University of Wollongong

Regional Economic Impacts of a Closure of BlueScope Steel Operations in Port Kembla

Report prepared for the Australian Workers Union, Port Kembla

University of Wollongong

August 2015

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Acknowledgements

The authors wish to thank Wayne Phillips and Arthur Rorris in the preparation of this report.

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Citation

Burrows, S., Masouman, A. and Harvie, C. (2015) *'Regional Economic Impacts of a Closure of BlueScope Steel Operations in Port Kembla',* report prepared for the Australian Workers Union, Port Kembla, University of Wollongong.

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EXECUTIVE SUMMARY

This report focuses on BlueScope Steel's Port Kembla steelworks. It examines the possible scenarios of complete shutdown of steel production and the direct and indirect job losses of such events. In the context of significant global uncertainty in the steel industry, BlueScope Steel has considerable international pressure from international competitor's including China, Japan and the United States. This has placed pressure on the viability of domestic steel production.

The report begins by emphasizing the role of manufacturing in the region. It examines the role of restructuring and the concurrent job impacts since the 1980's. It then examines the restructuring efforts since the mid 1990's focusing on industry and changes in employment.

The main aspect of the report comprises an analysis using the Illawarra Interregional Input-Output Model (IIRI-OM) based upon ABS data and specifically for the regional economy. The main findings of this study are that a complete shutdown of the plant is estimated to result in a $3.3b loss to gross regional product (GRP). This translates to total GRP for the Illawarra region at $15.5b. Approximately 10,000 jobs are estimated to be lost if such a shutdown occurred, exacerbating existing unemployment levels which currently stand at 8.3%. Historical data and modelling suggest that marginal workers such as older workers and youth will be severely impacted in this scenario.

OVERVIEW AND STUDY CONTEXT

In June 2015, University of Wollongong researchers were commissioned by the Australian Workers Union, Port Kembla branch to undertake scenario research on the possibility of job losses arising from the complete shutdown of steel production at Port Kembla.

The main emphasis of the research is to consider the implications of these proposals for direct and indirect job losses and how, at a regional level of aggregation, this will flow through to associated economic sectors. The rationale and research dimensions include the following:

1. To verify the directly dependent job losses concerning directly employed staff, contracted staff, and other associated employed persons at BlueScope Steel under a complete shutdown scenario;

2. Examine the potential impacts of indirect job losses occurring throughout the broader Illawarra regional economy using the Illawarra Interregional Input-Output Model; and

3. Ascertain through the results from the Input/Output Model the multiplier effects and flow-on impacts to various sectors of the regional economy under various scenarios;

i. To consider the implications for the region's labour market such as unemployment and its various groups e.g. older workers, youth etc; and;

ii. An analysis of previous economic studies to give a sense of the impacts both historical and contemporary.

The following report attempts to answer these research parameters utilising the following methodology:

1. An analysis comprising a document review of existing economic studies is undertaken to give context to the current predicament; and

2. The main analysis is undertaken using the Illawarra Interregional Input-Output Model (IIRI-OM) for the Illawarra region.

The report takes the following form. Section one discusses the region and its economic context reviewing existing studies of steel production and restructure. It considers the employment impacts of previous downturns and places into context the current predicament. Section two outlines the impact analysis of the BlueScope Steel using the Input/Output model. Section three outlines the main findings from the analysis and concludes the report.

The study comprises the local government areas of Wollongong, Shellharbour and Kiama. It also includes the areas of the Shoalhaven and Wingecarribee. This area is defined as the Illawarra region as measured by the Australian Bureau of Statistics (ABS). This is referred to as “Illawarra” or “region” throughout the report.

Please note

The Input/Output model does not include data from the Shoalhaven and Wingecarribee.

SECTION ONE: THE ILLAWARRA REGION AND ITS ECONOMIC CONTEXT

1.1: Introduction

The Illawarra is a major regional area of New South Wales and Australia. With a population of approximately 413,000 and a labour force of 185,000, the Illawarra region includes the city of Wollongong, the harbour of Port Kembla, the growth corridors of Albion Park, Dapto and Shellharbour, and an important surrounding agricultural region taking in the Shoalhaven and Wingecarribee. The region is characterised by major sectors of manufacturing including coal mining, steel making and port facilities undertaking a wide range of economic activities. These include coal exports, steel imports, and broader imports of bulk cargoes, containers and motor vehicles within international supply chains. The region also has developed a burgeoning service industry with sectors including aged and healthcare, retail, building and construction, education (particularly tertiary) and public administration.

