide (NOx) or Air Pollution Tax/Levy, and Carbon Monoxide (CO) Tax. In general, the theory and monitoring of the first two taxes are more developed than for the latter two in China. See ‘Major System Design for the Environmental Taxes’, in China Environmental Tax Research, pp.173-188.
2.1. Tax Reform on Fossil Fuels Consumption and Transportation in China

Article 1 of the Provisional Regulations of the PRC on Consumption Tax (“the regulations”) effected on 1st January 1994 states that ‘all units and individuals engaged in the production, the subcontracting for processing, or the imposition of items referred to as taxable consumer goods’ within the PRC are payers of Consumption Tax. In 2008, the regulation was subsequently amended in an attempt to modify consumer behaviour and to provide a steady approach to raising public revenue. In general, fourteen categories of taxable items currently exist, which can be divided into three clusters. The first cluster consists of luxury goods, such as golf-related products, yachts, high-end timepieces, cosmetics and jewellery, the second contains more environment-related products, such as automobiles, motorcycles, petrol, diesel and aviation kerosene, disposable wooden chopsticks and timber flooring, etc., while the third is made up of hazardous-to-health products such as tobacco, wine and liquor.

Under the current tax system, Consumption Tax applies directly to the daily consumption of petrol and diesel and indirectly affects the operational profits of enterprises. It is levied in addition to the usual VAT. Since 1st January 2009, the tax applied to leaded petrol has increased from RMB 0.2 per litre to RMB 0.28 per litre, while unleaded petrol has remained at RMB0.2 per litre. The rationale behind this cascading of taxes is that fossil fuel for transport is a non-renewable resource and it would be better to add to the price tag to constrain consumption, conserve resources and in turn protect the environment, especially in the Chinese metropolitan areas.

In addition to Consumption Tax on fossil fuels, the Chinese Government has also listed out revised tax rates, in State Council Notice No.539, on the purchase of new motor vehicles, from 3% applicable to cars with a 1.5 litre engine capacity or below, to 40% applicable to those with a 4.0 litre capacity or above. This underlines the government’s intention to curb petrol and diesel consumption to promote air quality and clearer skies in the cities. However, while some academics have argued that such policy change has greatly encouraged the purchase and sale of cars with a capacity of less than 1.0 litre, since the tax discriminates against automobiles with high engine capacities, this policy has arguably proved to be of rather limited economic and environmental effectiveness.

According to Mr Shiwei Lin, the marketing manager of Volvo Hainan Changda Co., sales for their vehicles with an engine capacity of 3.0 litres or more were generally stable and
their customers were largely indifferent to the tax changes after they were introduced. However, the sales price for ‘small vehicles’ with a capacity of 1.0 litres or less has not declined significantly due to the escalating cost of labour and raw materials. For example, the price increase due to the introduction of the new automobile consumption tax rates for a BMW 3.0 Litre is roughly RMB100,000 out of its total cost of RMB1 million, whereas the reduced tax on a ‘small vehicle’ would only represent RMB1,000 out of its cost of RMB50,000. Although the tax effect on the price differentials is thus significant, the end result is nevertheless unexpected. Since the consumption tax is deductible before taxable income, many auto dealers intend to absorb such increases in operating cost, while the potential buyers in the high-end market segment are generally insensitive to the price increase, being more concerned with other factors. On the other hand, potential buyers in the middle or low-end market segments mainly prefer automobiles with capacities between 1.3 to 1.8 litres, rather than those below 1.0 litre. Therefore, the consumption tax increase is not likely to change consumer spending patterns significantly, even though within this price range targeted consumers could be more sensitive to price cuts for automobiles.  

From the national economic development perspective, the Central Government wants to transform the country into the world’s leading clean-energy vehicle manufacturer, and has pledged RMB10 billion in financial assistance to strategic emerging industries such as clean-energy motor vehicle manufacturers. Each consumer is subsidised by an allowance amounting to a maximum of RMB120,000 for each electric car sold in the country. For instance, the BYD E6 Four-Wheeled Vehicle, from the manufacturer BYD, partially owned by Warren Buffet’s Berkshire Hathaway, was original priced at RMB369,800. The price can be reduced to $249,800 or $309,800 after the subsidy of RMB120,000 or RMB60,000 respectively. Nevertheless, the scarcity of recharging facilities in China, along with the high price tag of these electric cars, continues to frustrate potential buyers. The country’s ‘green car’ strategy has been undermined by only single-digit growth of conventional car sales during 2011, compared to its record sales increase of 32% in 2010. This was largely due to the withdrawal of the government’s tax incentives and subsidies on private purchases of environment-friendly vehicles. According to the Ministry of Finance, only vehicles with capacities of 1.6 litre or below plus petrol efficiency of 6.3 litre/100 km or more can qualify for the subsidies, and so around 70% of the ‘small’ cars in the market will fail to do so.

