

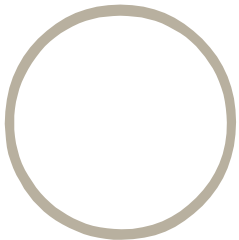


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Building Barangaroo

Economic impacts



Prepared for

Lend Lease (Millers Point) Pty Limited



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Executive summary

Lend Lease (Millers Point) Pty Limited (Lend Lease) is proposing to develop Barangaroo South with a mixture of commercial, residential, retail and hotel space. The development is expected to be a world class example of sustainable building and urban renewal, achieving greenhouse ratings in line with the world's most sustainable buildings. It could expand and enhance Sydney's central business district, helping to ensure that Sydney remains an attractive prospect for major businesses that operate in the Asia Pacific region.

Barangaroo South is projected to bring economic gains for Sydney across a broad array of areas. As a substantial new construction project it provides employment opportunities that are particularly valuable in the current economic environment for non-residential construction. As an example of sustainable building design, it has symbolic significance, has low impact on the environment and is an opportunity to learn and reduce the cost of the sustainable building industry. Its sustainable design also offers more direct benefits in deferring the need for energy, transport and water infrastructure.

The Barangaroo development also offers unique amenities, with harbourside parks and facilities and completes the harbour walk from Woolloomooloo to Anzac bridge.

However, the main economic value of Barangaroo South will come from what it will be used for. New world class commercial space will attract high value added financial services firms that potentially service the entire Asia Pacific region. New water-front CBD residential space could help attract talent from overseas. And new retail and hotel space could draw tourists, from overseas and from within Australia.

The economic value of Barangaroo South will chiefly be shaped by whether it expands business activity in Sydney. We call this the 'additionality' of Barangaroo South. As well as the design features of Lend Lease's proposal, the economic environment now and in 2014 as Barangaroo South comes online will be important in determining the extent to which Barangaroo South generates additional business activity.

The degree of additionality is always difficult to measure. For the construction phase of Barangaroo South, it is likely that the project will generate a substantial amount of additional employment. The construction of Barangaroo South may therefore create economic activity in a similar way to the Australian Government's nation building package, rather than shifting resources from being used elsewhere.

Over the medium term, which is the right timeframe to consider the value of the use of Barangaroo South as a commercial and residential precinct, the additionality of Barangaroo South may have fallen relative to expectations three years ago. Office vacancy rates have risen and may rise further in the short-term, although they are still well below average. While capacity is available now, in the medium term, capacity will probably again be stretched. Given these uncertainties, we base the value on Barangaroo South bringing some new business to Sydney, as well as shifting some business from other parts of the CBD.

So what then is the value of Barangaroo South to Sydney and what are the economic impacts of its construction and use?

During the construction phase, and based on past experience with construction projects, we estimate that Barangaroo South will directly employ over 1000 people during the initial four years of construction and almost 700 people until 2020. Indirectly, Barangaroo South could employ up to another 1000 to 2000 people.

The primary value of Barangaroo South is in its use as a commercial, residential, retail and office precinct. When completed, Barangaroo South will house 22 000 employees in high value added areas such as finance and insurance. The value added from businesses located in Barangaroo South is likely to be as much as \$5.5 billion per year.

A significant share of the businesses located in Barangaroo South is likely to reflect new activity for Sydney, rather than a spatial reallocation of businesses around Sydney's CBD. When it is completed, the additional value added to Sydney from Barangaroo South is estimated at about \$1.5 billion per year for Sydney, equivalent to a 0.8 per cent increase in Sydney's value added. The largest share of this value reflects additional employment in high value areas such as finance, as a growing Sydney CBD attracts people from around Australia and the world.

The project could also have substantial impacts on employment, generating up to 6000 additional jobs in Sydney, equivalent to a 0.5 per cent increase in employment. This reflects the attraction of additional business, expanding Sydney and its CBD.

Lend Lease's proposed development of the Barangaroo South site offers many additional features that will increase its value. The proposal incorporates substantial investment in sustainable infrastructure and the local community, such as low energy and water use, water recycling, training facilities and community partnerships. These are expected to have significant positive environmental and social outcomes for the local community, reduce the environment footprint of the development and reduce the need for augmentation of Sydney's electricity, water and wastewater infrastructure. The facility will provide major community assets, including those that contribute to improved health and active lifestyles and that contribute to the cultural development of the area.

