THE ECONOMIC IMPACT OF PORK IMPORTS ON AUSTRALIAN DOMESTIC PIG PRODUCTION

Prepared for: Australian Pork Limited

By the Western Research Institute

Printed 19 November 2007

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Disclaimer

Acknowledgements

The WRI would like to acknowledge the assistance of Stuart Mounter and Albert Wijeweera, University of New England and staff at Australian Pork Limited who provided information for input-output analysis.

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1 INTRODUCTION

Australian Pork Limited (APL) commissioned the Western Research Institute (WRI) to estimate the economic impact of pork imports on domestic pork production to be included in APL's initial submission to the Productivity Commission's Inquiry into Pork Imports announced on the 24th October 2007.

The WRI estimated the impact using domestic production, imports and prices supplied by APL; estimates of the impact of imports on domestic pig and pigmeat prices supplied by Stuart Mounter and Albert Wijeweera[1]; supply elasticities referenced in Morris *et al* (1991)[2]; and the APL national input-output table. The impact was measured in terms of volume of domestic production, value of domestic production as well as gross domestic product, household income and employment including flow on or multiplier effects.

[1] Stuart Mounter and Albert Wijeweera, School of Business, Economics and Public Policy, University of New England

[2] Morris, K.G., Mullen, J.D., Griffith, G.R. and Wohlgenant, M.K. (1991), 'A two sector substitution model for evaluating pig industry research and development and promotion', paper presented at the 35th Annual Australian Agricultural Economics Society Conference, University of New England, Armidale, February

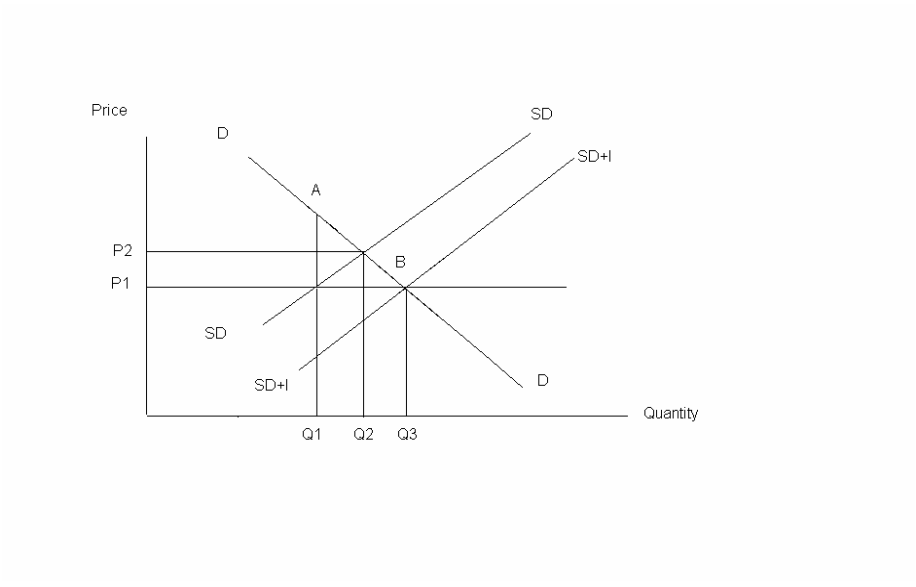
2 IMPORTS AND PRODUCTION

In econometric analysis over the period 1995-2007 and the period 2002-2007 Mounter could not find a significant relationship between pig meat imports and domestic production. This is not to say there is no relationship but rather that pig prices and domestic production have changed little over this period so there has been insufficient movement in the market to determine whether or not there is a relationship.

However Mounter and Wijeweera did find a 1 percent increase in pig meat imports would reduce the farmgate prices for various categories of pigs by between .23 percent and .4 percent. When combined with estimates of the elasticity of the domestic supply of pigmeat in a demand/supply framework Mounter and Wijeweera's findings can be used to estimate the domestic production that would have occurred in the absence of imports and the associated increase in the domestic price.

The supply and demand situation of the Australian Pork Industry is represented in Figure 1. D is the domestic demand for pork; SD is the supply curve of Australian domestic producers to the Australian domestic market; SD+I is the supply curve to the domestic market from both domestic producers and imports; P1 is the equilibrium price and Q3 is the volume of domestic consumption. Q1 is the volume of domestic production for the domestic market and Q1-Q3 is the volume of imports.

Figure 1: Supply and Demand in the Australian Pork Industry



The Mounter and Wijeweera finding is effectively the reciprocal of the elasticity of the demand curve between points A and B. Based on this finding a conservative (for the purposes of this

report) assumption is a demand elasticity of 4 (that is 1/.25). This means the slope of the demand curve is equal to 4 times price divided by quantity.

Based on earlier work by Griffith and Gellatly (1982)[3], Griffith and Burgess (1983)[4] and Griffith (1985)[5], Morris *et al* (1991) assumed the long run supply elasticity of pigs in aggregate is 1.5. However with the capital intensive nature of the industry, particularly in the current climate of high import penetration and the exit of small farmers may mean the current supply elasticity may be less. However, this reduction in supply elasticities is largely the consequence of import penetration. Therefore this report assumes the pre-import supply elasticity of 1.5 assumed by Morris et al.