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29 APCO Worldwide: China’s 12th Five-Year Plan: How it actually works and what is in store for the next five years, 10th December 2010, 3-8. The plan is aiming at producing 1 million electric vehicles by 2015.
30 Young-Sam Cho, ‘BYD Starts Sales of E6 Electric Car to Individuals in China’, Bloomberg News (New York) 26th October 2011 (accessed 10th January 2011). According to China’s Ministry of Science and Technology and the National Development Reform Commission, the government aims to have one million electric-powered vehicles on China’s roads by 2015. Buyers in Shanghai and four other cities will receive up to RMB60,000 in subsidies for each electric car purchased, while buyers of BYD E6 in Shenzhen will receive an additional RMB60,000 each.
32 See Notice on Adjustment of Policy on Subsidy of Purchase of Energy-efficient Motor Vehicles [2011 Cai Jian Notice 754], September, Ministry of Finance. The Notice has put a limit on subsidised vehicle with combustion efficiency on 6.7L/100 KM. The subsidy has also been reduced to $3,000 per vehicle.
33 Ibid.
It is also worth noting that there are two other taxes that apply to motor vehicles in China, namely the Vehicle and Vessel Tax and the Vehicle Acquisition Tax.\(^{34}\) In China, brand new private-used vehicles are typically taxed at a uniform acquisition tax rate of 10% (on the price before VAT), while the province where the car is registered will charge a registration fee (e.g., $480 in the Beijing Capital Region). The tax rate for the Vehicle and Vessel Tax is charged initially and annually and is based on the net-weight capacity and the number of vehicles the taxpayer owns.\(^{35}\) However, the nexus between the tax and the actual usage (e.g., kilometres driven or litres of petrol consumed) of the taxpayers’ motor vehicles is unclear. It is thus likely that these two registration taxes have played only a minor role in Chinese drivers’ actual purchasing decisions of environmental-friendly vehicles and their motor vehicle usage.

Value-added tax (VAT) has been levied in China since 1984, initially on 24 taxable items although reforms have taken place over the years.\(^{36}\) The standard tax rate is 17%, although the sale or importation of LPG attracts a preferred rate of 13% based on the sales value of petrol and diesel.\(^{37}\) Consumption Tax, on the other hand, is imposed on 11 different categories of specified consumable goods at rates from 1% to 45%. From 2008, the Consumption Tax reform abolished six transportation levies and increased the per unit tax amount for fossil fuels\(^{38}\). Especially for fossil fuels consumption, prior to the Consumption Tax reforms in 2008, petrol was taxed on RMB0.2 per litre as aforementioned, whether leaded or unleaded. Following the reforms, the more polluting leaded petrol has been taxed at RMB0.28 per litre, while unleaded petrol remains taxed at RMB0.2 per litre. In addition to these moderate changes, as part of the reforms the following new energy product items were added to the Consumption Tax dutiable list: aviation kerosene, naphtha, solvents, fuel oil, and lubricants, at rates varying from RMB0.1 to 1.0 per litre.

Following the 2008 reforms, the Chinese government conducted further reforms the next year to increase the Consumption Tax payable on oil products seven-to-eight-fold.\(^{39}\) The Notice\(^ {40}\) explicitly mentions that Consumption Tax on petrol would be raised by RMB0.8 per litre (to RMB1.0 per litre), while the tax on diesel would be increased by...
RMB0.7 (to RMB0.8 per litre per litre). Naphtha, solvents and lubricants were added to the list and taxed at RMB1.0 per litre, and aviation kerosene and fuel oil at RMB0.8 per litre. Interestingly, the fuel consumption tax would be collected at the domestic production or importation stage. Section 2 of the Notice further regulates the pricing of the oil refiners or importers, while a focus remained on the guidance ‘price range’ of the petrol and diesel. The tax revenue collected belongs to the Central Government, although such income is distributed through subsidy to the secondary highway systems and to local government expenditures and by a series of formal procedures of transfer.

The reform was introduced against the background of high crude oil prices. These soared to more than US$147 per barrel in July 2008, before dramatically plunging to US$30.28 per barrel by the end of that year. It is believed that the reform was introduced to provide a cushion for China to implement the long-awaited energy tax reforms of more than 10 years ago. Indeed, the interpretation of Subsection (1) (6) of Section II of the Notice was that the policy was designed to allocate the excess tax revenue from transportation fuel to an array of government expenditures. By incorporating the urban infrastructure maintenance levy and educational surcharge into the consumption tax on oil products (‘cheng pin you xiao fei shui’), the revenue collected can then supplement the loss of revenue from road maintenance fees, highway transportation administration fees and other relevant transportation fees. As a way of simplifying the tax system, these surcharges would be eventually abolished and the increase in fuel tax revenue would compensate local revenue authorities for the loss of revenue on these items. Governmental secondary road fees also support such redistribution: a certain amount of this fee collection will be redistributed each year for the specific purposes of debt-repayment, payment for the redundancy of employees at transportation checkpoints, road maintenance management, and construction.

Additionally, as the increase in consumption tax on oil products per unit would have caused hardship to certain rural residents and not-for-profit industries, the Central Government committed to providing subsidies to grain-producing peasants, to public transportation in urban and rural areas (including railways, buses, ferries and taxis), and to forestry and fishery workers. In particular, the central government seemed to take this opportunity to change the fuel pricing mechanism from the original controlled system to one linked to global prices under government guidance. Aviation and railway companies would be required to absorb 20% of the oil price fluctuation in their operations, while all others

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41 Eric Ng, ‘Beijing increases petrol and diesel prices’, South China Morning Post (Hong Kong), 19th July 2012. According to the author, the Chinese government implemented a guidance price range for the domestic retail price of petrol, while a new pricing system was implemented to give refiners unspecified ‘reasonable’ profit margins.

