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to the

Productivity Commission Inquiry into Assistance to the Australian Automotive Manufacturing Industry

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*This submission is of purely personal nature and does not reflect the views of the Department

1. The net cost of assistance to the Australian auto industry are over-estimated by the Commission

In 2011-12 the Commission estimated the value of net assistance to the Australian auto making industry was $1.1bn (p.20). This is comprised of net tariff assistance ($496.1m) and total budgetary assistance ($620.7m.).

The Commission assumes assistance is a dead-weight cost, it imposes higher input costs on user industries and higher burden on taxpayers and its effect is to increase margins to value added inputs to the industry whilst leaving the level of output unaffected. An alternative assumption is that the effect of assistance would be to increase the level of total output in the assisted industries, above that which would apply in the absence of assistance. In effect the assisted firms apply the assistance in the form of a production subsidy. The strong form of this assumption is that in the absence of assistance industry output ceases. It is certainly illicit to assume that capital and labour from the car industry will be instantaneously re-allocated to other industries generating equivalent or higher value added to that of the auto industry. (This will be briefly taken up in discussions of trends in labour productivity and empirical results of studies of labour redundancy).

The Commission's own calculations imply the effects (benefits) of assistance flow onto many other industries outside of autos reflecting the extensive input-output linkages of the auto industry, especially with services. The Commission adopts the Corden method as opposed to the Balassa method to the calculation of effective rates of assistance where the numerator is given as the value of net assistance to the auto industry and the denominator is net value of assisted industries (gross value added minus the value of net assistance) including all those with significant input linkages to the auto industry. In 2011-12 total value added of the auto industry (ANZSIC 231 Motor vehicle and motor vehicle part manufacturing) was $5.4bn, with the non-assisted component being $4.3bn (ABS 2013a). The Commission estimates that the effective rate of assistance to the sector is 9% (PC 2013: 2). (The Balassa method would yield an effective rate of assistance to the sector of around 26%). This implies that net value added of the total sector is around $12.4bn.[1]

Production taxes on value added of around $12.4bn exceed the value of assistance by a large margin. GST on production alone would amount to around $1.4bn. If other production related taxes are included such as payroll tax, land tax and stamp duties and income tax for the 50,000 employees, the value of tax paid by the sector is likely to be some orders of magnitude greater than the value of assistance. (Production taxes are used since consumption taxes apply to imported autos and parts).

Applying the strong assumption that the industry and the wider sector supplying inputs to the autos industry shuts down with the withdrawal of assistance implies a large net loss of output and taxes. Even a weak assumption of a partial shutdown of the sector will have significant

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[1] Alternatively given that the value of net assistance is $1.1bn and the ERA is 9% this implies the total value added in the autos sector is around $12.2bn.

adverse effects on tax revenue as a result of both lost production and a variety of tax expenditures such as those associated with labour redundancies.

2. Distortionary effects of assistance to the Australian auto sector are vanishingly small

One of key objections raised by the Productivity Commission (PC) to assistance to Australian auto manufacturers is that such assistance represents a transfer of income to 'producers from consumers, taxpayers and other firms' resulting in higher margins to factors of production employed in the sector, which in turn, distorts efficient allocation of resources (PC 2013: 30).

Assistance to the autos sector is important in attracting and retaining the sector in Australia however, any distortionary resource pull-effects arising from assistance to the sector will be infinitesimally small considered against the total economy. Net assistance to value adding factors in the sector represents just .07% of GDP. (Given total value added in the economy or GDP is around $1.5 trillion).

Presumably, distortionary effects are proportional to the size of net assistance provided by government. There are other industries which attract significantly larger levels of assistance. In 2012-13 Treasury (2013: 4) estimated the Australian superannuation industry received $32bn in assistance in the form of forgone commonwealth tax revenue comprised of capital gains concession on earnings of super funds and tax concession on contributions. To this must be added the even larger, though difficult to quantify, distortionary effect of the compulsory nature of employee contributions which, in 2012-13, are estimated at around $93bn. (Concessional taxation of employer and personal contributions of around $14bn grossed up by concessional tax rate of 15%). Similarly, the exemption of 30 per cent private health insurance rebate is the expense equivalent of $1.6bn (Treasury 2013: 7).