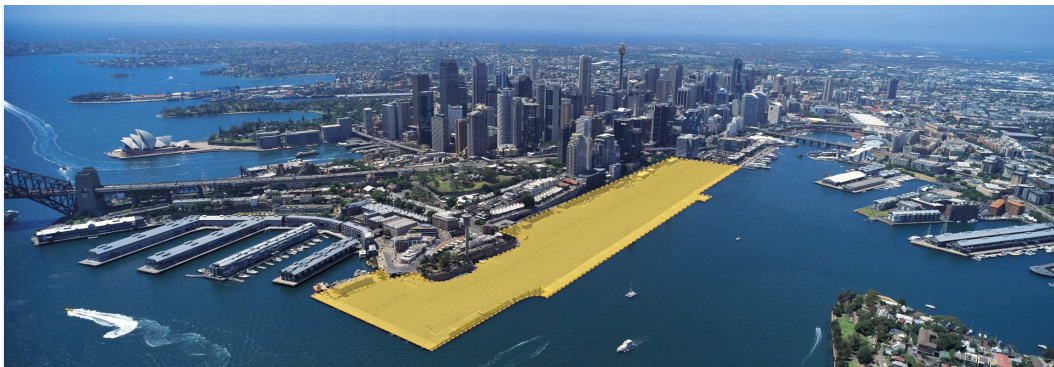
While there are compelling reasons to expect that the sustainability and community features of the development will be valuable, and some preliminary work has been undertaken to value these initiatives, the environmental, social and community effects are difficult to price in monetary terms. It is therefore not practical at the moment to provide a quantitative indicator on the same basis as those provided for the economic impacts discussed above.

Overall, the evidence provided in this evaluation indicates that the development of Barangaroo South as proposed by Lend would make a significant contribution to the economic development of Sydney and NSW.

1 *The proposed project*

Barangaroo South is a 22 hectare area of the Sydney foreshore adjoining Australia's financial centre, in Sydney's CBD (chart 1.1). It is owned by the Barangaroo Delivery Authority, a statutory body owned and controlled by the NSW Government.

1.1 Location of Barangaroo



Data source: Foreshore Authority (2008a).

Barangaroo has 1.4 kilometres of Sydney harbour foreshore. It is located close to existing public transport, such as Wynyard station, and next to an established business district. These features could allow the development of Barangaroo to create significant value for Sydney.

Lend Lease (Millers Point) Pty Limited (hereafter Lend Lease) is the developer for part of the development of Barangaroo — Stage 1. The part evaluated in this report is Development Blocks 1 to 4, including the development of public domain within these blocks and the delivery of a range of infrastructure to support the development. This part of the development comprises the southern part of Barangaroo called Barangaroo South.

For the development of Stage 1, the Barangaroo Delivery Authority has set the following objectives (Foreshore Authority 2008b):

- create an outstanding new southern development precinct that establishes a world benchmark in urban waterfront design integrating new harbour foreshore public domain with buildings exhibiting design excellence of the highest order;
- respond to the increasing demand for commercial workspace that provides significant floor plates for workers of the knowledge economy along with access to significant social and cultural amenities and quality lifestyle opportunities;

- provide a development offering of a scale that allows for innovative precinct-wide environmentally sustainable infrastructure to support the twin challenges of reduced potable water demand and reduction in green house gas emissions;
- provide a mix of land uses within Development Blocks 1 to 4 that support vibrant and accessible ground floor and street edge activation that is coordinated with adjoining Public Domain areas and other Development Blocks;
- provide a comprehensive remediation outcome for the southern precinct of Barangaroo South and in doing so become a benchmark for the reuse of degraded post-industrial landscapes;
- work with the Foreshore Authority and NSW Government agencies to provide timely and co-ordinated delivery of social and community infrastructure leveraging benefits from renewal for local communities;
- co-ordinate transport and access outcomes to ensure reduced dependency on car travel to the city supported by new and safe pedestrian links to a range of transport modes;
- provide for the timely delivery of above ground buildings on Development blocks 1, 2, 3 and 4; and
- allow for the early delivery of and access to a new public foreshore promenade.

Lend Lease's proposed development of Barangaroo South is a transit-oriented development. By locating close to existing transport networks and the CBD, it would raise density and connectivity. The likely tenants will build a financial services cluster, potentially including banks, other financial sector companies and financial regulators. Its large office floorplates and mixed use development would attract global companies. In many ways it is similar to the development of the global financial services hub in Canary Wharf London.

Costs

Lend Lease's proposed development of Barangaroo South is expected to cost approximately \$3.5 to \$4 billion. For this report it is assumed that half of these costs will be incurred in the four years to 2014, with the other half to be incurred in the following six years to 2020. The actual time frames for construction and development could differ from this depending on the commercial outlook and demand for space created by the project.