42 State Council’s Notice of Implementation of the Reform on Fuel Taxation and Pricing, s.3.


45 Ruohong Zhou, above n.24.

46 State Council’s Notice of Implementation of the Reform on Fuel Taxation and Pricing, above n.42, s.2(1) VI.

47 State Council’s Notice of Implementation of the Reform on Fuel Taxation and Pricing, above n.42, art.3, s.3. According to the Notice, the improvement of the supporting measures for refined oil price, including the mechanism to subsidize grain farmers by increasing expenditures in grain planting to farmers from the provision of general direct subsidies for purchasing agricultural supplies, shall be provided upon an overall consideration. The general direct subsidies to grain farmers can only be increased rather than decreased.
would pass it on to customers in their fuel surcharge and ticket pricing strategies, subject to relevant government approval.48

The reform was crucial to help balance the supply and demand of the Chinese domestic oil market under an extremely volatile global oil market. One of the government’s core purposes behind this reform was to implement a ‘polluter pays’ philosophy to strengthen the role of taxation in fostering energy efficiency and pollution abatement, while at the same time fairly distributing public revenue among various parties and maintaining and improving the standard of the national transportation systems.49

2.2. Resources Tax Reforms in China

Resources taxes, though not necessarily linked to environmental protection, are considered to come under the broad definition of environmental taxes.50 After thirty-seven years of essentially tax-free exploitation of mineral resources in the PRC, the first mining resources tax in the PRC was enacted in 1986, Article 5 of the Mineral Resources Law stipulating that ‘the State implements a system that is levied on mineral resources exploration’.51 Any mineral resource exploration or prospecting activities shall be subject to resources tax and resource compensation’. “Compensation” here refers to compensation to the State as the owner of all mining property, from mining operators for the right to conduct such mining exploration and prospecting. This laid down the foundation for a system of ‘coexistence of tax and levy’.52

In 1993, the 6th Standing Committee of the State Council promulgated the Provisions on Administration of Collection of Mineral Resources Compensation Fees, which came into effect the following year. The key change from the 1986 legislation was that the ‘tax or levy’ would no longer be based on ‘super profits’, but on the sale of the particular mineral products, at a specific rate levied on the turnover of each mine. If the 1986 Resources Tax can be perceived as an income tax, the 1994 Provision can then be considered as an ad valorem levy based on the turnover of any particular mine.

48 State Council’s Notice of Implementation of the Reform on Fuel Taxation and Pricing, above n.42, s.3 (2) I & II.
49 See preamble of State Council’s Notice of Implementation of the Reform on Fuel Taxation and Pricing.
50 See《国际税收辞汇》[Vocabulary of International Revenue] (2nd ed.). In a broad sense, “environmental taxes” refer to all kinds of taxes and duties that relate to the use of natural resources and environmental protection and ecological conservation, including Resources Tax, Pollution Emission Duties, Pollution Products Tax (or its input taxed credit), or any modification of taxes due to environmental considerations.
51 中华人民共和国矿产资源法 [Mineral Resources Law in the PRC] Standing Committee of the National People’s Congress, 1st October 1986, art.5.
52 王萌 [Wang Meng], 《资源税研究》 [Resources Tax Research], (经济科学出版社) [Economic Science Press], 2010, 116-21. ‘Coexistence of tax and levy’ refers to the two major reforms of China’s Mining Resources Tax regime. Here, ‘tax’ refers to the 1986 mining resources tax levied on the ‘super-profits’ of each of the mines, while ‘levy’ refers to the 1994 reformed tax system levied on either the specific mines in different areas or particular mining products, on an ad valorem basis.
53 矿产资源补偿费征收管理规定 [the Provisions on Administration of Collection of Mineral Resources Compensation Fees], Decree no.150 of the State Council, 1st April 1994, art.3.
54 矿产资源补偿费征收管理规定 [the Provisions on Administration of Collection of Mineral Resources Compensation Fees], arts.5-7.
In spite of the apparent fairness of the *ad valorem* compensation system\(^{55}\) compared to taxing arbitrary ‘super-profits’ (only profits of mining enterprises above a certain level of profits were taxed by the government), the 1994 Provision contained two main features that have undermined the environmental effectiveness of the Resources Tax (‘zi yuan shui’) in the country. First, the purpose of the revenue collected through the tax, be it income-based or *ad valorem*, does not reflect the country’s sovereignty over the mineral resources being explored or prospected. For instance, *Article 3 of the Administrative Measures for the Use of Mineral Resources (1996)* stipulates that ‘such compensation collected is mainly for the purposes of exploration or systematic search expenditure for mineral resources (no less than 70% of the annual budget of the compensation fees’).\(^{56}\) The rest of the annual budget would be allocated to mineral resources conservation and relevant administrative costs. This not only contravened the international practice of the ‘royalty’ charge by a government as a compensation for it giving up its sovereign rights on its mineral resources,\(^{57}\) but also, in channelling such mining revenue back to the mining enterprises, it ignored the basic principles of providing public goods to its citizens.