The region's gross regional product (GRP) is $15.5b with an average annual growth rate of 4.8% per annum from 2006-11 (IRIS Research 2015). In the last few decades, the region has experienced major restructuring and its economy has been opened up to global market forces. At the same time, a concerted effort to diversify economic activity has led to further structural change. Between 1976 and 2006, census data indicates that the percentage of employed persons in the Illawarra who were working in production-based industries fell from 55% to 24%, while the percentage working in service-based industries rose concomitantly from 45% to 76% (Burrows 2013: 383).

For example, the health care and social assistance sector is a major aspect of employment representing 15.2% of total employment compared to an Australian average of 11.6%. The retail and education sector follow in second and third place respectively and both represent higher than Australian averages in terms of employment. The manufacturing sector represents the fourth most important pillar in

the region's economy representing 10.1% of employment and marginally higher than the Australian average of 9%.

Regardless, manufacturing is a major aspect of the region's economy and continues to play a major role. It contribution to direct and indirect employment representing 1 in every 10 employment positions (IRIS Research 2013: 8). Steel production for example, continues to contribute $2.41 billion dollars in gross regional product (GRP).

1.2: The Illawarra Steel Industry: Restructuring and Job Loss 1980-83

As an example of previous steel downturns, the period of 1980-1983 is a very useful reference point. If a downturn or complete shutdown of steel production was to occur, the impacts would be significant and perhaps worse than those experienced in the early 1980's. A primary difference in 2015 is that those jobs lost were partly offset by external contractors. In 2015, there is no substantial offset to absorb those jobs. A partial shutdown could provide some absorption of these losses however a complete shutdown will have an immediate effect on the economy. It is difficult to see whether other sections of the economy will be able to absorb those job losses in either scenario.

In the period of 1980-1983, a resources boom anticipated by BHP failed to materialise and world steel prices fell sharply in late 1981. Steel operations were rationalised and local coal mines were closed throughout the region. In response, BHP reduced capacity, output and employment. From November 1981 and June 1983, the workforce was reduced by 5000 (Rittau 2001: 76). Job losses through retrenchments and voluntary redundancies contributed to an increase in unemployment of 33% (Mangan and Guest 1983). These impacts were evident in the recipient rates for unemployment benefits during the period of 1981-1982. This is illustrated in the following table.

Table 1: Recipients of Unemployed Benefits for Illawarra 1981-1982

% Increase	1981 (June)	1982 (June)	1982 (November)
Wollongong:			
Unemployment	4,289	5,501	7,294
% increase	-9.2	28.3	32.6
Shellharbour:			
Unemployment	1,532	1,772	2,460
% increase	-1.0	15.7	38.8
Kiama:			
Unemployment	222	252	352
% increase	15.0	13.5	39.7
Total			
Unemployment	6,043	7,525	10,106
% increase	-7.2	24.5	34.3

Source: Mangan and Guest (1983: 10)

Between March 1981 and December 1983, the number of unemployed people registered with the C.E.S. increased from 7,711 to 21,415. Employment in the steel industry for example fell from 20,350 in May 1981 to 14,400 by May 1983. BHP accounted for 71.6% of the employment in the region providing 27.6% of direct employment and 44% of indirect employment. The steel works had, directly and indirectly, accounted for over 70 per cent of the regions employment (Mangan and Guest 1983: 12).

Table 2: Persons Employed at BHP 1981-1996

Year	Persons
1981	20,305
1993	7,700
1996	6,000

Source: IRIS Research (Various Years) *Profile Illawarra*, IRIS Research, Wollongong.

Table 3: Persons Employed at BlueScope Steel 2009-2012

Year	Persons
2009	4,700
2010	5,500
2011	5,200
2012	3,500

Source: IRIS Research (Various Years) *Profile Illawarra*, IRIS Research, Wollongong

In response, a Steel Industry Plan and a Steel Industry Development Agreement was developed to limit further retrenchments and at the same time open up the local economy to global markets. Despite these attempts to reconfigure economic activity, employment in traditional manufacturing declined and became increasingly precarious between secure and insecure jobs. It also introduced the sub-contracting practices in the steel industry along global supply chains (Mylett 2003).