Timeline

For this evaluation, we have assumed that half of Barangaroo South will be completed by 2014. The additional half will be gradually added till 2020 depending on demand for new types of space.

Based on the above, the construction and development impacts of the project will be primarily located in the four years from 2011 to 2014 and moderating somewhat in the six years from 2015 to 2020. The use impacts of the development will begin in 2014 and increase until the project's completion in 2020.

Investment in new space for Sydney's CBD

The Barangaroo South development is a substantial additional capacity for Sydney's CBD, which will likely grow Sydney. Investing in cities can have powerful agglomeration effects and generate Sydney-wide increases in productivity (box 1.2).

1.2 The value of investing in cities

Cities are the engine of national growth in the 21st century.¹ Cities offer skilled workforces, access to large domestic markets and overseas markets, educational institutions and supporting infrastructure and are centres of innovation and creativity. Cities are the place where most people live, most businesses locate and most economic activity takes place. As the World Bank (2009, p. xiii) notes, 'Production concentrates in big cities, leading provinces, and wealthy nations. Half the world's production fits onto 1.5 per cent of its land.'

In Australia, more than 70 per cent of people live in areas classified as Metropolitan by the ABS and one fifth of Australians live in Sydney.² Australia is projected to become even more urbanised over the next forty years (ABS 2008b).

Australian cities are also centres of production. Services, which are predominantly located in cities, make up 85 per cent of the value added of NSW (ABS 2009b).³ The two biggest sectors of the NSW economy are property and business services and finance and insurance, which together accounted for 25 per cent of the value added of NSW in 2007-08. Reflecting the productivity of cities, workers in cities in developed countries on average earn wages that are 20 per cent higher than their national average (OECD 2006).

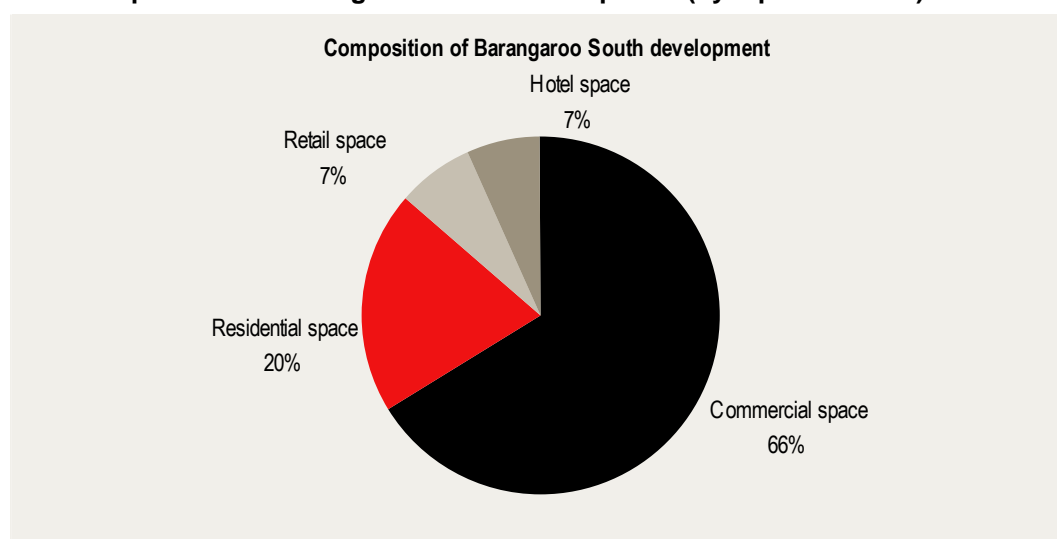
As the process of globalisation continues, and technologies such as the internet expand apace, cities will continue to be the drivers of growth. Ensuring cities remain competitive is a key challenge, with the power of place and sustainable urban environments emerging as important drivers of competitiveness, according to Richard Florida and Michael Porter.⁴ Investing in the built environment will help ensure that Sydney can continue to expand and attract people with skills and creativity.

¹ OECD (2006), p. 63.

² The ABS classifies the eight capital cities, Barwon, Illawarra and Hunter as metropolitan areas. Data is sourced from ABS (2008a).

When completed, Barangaroo South will provide 490 240 square metres of space for Sydney's CBD. A large proportion of this space will be commercial (66 per cent, chart 1.3). The development will also provide for up to 800 apartments and 200 hotel rooms, as well as space for supporting retail and services activities.