Secondly, the average rate of return assessed by the government for the compensation fee was set at an extremely low 1.18% per annum.\(^{58}\) This is unlikely to be able to adjust to the ever-surging prices of minerals and other limited resources, nor to maintain the sustainable development of the Chinese mining industry.\(^{59}\) The *Resources Tax System* will inevitably need a major long-haul reform, to help change the country’s current heavily-polluting and energy-inefficient ‘export-led growth’ economy.\(^{60}\)

### 3. Environment-related taxes in Australia

This section deals with reforms to the more established environment-related fossil fuel taxes in Australia: taxes on fossil fuel consumption and transportation (including the fuel tax credit system and the misnamed Fringe Benefit Tax statutory method) and resources taxes, analogous to their Chinese counterparts above.

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\(^{55}\) 矿产资源补偿费征收管理规定[the Provisions on Administration of Collection of Mineral Resources Compensation Fees], art.3. According to the provision, ‘Mineral resources compensation fees shall be computed and collected at a certain ratio of the sales income of mineral products. The mineral resources compensation fees paid by enterprises shall be included in their management expense’.

\(^{56}\) 矿产资源补偿费使用管理暂行办法[Administrative Temporary Measures for Mineral Resources Compensation Fees] Ministry of Finance, Ministry of Land and Resources, (Order No. Cai Ji 1996 [1076]), art.3. Although it was replaced by Order No. Cai Jian [Finance Ministry] 2001 [807], without mention of the 70% stipulation, the essential main purpose of such compensation fees, i.e., for exploration, remained unchanged.


\(^{58}\) 王萌[Wang Meng],《资源税研究》 [Resources Tax Research], 经济科学出版社 [Economic Science Press], 2010 [114-128].

\(^{59}\) 张巍柏[Zhang Weibo],《还有多少资源经济的陷阱》 [Can there be more traps in Resources Economics? ],记者观察 [Journalist Observation], 2006 (4th ed.). According to research data from the Shanxi Province Environmental Science Research Institute, the provincial economy has lost RMB100 billion since the 1970s due to the coal mining industry. Environmental conservation expenditures from the same period were only RMB1.385 billion, less than 3.5% of the RMB40 billion compensation fee collected, highlighting the deficiencies of the resource tax system.

\(^{60}\) 牛晨[Niu Chen], 《能源价格和税收改革面临的问题及对策研究》 [The Enquiry for Energy Pricing and Tax Reform Problem and its Countermeasures], 《中国经贸导刊》 [China Economics and Trade Journal] 2009 (2\(^{nd}\) ed.).
3.1. Taxes on Fossil Fuel Consumption and Transportation in Australia

Transport emissions are one of the main sources of carbon emissions growth in Australia, and represent 14.6% of the country’s greenhouse inventory, with a 1.5% average annual increase in recent years.61 Passenger car transport emissions ranked highest of all transport emissions, followed by light commercial vehicles and heavy and medium trucks.62 While the future trend of global oil prices is difficult to predict, the introduction of the emissions trading scheme in Australia is likely to increase the price of petroleum-based fuels, potentially lowering demand for these products.63

A combination of rising oil prices and the introduction of an emissions price has been seen as likely to boost market demand for greater fuel-efficient vehicles.64 This has already been reflected in the current Australian automobile market through the sale of hybrid petrol-electric vehicles, ‘smaller vehicles’ and fuel substitution. The latest automobile sales report further underlines the stability of light and small vehicle sales in Australia, compared to a clear decline in sales of medium and large capacity vehicles. In considering these trends,65 a population shift to higher urban densities and upgraded public transport infrastructure would represent a lower-cost equity mitigation option for government to cope with the development of the Australian economy and society. On the assumption that all households will be affected by carbon price, equity in the tax system can be achieved by allocating carbon tax revenue to reduce personal income tax rates of lower income households. The treasury modelling further foresees that such tax incentives will alleviate labour shortages and inflationary pressures.66

With respect to motor vehicles and transportation, there are two major tax concession mechanisms to be considered in the current Australian tax system: the fuel tax credit scheme and the fringe benefit tax treatment for employer-provided cars.

3.1.1. The Fuel Tax Credit Programme

The Australian fuel tax system is sometimes referred to as a ‘double dipping’ system, whereby the Goods and Services Tax ("GST") is applied on top of the normal duty on petroleum products, similar to the system in China. Unleaded petrol, including standard, blended E10 and premium grades, and ultra-low diesel fuel are currently taxed at A$0.38143 per litre, while GST at 10% is charged on top of these fuel duties.67 In order to discourage