1.3: Regional Employment: Post Restructuring

In the context of the restructuring efforts over the last few decades, employment in the region has generally been poor over the fifteen years of 1996-2011. The region has underperformed compared to other regions across Australia with a net increase of 12,682 jobs. Newcastle for example, experienced a 30.7% net job increase, NSW increased by 18.3% while Australia's total employment experienced a 31.7% increase. The employment consequences of these changes have led to major labour market problems. This includes unacceptably high levels of youth unemployment due to poor labour market conditions and generally poor economic growth and job creation (Burrows 2013). The annual youth unemployment rate in the region for February 2015 was 17% (IRIS Research 2015).

Table 4: Illawarra Unemployment Rates, June 2015

Regional Locality	Adult Unemployment Rate%	Youth Unemployment Rate %
Illawarra	8.3%	14.6 %

Source: ABS Labour Force Survey, June 2015

At the same time, these economic conditions have been part of and contributed by major rationalisations of value added economic activity. Agriculture, manufacturing, the public sector (local, state and federal) and coal mining have all experienced significant job losses. In the case of steel production, the closure of BHP in 1999 and its amalgamation with BlueScope Steel has weakened employment growth. More recently, employment growth was 5.3% during 2006-11. This represents half of Newcastle and Australian average employment growth with a slight increase over the NSW average. This is illustrated in Table 5 below. In Table six, in the years of 2001-2011, manufacturing employment increased marginally in the region.

Table 5: Employment in Illawarra, Newcastle, NSW and Australia

	Illawarra	Newcastle	NSW	Australia
1996	78,651	153,180	2,563,315	7,636,319
2001	81,107	163,555	2,734,553	8,232,803
2006	86,711	181,971	2,909,445	9,104,181
2011	91,333	200,269	3,033,526	10,058,329
Change 96-01 (%)	3.1	6.8	6.7	7.8
Change 01-06 (%)	6.9	11.3	6.4	10.6
Change 06-11 (%)	5.3	10.1	4.3	10.4
Change 96-11 (%)	16.1	30.7	18.3	31.7

Source: ABS Census of Population and Housing

Table 6: Employment Growth/Decline by Industry 2001-2011 Illawarra Region

Industry	2001	2011	Increase/Decline
Health Care and Social Assistance	15,365	24,569	+ 9,204 (60%)
Public Administration and Safety	6,638	15,139	+ 8,501 (128%)
Other Services/Arts and Recreation	8,934	15,867	+ 6,933 (78%)
Accommodation and Food Services	8,246	14,933	+ 6,687 (77%)
Building and Construction	12,196	15,541	+ 3,345 (27%)
Mining	1,523	4,740	+ 3,217 (311%)
Financial and Insurance Services	4,439	7,565	+ 3,126 (70%)
Transport, Postal and Warehousing	6,100	8,862	+ 2,762 (45%)
Education and Training	12,584	15,318	+ 2,734 (22%)
Electricity, Gas, Water and Waste Services	1,155	3,698	+ (220%)
Property and Business Services	13,730	16,272	+ 2,542 (18%)
Manufacturing	20,314	21,465	+ 1,151 (5%)
Agriculture, Forestry and Fishing	2,317	3,323	+ 1,006 (43%)
Information Media and Telecommunication	2,175	2,201	+ 26
Wholesale	5,670	3,163	-2,507 (-44%)
Retail	23,729	21,303	-2,426 (-10%)

Source: ABS Census of Population and Housing

1.4: The Steel Industry, Restructuring and the Future

In recent years, the steel industry has rationalised production in the region with the last restructure occurring in 2011. Over 800 direct jobs were lost at this time with further indirect losses occurring throughout the economy. This directly impacted regional suppliers and contractors. More recently, speculation arose when discussions in the media and elsewhere indicated that BlueScope Steel would cease domestic production. A more concerted analysis undertaken by Bank of America/Merrill Lynch (2015) suggested a reduction in steelmaking costs was necessary for BlueScope Steel to maintain profitability in the medium to longer-term. The context of this analysis was to limit losses through land remediation and focus on growing its existing coated products business. Profitability remains a key priority for the company but concern is being shown as to the future operations of the plant. As the report has outlined, any further rationalisations of the plant will put upward pressure on unemployment, exacerbating existing levels of joblessness. Employment growth/decline therefore is very sensitive to changes in this industry sector. Current considerations are crucial to the ongoing operation of the Port Kembla Steel Plant. The consequences of complete or even partial shutdown may become closer to reality than previously expected. The real prospect of complete shutdown is a major dilemma for all stakeholders and the community.