1.3 Composition of Barangaroo South development (by square metres)



Data source: Lend Lease.

Relative to the current size of Sydney's CBD (including Ultimo), Barangaroo South represents a 4.3 per cent increase in office space, a 3.7 per cent increase in retail space and a 2.8 per cent increase in visitor accommodation. The relative size of the increase in Sydney City's residential sector is smaller, reflecting the inclusion of Ultimo in the City of Sydney floor survey and the relative importance of office space for the Barangaroo South development.

1.4 Space from Barangaroo South and current Sydney City capacity

	Barangaroo South	Sydney City ^a	Barangaroo South as a share of current capacity
	Square metres	Square metres	%
Office	323 700	7 514 983	4.3
Residential	99 763	8 955 696	1.1
Visitor accommodation	33 000	1 191 576	2.8
Retail	33 777	921 158	3.7

^a Sydney City is the Sydney's CBD and Ultimo.

Sources: Lend Lease; City of Sydney (2007).

³ Value added is measure related to GDP. It represents the value of outputs less the cost of intermediate inputs required to produce the outputs.

⁴ Florida (2002); Porter (2009).

2 *The framework for evaluating Barangaroo South*

The framework used in this report to evaluate the impacts of Barangaroo South to Sydney accounts for the additional economic activity generated by the development. This chapter sets out the framework. It also discusses how current economic conditions may change the impacts of developing Barangaroo South.

Framework for analysis

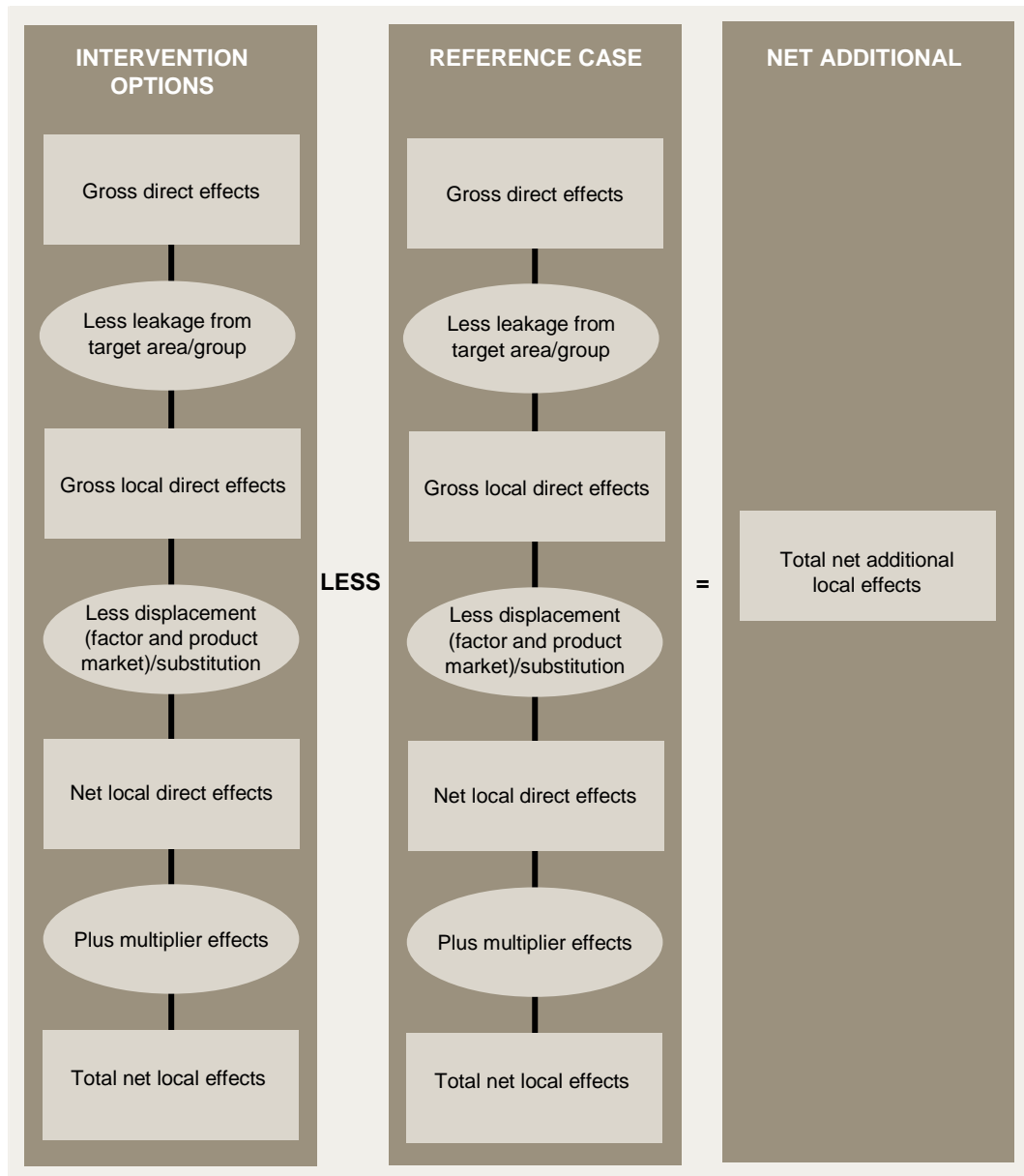
The evaluation of major new development requires a framework to consider the economic impacts of the project. In thinking and measuring the impact of Barangaroo South, the most important point is the extent to which the project shifts the spatial allocation of economic activity versus increasing the overall level of economic activity in Sydney. The extent to which the project grows Sydney is called the 'additionality' of the project.