61 Commonwealth of Australia, Australian National Greenhouse Gas Accounts: National Greenhouse Gas Inventory 2009 - Accounting for the Kyoto Target, Department of Climate Change, May 2009. Under the Kyoto Protocol, national greenhouse gas inventories are prepared in accordance with the Intergovernmental Panel on Climate Change (IPCC) Revised 1996 Guidelines for National Greenhouse Gas Inventories and other IPCC documents. Inventories consist of four sources of emissions: Energy, Industrial Processes, Agriculture, and Waste (Annex A sectors). In addition, countries must account for Land Use, Land Use Change and Forestry activities (e.g., deforestation, afforestation and reforestation) under art.3.3 of the Protocol.
64 Ibid.
65 Federal Chamber of Automobile Industries, Environment and Fuels: CO2 Emissions and Climate Change, April 2013. The trends in the Australian market refer to improvements in vehicle technology and changes in consumer buying preferences toward lower emission vehicles.
high carbon emissions, conventional diesel fuel is charged at a higher duty of A$0.40143 per litre, while, at the other end of the spectrum, petrol used for aviation and to produce LPG are taxed minimally or tax-free to provide incentives for the commercial transportation and aviation industries. The fuel tax credit system provides eligible taxpayers registered for GST to claim the fuel tax credits embedded in the full price of petroleum products; fuel tax credits are obtained through the inclusion of such amounts reported on business taxpayers’ Business Activities Statements (referred to as ‘GST Return’ elsewhere).

Nevertheless, Australia’s fuel taxes are still amongst the lowest of all OECD countries. The Australian Federal Government collected A$14.5 billion in petrol, diesel and other fuel product excise duties in 2008. However, nearly 50% of fuel excise duties paid in Australia by taxpayers is reimbursed through the fuel tax credit program (“the Programme”), while the GST liability based on the consumption of petroleum products is largely passed onto the consumer by business proprietors. A subsidy of some A$5.1 billion has been distributed through the Programme, which originally proposed to reduce the tax burden for certain off-road fuel consumption for businesses (such as enterprises consuming large amounts of fuel in the course of business, including manufacturing, construction and plant operation which are eligible for fuel tax credits), business transportation, and the importation of fuels for on-road use by heavy commercial vehicles. The Rudd government’s Carbon Pollution Reduction Scheme (CPRS) even included a proposal to offset the impact of fuel price hikes for households and heavy vehicles operators by extending this anomaly through reducing the fuel exercise. Gumley and Stoianoff argued that as a result the fuel tax credit scheme ‘represents a fundamental contradiction in greenhouse policy’ and should be abolished in due course.

However, as most businesses would be eligible to claim a certain amount of tax credits from taxable fuels used in transport or other business activities, this would clearly have a detrimental effect on the environment. Even when there is a non-compliance cost for the enterprises which breach the regulations, the affected enterprises may still opt to suffer this cost rather than capping their carbon emissions or paying a higher margin cost for the

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70 See 2008 Federal Budget, Statement 5 Revenue, Table 6 at pp.5-20.
71 Taxpayer Australia, Small Business: Expenses and Deductions: Fuel Tax Credits, 2nd August 2013. The eligible taxpayers are also subject to the GST registration requirement.
72 The Programme was originally designed for road hypothecation purposes before 1959, and off-road fuel consumers were exempted and thus offered concessions. However, the concessions have continued and were expanded under various similar schemes in 1982, 2000 and 2006.
73 Carbon Pollution Reduction Scheme 2009. This proposed cap-and-trade emissions trading scheme was passed by House of Representatives but not the Senate. Its aim was to introduce the design and operation of the carbon pricing scheme and was considered as a main element in Australia’s efforts to reduce its greenhouse gas emissions.
74 Wayne Gumley & Natalie Stoianoff, ‘Behavior Modifying Taxes, Emission Trading and Tax Expenditure Reform: Market Based Responses to Climate Change in Australia’, in Richard Cullen, Jefferson VanderWolk & Yan Xu, Green Taxation in East Asia (Edward Elgar, 2011), 209, 4.2. The CPRS would provide shelter for certain sectors from the full impact of the scheme, in that motorists would be initially compensated for fuel price increases by a cent-for-cent decrease in fuel excise duties.
75 Australian Taxation Office, Fuel Tax Credits for Business, Australian Government, December 2011. In order to obtain the fuel tax credits, the tax payer shall utilise the fuel, on which the duty has already been paid, by his heavy vehicles (4.5 tonne gross mass or above) to engage in certain business activities including those involving machinery, plant and equipment.
purpose of compliance. Nevertheless, fiscal policy on the environment through offering re-compensation such as fuel tax credits is not unique to Australia. According to a study conducted by the OECD (2007), governments within OECD countries have provided more than 1,150 tax exemptions or reliefs to certain industry sectors, and hundreds of refund schemes to compensate the consumers and industries. The environment under these fiscal incentives has consequently been the victim, together with governments who have lost revenue. This ‘inconvenient truth’ of such fiscal mechanisms, which impose taxes in order to pass environmental costs onto society yet offer incentives to certain players to pollute, casts serious doubt on the equity of these environmental taxes.

3.1.2. Fringe Benefit Tax (“FBT”) Car Concessions

The Australian FBT provides distinct rules as a concession for the private use of employer-provided cars. The concession consists of favourable valuation rules, referred to as ‘salary sacrifice’ arrangements, whereby employers can take advantage of a statutory formula to reduce the FBT payable as the level of employee vehicle usage increases. In consequence, car benefits ranked as the most common of all fringe benefits in Australia during 2005-06, 52,570 such benefits being provided during the period.