These examples of very large assistance are specifically excluded from the Commission's (2013: 14) annual assessment of government assistance to industries, despite them clearly coming within the purview of the legislative definition of assistance governing the work of the Commission. Assistance (2013: 11) is defined as 'those government measures that selectively benefit particular firms, industries or activities, and which can be quantified, given practical constraints in measurement and data availability'.

The implication of the above is that first, government intervention in the economy is pervasive, so that any idealised model of a market economy used to assess the effects of assistance is illusory and second, that even if one accepts such a model the Commission should be examining other sectors with distortions many orders of magnitude larger than that afforded the autos sector.

3. R&D and externalities

The auto industry each year invests around $620m in R&D (Department of Industry, Innovation, Science, Research and Tertiary Education 2012: 15). The auto industry has a high R&D intensity, or R&D as a proportion of value added. In 2011-12 the R&D intensity of the auto industry was 11% (Derived from ABS 2013a and 2013b). By contrast the R&D intensity

of total manufacturing was 4.4%; mining was 3.1%, agriculture .8 and electricity, gas, water and waste services .98%

In addition to the private returns to this investment it is generally accepted there are significant externalities in the region of 15-30% to private R&D (Jaffe 1996). These positive externalities arise from sources such as the non-excludable and non-rivalrous nature of knowledge produced by R&D; related to but different from this non-exclusion is the stimulus given to complementary innovations whose creation relies on knowledge and technologies generated by previous R&D; a by-product of investment in R&D is the creation of skilled labour pools, the benefits of which, like knowledge, cannot be fully appropriated by the firm creating them; and consumer and producer surpluses generated by quality and productivity improvements embodied in goods and services arising from R&D that are not fully reflected in the price of the new good or service.

Assuming shut down of the industry and cessation of its R&D government will have to compensate for the loss of over $600m in private R&D by either increasing its own public R&D by an equivalent amount or providing incentives to private entities to increase their R&D by an equivalent amount. It is highly unlikely that a significant R&D facility will be sustained in the longer term given the distinct advantages to co-locating production and R&D. If the broader auto sector is brought into the analysis with value added roughly equivalent to that of the auto industry and assuming R&D intensity less than half that of the auto industry (5%) then R&D equivalent to around $300m will also be lost. These estimates rely on the strong assumption that auto production and associated inputs ceases when assistance is withdrawn.

The cost of substituting this lost private R&D with public R&D is more than the budgetary assistance to the auto industry and if the wider auto sector is included, substituting public funds for this is close to the total value of net assistance to the auto sector.

It is illicit to assume that in the absence of assistance to the sector these R&D resources will be fully employed elsewhere. There is no sense in which government assistance to autos 'crowds out' or prevents other industries from undertaking R&D. Resources employed in R&D such as capital equipment, consumables and skilled labour are produced factors of production with elastic supply schedules.

The loss of auto R&D, representing 14% of total manufacturing industry R&D, will be a significant blow to Australian technological and innovation capacity (ABS 2013 a, b). A loss that Australia can ill-afford. On almost all indicators of inputs into and outputs from innovation Australia lags substantially behind the top 5 OECD nations and on most scores is middling to lower half in national comparisons. Out of 34 nations in the OECD Australia's position on business R&D as a % of GDP is 13th; proportion of innovation active small and large businesses 16th and 26th respectively and triadic patents issued per million population 20th (Department of Industry 2013: 63-64).

Given the centrality of R&D and innovation more broadly to productivity and living standards the loss of the car industry, which has long been recognised as both R&D intensive

and a key driver of change in technologies and work organisation systems, will permanently reduce the capacity and performance of the Australian innovation system.