The UK Treasury (2009) has developed a robust framework for the evaluation of urban regeneration projects (chart 2.1). The framework aims to account for the various elements of additionality. To do this it begins with gross impacts, such as the number of people employed in the new development and then subtracts:

- leakage — effects that benefit people outside of the group being targeted;
- displacement — the extent to which activity is shifted from other locations within the area of consideration; and
- the impacts of the reference case or counterfactual — the activity that would have occurred in the absence of the public funding.

The effects are also increased by flow-on effects to other sectors, or a multiplier, which is the extent to which direct activity generates additional local activity.

2.1 Approach to assessing project level additionality — key components



Data source: English Partnerships (2004, p. 5).

The UK framework is aimed at identifying the additionality of public funding of urban renewal but can easily be adapted to Barangaroo South. It is easily adjusted to reflect the additionality of the development of private financing to Sydney. The evaluation uses as a counterfactual that Barangaroo South is not developed. By focusing on the impact on the whole of Sydney, rather than particular communities, leakage is not important. Even though the evaluation focuses on Sydney, the economic impacts of new capacity in Sydney's CBD could also have national benefits, as agglomeration boosts productivity and welfare (box 2.2).

2.2 Productivity and consumption benefits of agglomeration

The reason people locate in cities is twofold. Firstly, there are production benefits. By being close together, people can learn from each other, interact more and produce more. This is reflected in the wage differential paid to people who live in bigger cities. For instance Glaeser and Maré (2001) note that workers in cities earn a 33 per cent premium, largely because they can accumulate skills (or human capital) faster than their non-urban counterparts.

Other authors have noted that doubling employment density in US counties increases productivity by 6 per cent — variation in employment density explains more than half of the variation in productivity differences in the US (Ciccone and Hall 1996).

Secondly, there are consumption benefits. There is more choice in activities, entertainment and recreation in a city, making it an attractive choice for many.

The combination of consumption and production effects can be called ‘agglomeration impacts’. As leading academics in economic geography have noted, these agglomeration effects are both obvious and powerful.

Two-bedroom houses in Palo Alto, California, routinely change hands for hundreds of thousands of dollars while houses in northern Wisconsin can be had for a song. Despite the high cost of living and office space, Silicon Valley remains attractive to both firms and workers while economic activity in northern Wisconsin languishes. The fact that most of the world’s economic activity is organised around cities of various sizes suggests that powerful agglomeration forces are ubiquitous. Baldwin et al. (2003, p. 4.)

The presence of agglomeration effects means that investing in cities is not necessarily a zero sum game even at the national level (UK Office of the Deputy Prime Minister 2006). Removing barriers to agglomeration and investing in cities can boost productivity and improve quality of life over the country at large.

This leaves the extent of displacement of activity and the multiplier as the key factors in the additionality of Barangaroo South and its economic impacts on Sydney.

As well as additionality, this evaluation considers the environmental impacts of Barangaroo South. This is the sustainability premium from a new development that has a much lower environmental footprint than standard buildings in Sydney (and standard new buildings in Sydney). The sustainability premium is reported here relative to a standard existing development.

Multiplier analysis

As noted, direct activity can generate additional activity in other sectors, termed a multiplier effect. For instance, additional construction activity generates value-added (the direct impact). However, it also requires inputs from other sectors such as

materials and transport in order to generate the additional construction. The construction workers spend their income on food, clothing and entertainment, amongst other things, stimulating these sectors. These effects should all be captured in an analysis of the economywide costs and benefits.