The intention behind the rules of the Fringe Benefits Assessment Act (1986) was to reduce compliance costs, on the assumption that the more kilometres employees drove, the higher the percentage of business travel during the FBT financial year. However, an anomaly created by the Act provided a tax incentive to drive more, regardless of the employees’ purpose. The taxable value of the car fringe benefits can be derived by using either of two preferred methods. The first of these is the logbook method, whereby drivers record odometer travel mileage in their logbooks. The second uses the statutory formula method. The philosophy behind this method is that if employees drive more kilometres in total, their ‘business use’ percentages would consequently be higher. As the deemed ‘business use’ percentage of calculating fringe benefits provided by the employer decreases when the motor vehicle’s driven mileage increases, the employer could save tax by allowing employees to travel extra kilometres in order to minimise the taxable fringe benefits.

Notwithstanding considerable concessions to taxpayers under the existing rules, in May 2011 the Government announced changes to the statutory formula method of calculating the FBT on car fringe benefits, from four-tiered rates ranging from 26% to 7%, gradually

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78 See *Tax Laws Amendment (2011 Measures No.5) Bill 2011 Explanatory Memorandum*, 5.10 and 5.12. The regressive ‘statutory rate’ method under the previous Subsection 9(1) Fringe Benefits Tax Assessment Act 1986 was repealed, to be replaced by the flat rate of 20% under Schedule 5 of the *Tax Laws Amendment (2011 Measures No.5) Act 2011*.

79 This method is often preferred in practice as it does not require the employees to maintain a log book record of their business travel to determine the business travel percentage applicable to the cars provided.


81 Ibid, 200-6, 205.

82 Commonwealth of Australia (2007), *Tax Expenditures Statement*, D26 at p.150, stated that such concessions cost A$1,490 million in forgone revenues during the 2007 financial year.
moving to a flat statutory rate of 20% on the deemed business travel usage of motor vehicles for employment contracts entered after 10th May 2011, and finally to a system not related to the number of kilometres driven by employees. Besides the negation of the abovementioned unintended tax effect, the change of policy should also minimize the GHG emissions previously encouraged by the regressive FBT ‘statutory rates’. Using the ‘statutory formula’ method, the employer could have typically saved from A$2,000 to A$4,000 per employee, but the FBT tax reform has now closed this loophole.

This reform can be seen as showing the determination of the Australian government to create a sustainable economy where greater carbon emission reductions are obtained from the smarter usage of cars, demand for transportation oil is reduced, and roads become less congested. A major concern, however, also voiced by the Australian Brown Coal Industry with respect to the “carbon tax”, is that the current FBT reform will change the economic landscape of the previously heavily subsidized Australian automobile industry. The Government may eventually have to reconsider whether further investment in the industry is necessary to enable it to compete with foreign auto manufacturers.

3.2. Resources Tax Reforms in Australia

The Australian Government has raised revenue from the extraction of certain natural resources through specific resources taxes and royalties since the enactment of the Petroleum Resource Rent Tax (“PRRT”) Assessment Act of 1987, which applies to oil and gas production profits derived from Australian territorial waters outside the coastal limit, on a similar timeline as China. The PRRT tax rate is applied to 40% of the profits of a petroleum project after deduction of exploration, development and operating costs. In addition, costs that are allowed to be carried forward to offset future income can be uplifted at the long term bond rate (“LTBR”) plus 15% for exploration expenditure and LTBR plus 5% for development and operating expenditures. This favourable treatment for petroleum project investors, however, has been viewed as encouraging prospective miners to commit to substantial sunk costs at the initial planning stage, but to run the danger of being subject to the ‘normal tax treatment’ later, (the ‘obsolescing bargain’ issue in the resource literature). This is of crucial importance in the sense that prospective miners may encounter fluctuating

83 Kraal, Senarath Yapa & Harvey, above n.80, 193, 2. The Statutory Rate method of the FBT calculation was designed initially for its simplicity and as an indirect way of helping the ailing Australian domestic motor vehicle industry. It was developed out of a policy called the ‘Button Plan’, named after the then Federal Minister of Industry and Commerce, John Button.
84 Kraal, Senarath Yapa & Harvey, above n.80, Table 6.1.
85 R Garnaut, above n.63, Ch.16.1.3, p.392.
86 Kraal, Senarath Yapa & Harvey, above n.80, p.216.
87 Commonwealth of Australia, Architecture of Australia’s Tax and Transfer System, August 2008 [27-31],[127-140]. Exceptions to the coastal limit are the North West Shelf exploration permit area and the Joint Petroleum Development Area in the Timor Sea.
88 中华人民共和国矿产资源法 [Mineral Resources Law in the PRC], above n.51. The Mineral Resource Regime was established by the enactment of the Mineral Resources Law in 1986, which stated that natural resources exploration and extraction by any enterprise shall pay compensation to the State due to losing such scarce resources. In similar vein, Australia also enacted the Petroleum Resource Rent Tax Act in 1987.
89 Petroleum Resource Rent Tax Assessment Act 1987 (Cth), art.34A(4), 36C.
after-tax profits due to the government’s introduction and subsequent withdrawal of favourable tax treatment (the ‘hold up’ problem).  