The pressing issue for government is deciding and implementing an appropriate policy response in an era of free trade agreements and the currently under negotiation Trans-Pacific Partnership (TPP). A new steel industry plan could save Illawarra steel production but it would need to address the issue of direct and indirect protections afforded to BlueScope's international competitors. For example, jurisdictions such as Canada and the United States mandate the use of locally produced steel. Australia has yet to seriously consider such proposals.

From another perspective, the Australian Steel Institute (2015) argues, locally produced steel can be used for national projects and to overcome supply and quality difficulties current infrastructure projects are now experiencing. Governments have been wary to offer industry support through directed industry policies and are more

likely to support steel communities through such economic difficulties. Indeed, they can offer incentives and even encourage capital investment and even as our Canadian and U.S. counterparts have done, enforce requirements to purchase locally made products.

There have been some approaches to address these issues. Policies enacted by the last Federal government included the Illawarra Regional Innovation and Investment Fund (IRIIF). This was established in the aftermath of BlueScope's announcement to half production capacity at the Port Kembla Steelworks in 2011. Jointly funded by BlueScope, Federal and State governments to the extent of $30 million, the fund was set up to diversify industry employment in the local economy and result in sustainable job creation. The program concluded on June 30 2014. Further work is currently being undertaken by the authors (Burrows) and colleagues on the effectiveness of this program in creating jobs and transitioning workers to newer employment.

SECTION TWO: IMPACT ANALYSIS OF BLUESCOPE STEEL ON THE ILLAWARRA ECONOMY

2.1: Introduction

In this section, the results of the input/output model are discussed. This was undertaken to provide a technical analysis of the regional impacts of job loss arising out of a complete shutdown of BlueScope Steel's Port Kembla plant. A detailed breakdown of the technical aspects of the input/output model is discussed in Appendix A.

2.2: Some notes concerning the Input/Output Model

In the following section of the report, we model the direct/indirect impacts for the regional economy. Before we discuss the findings a number of important points need to be made concerning the modelling. These include:

1. There are assumptions about the nature and activity of BlueScope Steel's activities. We have used available public information/knowledge concerning these assumptions. Indeed, this report and its analysis provides a preliminary analysis of the economic impacts, and should be carefully judged by stakeholders. This report discusses possible scenarios that may/may not occur in the future. We welcome discussion of these trajectories but warn any definite scenario's with caution;

2. The Input/Output model does not take into account other economic transfers such as taxes, redundancies or welfare support in possibly mitigating or exacerbating economic impacts; and

3. The Input/Output model assumes a model of full employment and that labour is freely entered into and maintained. I.e. additional labour requirements are met from outside the region and excess labour moves elsewhere.

The following section also highlights a worst case scenario, being a total shutdown of operations in the region. Again with caution, if the economy experiences major job loss, in the case of the local steel industry, we can assume a number of economic stabilisers will counter-balance these shocks. The need for labour in other sectors is a central stabiliser given the role services play in the regional economy. Other factors might include unemployment benefits or voluntary redundancy. The Input/Output model does not factor input on taxation revenues and local specific economic spikes such as the housing market etc. The modelling of Gross Regional Product (GRP) is a worst case scenario. The actual indirect job loss will be dependent on economic sectoral movements and trajectories.

2.3: Direct and Indirect Economic Impacts

According to the BlueScope Steel website, the steel plant in Port Kembla employs around 3,500 direct employees after the first blast furnace shutdown. The manufacturing multipliers show that there are more than 10,000 jobs in the Illawarra directly dependent on the plant. The manufacturing plant contributes more than $2 billion in sales to regional gross output (GRP) with a capacity of producing 2.6 million tonnes of steel per annum on its 760 hectare site (BlueScope Steel 2015).