Q2 is the quantity associated the non imports equilibrium price P2. Based on the slopes calculated from the elasticities above Q1-Q2 is 27.3% of Q1-Q3. That is domestic pig production in aggregate would have been greater by 27.3% of the current volume of imports based on conservative supply and demand elasticities. Therefore the loss in output to the domestic industry as a result of imports is 45,236 tonnes. If the domestic industry had not suffered this loss, its output in 2007 would have been 11.8 percent higher. (Note the price of pork in aggregate would have been 3.4 percent higher). At a weighted average price for baconers and porkers of $2.54 per kilogram for 2006/07, this reflects a total value of production lost of $114.7 million. Adopting the increase in the price of pork in aggregate would reflect a total value of production lost of $118.6 million.

[3] Griffith, G.R. and C. Gellatly (1982), The Development and Testing of a Quarterly Econometric Model of the Australian Pig Industry, Division of Marketing and Economic Services, NSW Department of Agriculture, Miscellaneous Bulletin No.36, Sydney

[4] Griffith, G.R. and D.M.N. Burgess (1983), The Specification and Estimation of a Quarterly Econometric Model of the NSW Pig Industry: Progress Report, NSW Department of Agriculture, Research Workpaper No. 1/83, Sydney

[5] Griffith, G.R. (1985), The Specification, Estimation and Validation of a Quarterly Econometric Model of the NSW Pig Industry: Further Progress, NSW Department of Agriculture, Research Workpaper No. 3/85, Sydney

3 ECONOMIC IMPACT OF PORK IMPORTS

The WRI used input-output analysis to estimate the economic impact of pork imports on Australian domestic pork production. The base table used for this project was the Australian input-output table constructed for the 2000-2001 financial year (Social-Economic Impacts of the Australian Pork Industry, 2002). The table was then updated for 2006-2007 using the Consumer Price Index (CPI) and the growth of the employment[6].

Input-Output tables can be used to determine the effects of a given or potential economic stimulus on the local economy through the use of final demand impacts. This is done by applying changes in final demand to the relevant sectors in the input-output table. In this case, the relevant sectors are the pig production and processing sectors. The increase in final demand from the analysis above is 11.8% for the pig production and processing sectors. That is, in the absence of imports of pig meat, pig production and processing in Australia would have been 11.8% greater than current levels. However, as input-output tables measure upstream impacts it is necessary to estimate the significance of the pork value chain to the economy by adding together the significance of the pig production and processing sectors. To avoid double counting the effect of pig processing on pig production and other upstream sectors, purchases of pigs by the processing sector are removed from the input-output table when estimating the significance of the processing sector.

3.1 Pig Production Sector

Table 3.1 shows the economic impact of pork imports on the pig production sector, including flow on effects, was around $324 million in output. $154 million in value added, $62 million in household income and 2,288 FTE jobs.

Table 3.1 Economic Impact of Pork Imports on Pig Production 2006-07

Economic Indicator	Output ($m)	Value Added ($ m)	Household Income ($ m)	Employment (FTE jobs)
Initial Impact	116.5	54.4	15.8	834
Flow-on Effects	207.0	99.7	45.8	1,454
Total Impact	323.5	154.1	61.6	2,288

[6] The CPI for the 2007 financial year was 156.1, a rise of 18.1% from 2001 (ABS, 6401.0). In 2007 full-time employment across the industry was 7379,800, a rise of 11.7% from 2001(ABS, 6202.0). These ratios have been applied as inflators to update the table. All tables were constructed using Input-Output Analysis for Practitioners version 8.0.0 software.

3.2 Pig Processing Sector

Table 3.2 shows the economic impact of pork imports on the pig processing sector, including flow on effects, was $362 million in output. $192 million in value added, $99 million in household income and 2,683 FTE jobs.

Table 3.2 Economic Impact of Pork Imports on Pig Processing 2006-07

Economic Indicator	Output ($m)	Value Added ($ m)	Household Income ($ m)	Employment (FTE jobs)
Initial Impact	125.1	68.2	42.3	960
Flow-on Effects	237.0	123.3	57.0	1,723
Total Impact	362.1	191.5	99.3	2,683

3.3 Pig Production and Processing Sectors

Table 3.3 shows the total economic impacts of pork imports on the Australian domestic pig production and processing, including flow on effects, were around $686 million in output, $346 million in value added, $161 million in household income and 4,971 FTE jobs.

Table 3.3 Economic Impact of Pork Imports on Pig Production and Processing 2006-07

Economic Indicator	Output ($m)	Value Added ($ m)	Household Income ($ m)	Employment (FTE jobs)
Initial Impact	241.6	122.6	58.1	1,794
Flow-on Effects	444.0	223.0	102.8	3,177
Total Impact	685.6	345.6	160.9	4,971

3.4 Conclusion

In the absence of imports Australian pig processing and production would be 11.8% higher than it currently is with significant GRP, household income and employment impacts, many of which are concentrated in particular regional centres. On the other hand, the price of pigmeat in aggregate would be 3.2% higher than is currently the case.