This problem has also caused much debate with respect to two new tax regimes: the Resource Super Profit Tax (RSPT) and the Mineral Resource Rent Tax (MRRT). The RSPT represents one of the Australian government’s most important tax proposals following the Henry Review, and was proposed not only to raise revenue but also to enable a ‘more balanced development of non-renewable resources’ in the country. It allows the government to take a 40% stake in all resource projects, sharing any ‘super profits’ (defined as revenues less cost above 10-year-government bond rates) and raising an estimated A$12 billion in its first two years.

Unsurprisingly, the multinational mining giants with significant Australian operations did not want to bear these extra costs. Partly as a result of their complaints, the proposed tax reform (and the Rudd government itself) was struck down less than two months after the proposal was put forward. The incoming Prime Minister, Julia Gillard, announced an ‘improved tax arrangement’, reducing the marginal tax rate from 40% to 22.5%, restricting the charging scope of the more ‘polite-sounding’ Mineral Resource Rent Tax (MRRT) to coal and iron ore, and offering more generous tax concessions to the mining giants. These will be taxed at 36.4% of gross operating profits on the projects, on par with or lower than their current levels, while small- or medium-sized projects would be taxed at an average rate of 48.9%. This would make life easier for the mining giants but worse for Australia-based smaller miners. According to the Henry Review, under the current output-based state royalties regime, ‘calculation of royalties does not take production costs into account; this leads to less exploration, lower industry output, and earlier closure of projects’, due to the fact that the impost is paid when production commences rather than when the company actually makes a profit. On one hand, the mining giants are advantaged due to the lower overall tax burden, mainly funded by the revenue authority’s removal of the

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91 Ibid., p.15. The Government has an incentive to offer relatively generous treatment at the planning stage of a prospective mining project, but much less generous treatment once it is in place. Thus the “hold up” problem: forward-looking miners will recognize the changed incentive that the government will encounter ex post (i.e., to renege on its commitments), and will therefore be reluctant to invest despite the promised generous treatment.


94 Rebecca Valenzuela, ‘RSPT to MRRT: Are we better off?’ The Age (Melbourne), 12 July 2010.

95 Ibid. Examples of these multinational mining conglomerates include Rio Tinto (London-based), BHP (Melbourne-based but London-listed, and Xstrata (Swiss-based).


97 Commonwealth of Australia, A New Resource Taxation Regime, above n.92.

98 Rebecca Valenzuela, above n.94. The official tax rate of MRRT will be levied on 30% of MRRT assessable profit, which is defined as assessable receipts minus deductible expenditure (including an MRRT allowance). The MRRT allowance is proposed to be set at the long-term government bond rate plus 7% (700 basis points). Projects will also be eligible for a 25% extraction allowance, which reduces the effective statutory tax rate to 22.5%.

99 Paul Cleary, above n.93.


101 Commonwealth of Australia, Australia’s Future Tax System-Report to the Treasurer, December 2009, Executive Summary, Ch.6.

102 Commonwealth Grants Commissions, Disaggregating Revenue: Staff Discussion CGC 2006/07, August 2006, Attachment B.10.
Resources Exploration Rebate Scheme, and a significant tax concession offered to the giants that allows them to calculate depreciation allowances based on the market value rather than the book value of their assets. On the other hand, smaller miners, besides continuing to be disadvantaged by the current state royalties mechanism, have not benefited from the original purpose of the RSPT, that is, a reduction in the tax burden on start-up operations. The operations of small miners continue to struggle, partly because these miners are hesitating to undertake further investment due to ‘the risk of government making ad hoc adjustments to royalty rates in response to changes in profitability’.

In short, in the ‘post-RSPT era’, the resources tax system has a narrower tax base, while the distortion problem between state royalties and the MRRT has remained. Ironically, the problem derived from the MRRT is also unresolved from the mining giants’ point of view. According to a submission from the Minerals Council of Australia, ‘practical tax design’ features should include a comprehensive tax base and a uniform tax rate as much as possible. Nevertheless, inefficiencies and distortions remain, as the MRRT excludes companies (mainly smaller miners) which derive MRRT-related assessable profits of less than A$50 million per annum. Smaller miners will continue to pay taxes and royalties based on their production quantity, whereas the giants will be able to enjoy the benefits of the profits-based MRRT and its tax concessions.

4. Comparison of the two countries’ reforms

In a globalised world, two countries in the emerging Asia-Pacific region have taken different approaches to environment-related tax reform. Spurred on by an alarming decline in the environment, China has chosen, in a continuous wave of reforms, to focus on levies on fuel, amalgamating various surcharges into these levies and has provided incentives for the consumption of energy-efficient vehicles. China appears to be very active in attempting to reduce its GHG emissions, while simultaneously aiming to enhance revenue redistribution and maintaining the level of investment in its transportation infrastructure. By contrast, the tax system in Australia provides tax incentives to consume fossil fuels and has indulged the business usage of motor vehicles. In particular, two environmental tax schemes in Australia aimed at assisting businesses, fuel tax credits and FBT concessions, have been heavily criticised for their inadequacies in improving the environment and for inequities created within the tax system.