The following figures in Table 7 show the monetary impact of BlueScope Steel Illawarra on the regional economic structure based on the $2 billion regional sales. The first column, *Sector*, list the 28 sectors that directly or indirectly affected by BlueScope, either as suppliers or as buyers of the steel manufacturer. The column named *First Round* shows the overall financial impacts on sectors directly linked with BlueScope activities, which are immediately impacted by fluctuations in BlueScope productions. The column named *Indust Sup* presents the financial impacts on

sectors that are suppliers of the sectors that are directly linked with BlueScope activities. As a result of the direct and indirect effects of BlueScope activities, the level of household income throughout the economy will increase/decrease as a result of increased employment. A proportion of this increased income will be re-spent on final goods and services. This is the induced effect and is shown by the *Consumption* column for every sector. Lastly, the total financial impacts of BlueScope activities are presented in *Total* column.

Furthermore, the figures in Table 8 present the dollar value of BlueScope purchases from and sales to other sectors for a hypothetical production of $26,033.70. *Sector* column displays all the sectors that interact with BlueScope. T1 presents the total inter-sectoral purchases, COE stands for Compensation of Employees, GOS + MI stands for Gross Operating Surplus + Mixed Income, OVA stands for Other Value Added, followed by imports. T2 is the summation of T1 plus COE, GOS + MI, OVA, and Imports. Lastly, Emp is the full-time equivalent (FTE) required in human resources to produce $ 26,033.70 worth of BlueScope steel.

Table 7: The Impact of BlueScope Steel Shutdown

The Impact of $2b from BlueScope Steel Shutdown				
(Illawarra Sales per Annum $2,000,000,000.00)				
Sector	*First Round*	*Indust Sup*	*Consumption*	*Total*
Ag, forestry, fishin	$ -	$ -	$4,000,000.00	$4,000,000.00
Mining	$166,000,000.00	$58,000,000.00	$2,000,000.00	$228,000,000.00
Food, beverage mfg	$ -	$ -	$12,000,000.00	$12,000,000.00
Textile, clothing mf	$ -	$ -	$ -	$2,000,000.00
Wood, paper prod	$ -	$2,000,000.00	$ 4,000,000.00	$4,000,000.00
Petrol, chem prod	$2,000,000.00	$4,000,000.00	$ 4,000,000.00	$8,000,000.00
Non-met minerals	$4,000,000.00	$2,000,000.00	$2,000,000.00	$8,000,000.00
Primary, fab metals	$378,000,000.00	$92,000,000.00	$4,000,000.00	$2,474,000,000.00
Mach, equip mfg	$2,000,000.00	$4,000,000.00	$6,000,000.00	$10,000,000.00
Other mfg	$ -	$ -	$ -	$ -
Elect, gas, water	$12,000,000.00	$8,000,000.00	$ 14,000,000.00	$34,000,000.00
Construction	$2,000,000.00	$6,000,000.00	$6,000,000.00	$14,000,000.00
Wholesale trade	$10,000,000.00	$8,000,000.00	$20,000,000.00	$36,000,000.00
Retail trade	$ -	$ -	$60,000,000.00	$62,000,000.00
Accom, food serv	$2,000,000.00	$2,000,000.00	$46,000,000.00	$50,000,000.00
Transport, postal	$24,000,000.00	$16,000,000.00	$18,000,000.00	$ 60,000,000.00
Info, telecommunicat	$ -	$2,000,000.00	$12,000,000.00	$14,000,000.00
Finance, insurance	$4,000,000.00	$16,000,000.00	$86,000,000.00	$106,000,000.00
Rental, real estate	$8,000,000.00	$10,000,000.00	$10,000,000.00	$28,000,000.00
Ownership dwellings	$ -	$ -	$60,000,000.00	$60,000,000.00
Prof, scient, tech s	$4,000,000.00	$12,000,000.00	$14,000,000.00	$30,000,000.00
Admin support serv	$6,000,000.00	$6,000,000.00	$8,000,000.00	$18,000,000.00
Public admin	$ -	$ -	$2,000,000.00	$2,000,000.00
Education, training	$ -	$ -	$22,000,000.00	$22,000,000.00
Health, social assis	$ -	$ -	$16,000,000.00	$16,000,000.00
Arts, recreation	$ -	$ -	$6,000,000.00	$ 6,000,000.00
Repairs	$2,000,000.00	$4,000,000.00	$10,000,000.00	$16,000,000.00
Pers, oth serv	$ -	$ -	$10,000,000.00	$10,000,000.00
Total	$626,000,000.00	$256,000,000.00	$454,000,000.00	$3,336,000,000.00

Note 1: the column *Total* is summation of not only direct and indirect impacts, but also change in household consumption resulted from the direct and indirect impacts plus the flow-on effects.