Aside from the benefits of auto R&D with the demise of the sector we are potentially looking at the loss of a critical element of Australia's technological base because of the sheer breadth of technologies involved in the production of a motor vehicle. These include metallurgy such as complex casting of alloys; sophisticated machining centres; electronics and software into engine management and safety systems; robotics used in assembly and painting; chemicals and paints; sophisticated work organisation and logistic systems and of course the trade, technician and engineering skills supported by the car making industry.

The growth and evolution of economies is to a large degree determined by 'path dependency', that is the potential for future production depends very much on existing resources and technical capacities. Path dependency is largely a function of learning and sunk costs, mastery of specific technologies typically takes generations to achieve and this in turn, requires very large private and public investments in education and training. It also requires complex institutional supports to create the right incentives for private and public agents to make these investments (Hall and Soskice 2001). This is the opposite of the neoclassical production function which treats technology as exogenous, the quantity and quality of labour and capital as both a given and as abstract homogeneous quantities.

The loss of technological capabilities embodied in the car industry will permanently reduce the scope for Australia to develop future industries employing related technologies. It will further constrain Australia's industrial structure to one of unprocessed raw materials and low productivity services. (This is taken up in section 5).

4. Assistance is partial compensation for market failure arising from excessive exchange rate appreciation and risk of exchange rate volatility

Orthodox economic theory traditionally explained the level of a nation's currency by reference to economic fundamentals- relative productivity, inflation and trade flows and terms of trade. Currencies – viewed simply as a price to enable international exchange- were supposed to equilibrate, or bring into balance, trade and capital surpluses or deficits between countries. This was the logic behind floating the dollar and deregulating international capital flows in Australia in 1983. However, for some decades, it has been apparent, and orthodoxy has accepted, that currency levels are driven primarily by capital flows. It is also widely accepted now that these flows can act to exacerbate international imbalances rather than bring them in to equilibrium (Meese and Rogoff 1983; Blanchard et al 2011). In addition, countries engage in competitive devaluations, the most recent example of this is via quantitative easing in the US and EU. China engages in outright currency manipulation by pegging their currency to that of the US.

The traditional orthodox measure for determining the correct price of a currency was the so-called purchasing power parity exchange rate or the exchange rate difference which equalises costs of production between two countries such as Australia and the United States. Peter

Brain (2012: 72) suggests that based on the PPP rate the $A should be approximately 70 cents Australian to the $US. At parity the $A is over-valued by 40 per cent. In 2011, when the $A averaged $US1.03, the IMF (2011) estimated it was over-valued by 10-20%. On other measures the $A is also grossly out of alignment with economic fundamentals. Treasury (2008) estimates Australian productivity per worker is roughly 30-40% lower than in the US; though the exchange rate does not reflect this major disparity. Australia runs large persistent current account deficits and even with historically high commodity prices we do not run persistent trade surpluses.[2]

This dysfunctional exchange rate mechanism represents a negative externality for export and import competing industries. Mining is, to a degree, automatically insulated from an over-valued $A, because high commodity prices drive the dollar higher, but high commodity prices also drive higher mining profits. Assistance to the auto sector can be legitimately viewed as a means of offsetting the market failure arising from excessive exchange rate appreciation.

5. Losing the auto industry will lower aggregate productivity

Loss of the car industry will reinforce the pattern of structural change occurring over a number of decades which has resulted in the rapid growth of employment in low productivity jobs and a relatively small increase in total employment in high productivity jobs. In other words, the pattern of long run employment growth does not support the argument that, in general, structural change involves by definition the movement of labour from low to high