Ideally, these features would be analysed in a computable general equilibrium (CGE) model. This traces the relationships between sectors and the allocation of resources within Australia's economy. An alternative method is to use predetermined multipliers that set out how activity in one sector flows through to other sectors (box 2.3). Multipliers are more useful when the project generates new activity, while CGE modelling is more appropriate when the project reallocates resources between sectors.

This study uses multipliers calculated from ABS input-output tables to measure these flow-on effects. The multipliers are adjusted to reflect the extent to which the assumption of additionality is likely to hold, which is the key issue with using multiplier analysis.

2.3 Multipliers

Multipliers measure the extent to which activity in one sector increases activity in other sectors. It will differ for each sector depending on how much the sector uses imports and the extent of value added in the sectors that supply its inputs, amongst other factors.

Multipliers are comprised of four effects.

1. Initial effects. For example, a dollar increase in output in construction has the initial effect of increasing construction demand by one dollar, as well as increasing employment and value added in the construction industry.
2. Production induced effects. For example, a dollar increase in construction output requires so many cents of manufacturing outputs, transport outputs, etc.
3. Industrial support effects. The induced manufacturing, transport and other activity requires additional activity from mining and other manufacturing sectors.
4. Consumption induced effects. A part of the wages paid in the original sector is spent on goods and services. This increases activity in industries such as retail and food.

The sum of these effects gives the total multiplier.

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2.3 Multipliers (continued)

The basis on which multipliers are derived is described in detail ABS (1995). Information on the limitations of multipliers and assumptions behind them is contained in appendix A.

For the analysis in this report, value-added and employment multipliers from ABS for 1996-97 — the latest year for which the full data set is available — are used. The multipliers are calculated with reference to direct impacts on employment and value added. These are labelled 2A multipliers by the ABS.

The additionality of Barangaroo South

Two key elements of the Barangaroo South project will influence the additionality of the project. Lend Lease's design of Barangaroo South can increase additionality for Sydney if the design attracts financial services, particularly from interstate and overseas. By developing a financial services hub with banks, other financial services companies and financial regulators, the proposed development will attract additional activity. The large floorplate design of the development and transit-oriented development are also expected to be attractive to global companies.

The economic environment is the second determinant of the additionality of the development. The economic environment will impact on the demand for and supply of office space in Sydney's CBD and capacity in non-residential construction.

Additionality of construction activity

If Sydney's construction sector was booming at the time that Barangaroo South was being built, then Barangaroo South would likely divert resources from other projects rather than using unutilised resources. But, as the RBA noted in February (RBA 2009, p. 37), 'In recent months there has been a pronounced downturn in the non-residential building sector.' The continued low level of project approvals for private non-residential building can be seen in chart 2.4, although this has been offset by an increase in non-residential building work in the education and government sectors.

The downturn in non-residential construction will probably reduce the costs of Barangaroo South to Sydney. With fewer alternative projects, construction work in Barangaroo South is likely to use unutilised or underutilised resources, rather than shifting resources from other projects. Given the current outlook, there is a compelling case that the construction phase can be expected to create new jobs rather than reallocating people from developing other projects to Barangaroo South. The impacts of Barangaroo South are measured on this basis.

To identify the economic impacts of construction activity for Sydney, the development costs have to be adjusted to reflect the value added from construction — that is the amount of expenditure less the cost of intermediate inputs. For a typical construction project, value added is about 30 per cent of expenditure.

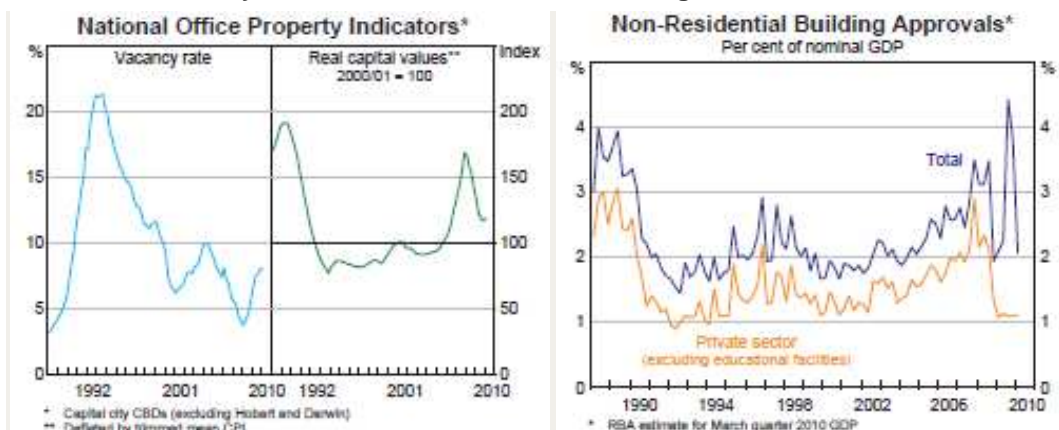
The cost of intermediate inputs may or may not have economic impacts in Sydney. Part of the inputs is imported from overseas, and another part imported from interstate. This part does not benefit Sydney. The multiplier captures the additional impact on Sydney of construction and development expenditure. Half of the multiplier impacts are assumed to be additional economic activity in Sydney for this evaluation, rather than diverting activity.