With respect to resource tax regimes, China continues to forge ahead with its reforms, moving from levying taxes on super profits to taxing actual mining enterprise income. However, mismanagement of the redistribution function and the low level of tax rates imposed have cast doubt on the effectiveness of the reforms. While it can be seen as the initial experimentation stage of a ‘trial or error’ resources tax system, the consequence to business and investment appears so far to be neutral. In comparison, Australia’s reform of its PRRT is in danger of creating investment problems for miners due to its fluctuating tax

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103 See Income Tax (Transitional Provision) Acts 97, ss.40-730(1) and Income Tax Assessment Act (1997) s.8(1). ‘general deduction provision’ (Since Australian tax law has undergone significant rewrites and revisions, many common definitions may reflect in different tax acts). See Paul Cleary, above n.92, 78.
104 Paul Cleary, above n.93, 79.
105 Commonwealth of Australia, above n.92.
106 Rebecca Valenzuela, above n.94.
108 ACTU, Submission to the Senate Select Committee on the Scrutiny of New Taxes, 7.
incentives. Under conditions of political turmoil and frequent change of political leadership, the much-debated RSPT and MRRT reforms are set to be further focal points of political arbitration between the government and the country’s mining giants. Meanwhile, bias and unfair treatment towards small miners continues to exist.

5. Concluding Remarks

This article has compared and contrasted key recent environment-related tax reforms of two important economies in the south-east Asian region. Other countries and territories in the region that are physically or economically connected to these two countries may wish to reflect on their neighbours’ continuing environmental tax reforms, the better to decide how to “green” their tax systems. As an illustration, the Hong Kong SAR has, in line with China, acted on reducing roadside vehicular emissions by introducing tax incentives on the purchase by individuals of environment-friendly vehicles.\(^{109}\) For businesses operating in the territory, the government has also rolled out incentives in the form of deductible capital expenditure for similar vehicle purchases under its profits tax regime, analogous to stamp duties concessions under various states and territories in Australia.\(^{110}\)

Notwithstanding the similarities and connections between the economies of China and Australia, the significant differences between the respective development stages (developing versus developed) and economic basis (manufacturing and export-led versus mining and services-led) of the two countries have led to contrasting approaches to their environmental management.

As participating countries of the Kyoto Protocol and other major climate change conventions, both China and Australia are undoubtedly facing challenges caused by the increasing depletion of natural resources. In the midst of economic turbulence, China has committed itself through its 12\(^{th}\) Five Year Plan to increase its non-fossil fuel energy consumption and reduce its energy and carbon dioxide consumption, while developing strategic energy-efficient technologies and hybrid/fully electric vehicles.\(^{111}\) Regardless of the actual commitment required by the Protocol and other international conventions, China has also pledged to reduce its carbon emissions by 40-45\% by 2020 from its 2005 level, increase its non-fossil fuel component of primary energy consumption by 15\% by 2020, and substantially increase its forest coverage and forest stock volume. While arguably all of these commitments may have been initiated by its concern over the ever-worsening environment, there is little doubt that China, as the largest carbon-emitting developing country,\(^{112}\) is accepting its global social responsibility to re-model its economic development in the crucial years to come.


\(^{110}\) Penny McIntock, “Tax incentives for green cars”, *ABC News* (Canberra), 8\(^{th}\) August 2008. Purchasers of environment-friendly vehicles are eligible for discount/exemption on stamp duty within the ACT.

\(^{111}\)国民经济和社会发展计划第十二个五年规划 [Framework of the 12\(^{th}\) National Economic and Social Development Plan], Government of the PRC, March 2011.

\(^{112}\) Netherlands Environmental Assessment Agency, “*China’s now no.1 in CO\(_2\) emission, USA in second position*”, The Netherlands, June 2007.
Australia, a signatory to and Annex I country of the Kyoto Protocol, has experienced substantial government policy swings in recent years. However, it is finally reducing its carbon emissions and is fostering active social economic strategies, including clean energy legislation and tax reform, to strategically reduce its carbon footprint and confront climate change. Importantly, the country has undertaken its own initiative to reduce carbon emissions in order to achieve its long-term target to cut pollution by 80% below its base year level by 2050\(^{113}\) as part of its approach to national priority areas such as water, coasts, infrastructure, national ecosystems, national disaster management and agriculture.\(^ {114}\)

Despite being responsible for a small percentage of global GHG emissions, Australia is the world’s biggest GHG polluter on a per capita basis. It is therefore essential for Australia to realise that its stable economic growth in the past has been built on a limited consideration of environmental costs concerning the production of goods and services. Standing in the way of this is the fact that the federal and some state governments are overly reliant on revenue from the resources and mining industry. In this context, the revamp of the resources and mining tax regimes (and the introduction of a carbon pricing mechanism) can be viewed as the beginning of a process of reclamation by the country’s citizens of sovereign ownership to, and a fair allocation of income from, the nation’s non-renewable resources.\(^ {115}\)

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\(^{113}\) Department of Climate Change, Reducing Australia’s Emission: National Target 2010.


\(^{115}\) ACTU, above n.108. An underrepresentation of non-renewable resources in the sense that the mining industry has derived significant windfall profits for the last decade without them being shared appropriately with the ultimate owners of the resources being extracted: the Australian people. The carbon pricing mechanism and carbon tax will hopefully constitute ways of ameliorating this situation.