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[2] Max Corden's suggestion that the solution to exchange rate appreciation induced Dutch Disease should be government surpluses and lower domestic interest rates can be criticised on a number of grounds. First, there is only a tenuous relation between government budget balances and domestic interest rates. Alternatively, it may be argued that reduced government spending may be needed to reduce the inflationary effect of reduced interest rates but the deflationary effect of cuts to government expenditure can counter-act the positive effect of exchange rate depreciation on industries subject o the Dutch Disease. Second, the suggestion that a positive outcome of the Dutch Disease is a rise in the 'consumption wage' due to exchange rate appreciation and lowering in the price of imported consumption goods is decidedly odd. The *reductio ad absurdum* of this is that a nation experiencing declining productivity can nonetheless enjoy a rise in living standards by engineering continual exchange rate appreciation. Third, this orthodox mode of economic analysis is notable for its singular focus on the macro-economy and its indifference to issues of industrial structure. It ignores for example differences across industries in their scope for productivity growth; differences in the absolute level of output per worker; their contribution to the productivity growth of other industries; the export and import intensity of different industries; their skill intensity and income elasticity of demand for the output of different industries. A simple example of these principles is that Corden ignores the fact that mining as an industry is subject to diminishing returns to scale. Mining is in effect 'crowding out' other industries such as manufacturing that are subject to increasing returns to scale and that play a critical part in endogenous technical change. More broadly, Corden ignores the fact that the of non-resource based export and import-competing industries that are crowded out by exchange rate appreciation, such as manufacturing and professional and scientific services typically have desirable characteristics such high innovation intensity and generate many full-time well paid jobs. (This is taken up in section 5). The macro-economic volatility induced by expanding an industry such as mining that is subject to wild swings in price and output is also ignored. Finally, the type of adverse structural change induced by excessive exchange rate appreciation results in the permanent loss of non-resource export oriented and import competing industries despite the fact that the cause of this appreciation, such as terms of trade surge, may be temporary.

productivity industries.[3] Over the last 12 years from 2000 to 2011 around 80% of net employment growth (adjusted for hours worked) was in industries that have below average, and in some cases, substantially below average, value added per hour worked (these are the industries in Red) (Green, Toner and Agarwal 2013 . The industries in Green also made a positive contribution to employment growth, but had above average value added per hour worked.

Table1: Employment Growth and Value Added per Hour Worked X Industry

Industry	Industry Contribution to Total Employment Growth 2000-2011	Value Added Per Hour Worked $ 2011
Health Care and Social Assistance	20%	43
Construction	14%	52
Professional, Scientific and Technical Services	11%	57
Public Administration and Safety	10%	58
Retail Trade	9%	35
Education and Training	9%	46
Accommodation and Food Services	6%	30
Arts and Recreation Services	3%	37
Administrative and Support Services	3%	55
Other Services	2%	32
Mining	6%	260
Transport, Postal and Warehousing	5%	69
Financial and Insurance Services	4%	188
Electricity, Gas, Water and Waste Services	3%	112
Rental, Hiring and Real Estate	2%	87
Wholesale Trade	2%	74
Information Media and Telecommunications	-1%	112
Manufacturing	-5%	62
Agriculture, Forestry and Fishing	-5%	54
Total	27%	64

Source: ABS *Labour Force, Australia, Detailed, Quarterly* (Table 4 Employed persons by Industry Original and Table 11. Employed persons and Actual hours worked, Industry and Sex) Cat. No. 6291.0.55.003; ABS Australian *System of National Accounts* (Table 5. Gross Value Added by Industry. Current Prices) Cat No. 5204.0.

Method: The employment data in column 2 was adjusted for movements in average hours worked over the period. This was necessary to account for changes such as shifts in the share of the workforce in part time employment. (This was done by taking an average of the 4 quarters' measure of hours worked by industry in 2000 and 2011. A proportional reduction/increase in mean weekly hours worked in a given industry between 2000 and 2011 was used to reduce/increase 2011 employment in the industry). Value added per worker was derived by dividing current price industry gross value added by industry employment multiplied by average hours worked per week and allowing 48 weeks of paid work in 2011.