Additionality of use of new space

The majority of the new space to be provided is office space. To some extent, new office space will grow Sydney and attract people from outside of Sydney and Australia. But new office space could also draw businesses from other parts of the CBD. The extent to which new capacity will create new activity depends on capacity constraints within Sydney, the ease with which businesses can move interstate and internationally and the attractiveness of the new development to these mobile businesses.

There have been severe capacity constraints in Sydney's CBD over the past few years, although the economic downturn has eased demand for office space. Current office vacancy rates are still relatively low (chart 2.4), although they have risen in recent years. The outlook for office vacancy rates by the time Barangaroo South comes online in 2014 is highly uncertain and will depend on both domestic and global economic conditions. Future vacancy rates will also depend on the ability of new developments to attract funding. Private sector non-residential building approvals are currently at low levels (chart 2.4).

2.4 Office vacancy rates and non-residential building



Data source: Reserve Bank of Australia (2010).

There is a need to look beyond the immediate outlook and current phase of the business cycle. The Barangaroo South project will provide capacity that will be in place for decades. It is likely that Sydney's office capacity will again be a constraint on growth over this timeframe. The new development will probably then provide additional capacity when it is required, drawing resources from inter-state and overseas, as well as from other parts of Sydney.

Past projects provide some guidance as to the possible additionality of Barangaroo South to Sydney, although every development has its own particular characteristics. In the UK, the Canary Wharf project has some strong similarities to Barangaroo South. It was a transit oriented development focused on financial services and financial regulators, with a global focus. Canary Wharf was also an urban regeneration project that aimed to do more than just be a development, creating a sustainable community.

The economic impacts of Canary Wharf were substantial. 80 000 jobs were created within the development, and an estimated 23 000 additional new jobs created for central London.⁵ Additional jobs were slightly more than one quarter of gross jobs in the new development. Box 2.5 contains more information about the economic impacts of Canary Wharf and other UK urban regeneration projects.

2.5 The economic impacts of Canary Wharf and other UK evidence

From 1981 to 1998, the London Dockland Development Corporation (LDDC) was engaged in a major regeneration of the Docklands area of London. The regeneration included the establishment of a new business district now called Canary Wharf, from what were derelict and deprived areas of London in 1981. The first tenant moved into Canary Wharf in 1991.

Over the life of the project (to 1998), the public sector invested £3.9 billion in the regeneration project, combined with £8.7 billion in private sector investment.

The evaluation of the project concluded that the LDDC generated a wide range of economic, environmental and social benefits, including 80 000 gross jobs, 24 000 new houses, a three-fold increase in employment and a fivefold increase in the number of firms locating in the development area.

The evaluation reported that 23 000 additional jobs were created in the wider local economy (Central London), by increasing the supply of high grade office accommodation and helping to generate a more competitive financial centre. This is equivalent to an additionality factor of slightly more than a quarter.

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⁵ UK Communities and Local Government web site: <http://www.communities.gov.uk/archived/general-content/citiesandregions/regeneratinglondondocklands/>

2.5 The economic impacts of Canary Wharf and other UK evidence (continued)

Substantial reviews of funding for disadvantaged areas aimed at urban regeneration have also been conducted in the UK. These have found that public funding of urban regeneration have had additionality factors of around 30 per cent to 60 per cent.

Sources: UK Communities and Local Government web site: <http://www.communities.gov.uk/archived/general/content/citiesandregions/regeneratinglondondocklands/>; DTLR (2002).

For this evaluation, we use an estimate of the additionality of Barangaroo South and its flow-on effects of one fifth of gross activity. This is somewhat smaller than that found for Canary Wharf, reflecting the broader focus of this study (the whole of Sydney versus central London) and Sydney's greater distance to global markets.