Note 2: these figures are estimated based on the $2billion production contribution stated on BlueScope Steel website.

Note 3: the estimated figures obtained from this model are based on the availability and quality of the data. The methodology used in modelling the impact analysis is based on the latest methodologies found in scientific papers.

Table 8: BlueScope Sectoral Purchases

	Purchases			*Sales*		
Sector		Primary, fab metal		Ag, forestry,	30.4	0.12%
Ag, forestry, fishin	$	3.70	0.014%	Mining	1,005.50	3.86%
Mining	$	4,292.60	16.489%	Food, beverage	79	0.30%
Food, beverage mfg	$	11.70	0.045%	Textile, cloth	12.4	0.05%
Textile, clothing mf	$	15.10	0.058%	Wood, paper pr	99.4	0.38%
Wood, paper prod	$	72.90	0.280%	Petrol, chem p	97.7	0.38%
Petrol, chem prod	$	272.20	1.046%	Non-met minera	94.9	0.36%
Non-met minerals	$	96.50	0.371%	Primary, fab m	3,861.70	14.83%
Primary, fab metals	$	3,861.70	14.833%	Mach, equip mf	2,005.90	7.71%
Mach, equip mfg	$	45.00	0.173%	Other mfg	167.9	0.64%
Other mfg	$	10.80	0.041%	Elect, gas, wa	102.2	0.39%
Elect, gas, water	$	589.80	2.266%	Construction	2,483.70	9.54%
Construction	$	149.50	0.574%	Wholesale trad	204.2	0.78%
Wholesale trade	$	598.40	2.299%	Retail trade	76.8	0.30%
Retail trade	$	109.50	0.421%	Accom, food se	45.7	0.18%
Accom, food serv	$	62.70	0.241%	Transport, pos	156.4	0.60%
Transport, postal	$	828.30	3.182%	Info, telecomm	127.6	0.49%
Info, telecommunicat	$	102.90	0.395%	Finance, insur	3.9	0.01%
Finance, insurance	$	169.80	0.652%	Rental, real e	42.1	0.16%
Rental, real estate	$	340.10	1.306%	Ownership dwel	84.7	0.33%
Ownership dwellings	$	-	0.000%	Prof, scient,	287.6	1.10%
Prof, scient, tech s	$	268.50	1.031%	Admin support	41.2	0.16%
Admin support serv	$	257.10	0.988%	Public admin	138.1	0.53%
Public admin	$	22.60	0.087%	Education, tra	71.7	0.28%
Education, training	$	12.70	0.049%	Health, social	52.4	0.20%
Health, social assis	$	3.30	0.013%	Arts, recreati	26.2	0.10%
Arts, recreation	$	1.80	0.007%	Repairs	109	0.42%
Repairs	$	38.90	0.149%	Pers, oth serv	42.1	0.16%
Pers, oth serv	$	3.90	0.015%	T1	11,550.50	44.37%
T1	$	12,242.10	47.024%	PFCE	183	0.70%
COE	$	4,005.80	15.387%	GFCE	37.7	0.14%
GOS + MI	$	2,536.80	9.744%	GFCF	687.2	2.64%
OVA	$	186.80	0.718%	Exports	13,575.40	52.15%
Imports	$	7,062.30	27.128%	TOTAL	26,033.70	100.00%
T2	$	26,033.70	100.000%			
Emp		43				

SECTION THREE: MAIN FINDING

In this section, the data and analysis are discussed to investigate the possible impacts of a complete shutdown of BlueScope Steel's Port Kembla works. Three aspects are considered in light of these possible scenarios. These include the employment impacts across the population, the expenditure impacts in the economy and the economic value of steel production.

3.1: General Economic Impacts

To analyse the structure of a regional economy and to examine the potential impacts of policies on the future economy of a region, two key methods are used. The first method is IO modelling, through which the interactions between economic sectors are examined and the impacts of exogenous shocks on the economy are determined (West and Jackson 1998; Miller and Blair 2009). The multipliers in IO modelling enable analysts to calculate the direct and indirect effects of any shifts among various economic sectors and to trace the impacts of inter-sectoral transactions within an economy. The other method is econometric modelling, through which the growth rate of each sector is forecasted and the effects of a policy on high growth rate industries are evaluated.