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[3] At this point in the argument the standard neoclassical response is that such a trend reflects allocative efficiency, that the movement of resources into low productivity activities mirrors demand for goods and services which just happen to have low productivity. This in turn reflects the irreconcilable conflict between the principles of allocative and productive efficiency. In other words the conflict between Pareto optimality and dynamic efficiency. This conflict of course can be assumed away only if one accepts the general equilibrium framework, and especially the premise of perfect information.

Mining contributed just 6% of total net employment growth. It is worth noting that this was largely on the back of massive mining related construction investment. When this fades in the medium term employment growth can be expected to slow or contract (Gregory 2011: 28). Information, Media and Telecommunications has above average value added per hour worked yet employment fell. Manufacturing has average value added per hour worked yet employment declined substantially.[4]

The big areas of employment growth were in aged care, child care, construction and retail that are comparatively low wage and have a low capital-labour ratio. Most of the low productivity industries that experienced employment growth receive 'natural protection' in that they are not subject to import competition. This applies to health care; aged care and child care; retail; cleaning, security guards, mechanical repair and education and training etc.[5] Another feature is that many of these industries and activities, are directly or indirectly supported by government. People need to work and if the only work available, given their location, age, education and work experience is in low pay retail for example, they will work in this industry. This raises the prospect that, due to the high exchange rate making export or import competing industries uncompetitive, a hollowing out of the middle will accelerate with the economy increasingly divided into high productivity high wage resource based and professional occupations and low productivity, low wage jobs. It should be noted that manufacturing is historically good at generating lots of medium skill, average wage full time jobs with reasonable job tenure.

6. Capital and labour redundancy

It was argued above that the Commissions assumption that resources 'liberated' from the auto sector will instantaneously move to 'higher uses' is unwarranted. In addition, the assumption such resources will be either instantaneously, or even with a lag, employed elsewhere is also open to serious challenge.

The most obvious challenge is that the capital employed in the auto industry, including both the main car assemblers and component manufacturers, is mostly foreign capital, which, when 'liberated' will be redeployed into auto plants overseas. It cannot be assumed either there will be offsetting capital inflows or that the capital will simply flow to other uses within Australia.

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[4] A cruder measure by way of comparison is that value added per worker for all industries in 2011-12 was $94,365 compared to $106,627.5 for the auto industry (ABS 2013a). The use of total employment will under-estimate productivity in autos given that employment in this industry is mostly full-time compared to a much higher share of part time employment elsewhere.

[5] Education and Training may seem unusual but the low hourly value added probably reflects low hourly wages aid to Child Care workers and trainers in public and private vocational education colleges. The average hourly wage of private training providers in 2006 was $30 (there were over 150,00 such workers sin 2006) and public TAFE teachers were on a similar hourly rate (Productivity Commission 2011: 37-42).

Reviews of research on labour redundancy from plant closures suggest that the 'one-third rule' applies, that is, one-third leave the labour force, one-third get a lower quality job (lower wage; lower job status; part-time or casual when full time employment is sought) and one-third get an equivalent or better job (Webber and Weller 2001). This general conclusion is supported by more recent studies of car plant closures. For example, Beer and Hollis (2010: 98) found in their study of the Mitsubishi closure in Adelaide that:

- '30% did not participate in the workforce in the 12 months post-redundancy', due to unemployment, moving onto the disability pension or retirement
- 'most displaced workers have found lower pay and poorer working conditions in their new employment'
- 66%of workers had experienced a period of unemployment at some stage in the 12 months post-redundancy.

Armstrong et al (2008) study of the closure of the Adelaide Mitsubishi and UK MG plant concluded 'that despite the rhetoric of flexible labour markets and successful adjustment from the effects of plant closure for both ex-Mitsubishi and ex-MGR workers, it is evident that the majority of workers in both countries have not experienced an improvement in their labour market status. Rather, for many, the experience of adjustment has been overwhelmingly negative, with a loss of income and a rise in employment insecurity'.

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