3.2: Expenditure Impacts in the Regional Economy

The findings for this report are modelled by a standalone IO analysis. The findings pertain to the importance of the steel sector with respect to its direct and flow-on effects on other industries and employment. As noted on Table 7 and Table 8, this sector has significant impact on sectoral profile of the regional economy and employment. Based on the reported $2b contribution of BlueScope Steel, the total monetary impacts of the steel manufacturing activities are computed to affect the regional economy by $3,336,000,000.00. Of this $3.3b total impact, 16.5% is the direct impact on mining; followed by more than 15% direct impact on the employee

compensations of the steel manufacturing expenditures (purchases). This would also impact the net regional exports (imports subtracted from exports) by nearly 48%.

3.3: Employment Impacts across Population

In earlier sections, the report outlined the deleterious impacts of job losses across the region in the last few decades. This has arisen primarily through economic restructuring and generally poor economic conditions over the period. The decline in employment in steel production has also played a significant role in these losses. While the Input/Output model cannot estimate these job losses, careful scrutiny of employment data is necessary to ascertain the absolute numbers. The authors suggest the following aspects for consideration.

The broader labour force is impacted by any job losses. If a directly dependent job loss of 10,000 occurred, there would be an effective doubling of the unemployment rate. The current rate is 8.2% (ABS 2015). Two groups, in the main, would be disproportionately impacted by these losses. These include older workers and youth. Recent research undertaken by the University of Wollongong (see O'Brien and Burrows 2014a, 2014b, 2014c) on the displacement of retrenched BlueScope workers during the last restructure in 2011 highlighted the difficulties for many older workers transitioning to new jobs and training.

Youth will be further marginalised by any job losses, and in particular, through indirect job losses arising from any downturn in aggregate spending in the economy. The main sector of employment for youth is located in the retail industry, and this will effect both full-time and part-time workers either through reduced hours or retrenchment. The levels of youth unemployment in the region will be compounded to higher levels and this rate is sensitive to economic recession and recovery (Biddle and Burgess 1999; Burrows 2010).

Regardless, the social cost of such high levels of unemployment will be felt throughout the region. In a region already struggling with high unemployment

(especially youth), poverty and other social ills, the impacts will led to significant social dislocation that is not in the region's best interest.

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APPENDIX A: STATISTICAL METHODOLOGY

The Illawarra Interregional Input-Output Model (IIRI-OM)

The authors have developed a Regional Input-Output (I-O) model specifically for the Illawarra. The overall aim of the Illawarra I-O Model is to help improve the capacity for stakeholders within our region to identify and respond to economic challenges.

The Illawarra I-O Model provides evidence-based decision support in relation to economic impact issues. It offers local businesses, government agencies and the community access to a more sophisticated level of descriptive and predictive analysis in relation to the economic impacts of various scenarios on the local economy. Its potential uses include, but are not limited to, the following:

Appraising the regional economic (and sector-specific) contribution of large businesses, as well as the effects of substantial growth or decline in operations. The contribution by a firm or organization to employment, output, income wages etc. can be identified – facilitating the identification of sectoral dependencies and linkages;

1. Appraising the regional impact of substantive private sector investment initiatives, as well as from major structural adjustments that result in reduced spending and output from currently significant sectors;

2. For identifying regional production bottlenecks (supply chain weaknesses) and capacity constraints that result in external spending leakages from the regional economy;

3. As a tool for evaluating the employment creating potential across competing public sector projects (e.g. infrastructure expenditure), facilitating a priority ranking during times of scarce public funding;

4. As a policy tool to identify key sectors within the region in terms of their generation of: expenditure, output growth, employment, value added, taxes, wages and exports;

5. As a regional economic development policy tool for region-wide planning purposes, and for analysis of the regional impact of state and federal policy and budgetary initiatives - such as those in the area of health and aged care expenditure;

6. For identifying the extent of regional autonomy/dependency relative to other regions, rest of the state and national economies; and

7. In relation to all the above uses, impacts can potentially be disaggregated by local government area. Moreover, for each use economic impact includes that on regional expenditure, output growth, employment, value added, taxes, wages and exports.