Barangaroo South also creates residential, retail and hotel space. To a large degree, the indirect effects from new commercial space will flow-through into the residential and retail components of the development. That is, it is difficult to separate out the value of the different components of the development as they inter-relate — new employees may live in the apartments and spend some of their money on the retail facilities in Barangaroo South. This evaluation adopts the approach of valuing the office, retail and residential space together.

The hotel space can be considered separately, as much of its value will reflect tourism. Again, to some extent, new hotel space will divert people from other hotels, as well as potentially increasing the overall number of tourists to Sydney. (Barangaroo South itself could help drive increased tourism to Sydney by complementing the characteristics that make Sydney an attractive place for tourists already.) This analysis is based on one fifth of the hotel space being additional activity and one fifth of the flow-through effects of tourism reflecting additional activity.

Reporting of impacts

To report the size of impacts we use two measures. The first, the net present value of the measure of output, is an estimate of the aggregate impact of the project until 2050, discounted to 2010. This captures the sum of the impacts of the project over this period. The second is an annualised equivalent value. The annualised equivalent value says that the value of the project is equivalent to so many dollars in each year from 2010 to 2050. As the project's value in each year will be different depending on the amount of the project that is complete and other factors such as emissions intensity, the annualised equivalent value is akin to the average annual impact and offers a simple way to compare impacts that have different time profiles.

For both the net present value (NPV) and annualised equivalent value (AEV) this evaluation uses a real discount rate of 7 per cent.

Key points

The value of Lend Lease's proposed development of Barangaroo South chiefly rests on the extent to which it has additionality. That is, does it grow Sydney or reallocate activity within Sydney.

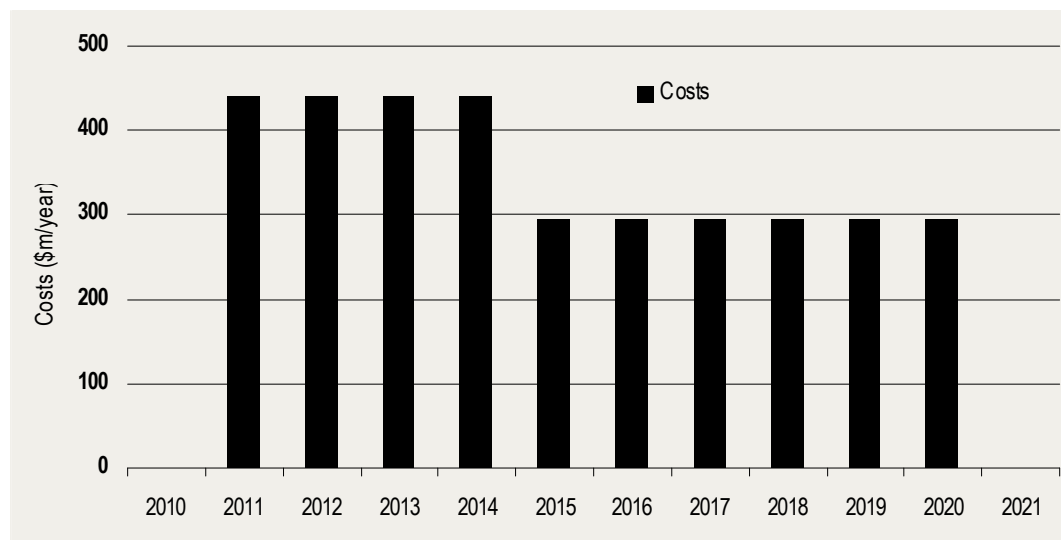
The current economic environment is likely to increase the value of Barangaroo South, relative to normal economic conditions. The construction of Barangaroo South may use unutilised or underutilised resources, reducing the economywide costs of construction. By the time Barangaroo South comes online, Sydney's CBD could again be facing capacity constraints, which would be alleviated by Barangaroo South.

3 *Economic impacts of the construction phase*

Construction and development costs

The cost for Lend Lease's proposal is estimated to be between \$3.5 billion and \$4.0 billion. For this report, the development is assumed to occur over a 10 year period from 2011 to 2020 (chart 3.1). We allow for half of the costs to be incurred in the four years from 2011 to 2014. The additional costs are incurred as the rest of the development is extended till 2020. The actual timing of the project could differ from this depending on the economic conditions and demand for additional floor space in Sydney's CBD.

3.1 Timing of costs of the proposed development



Data source: Lend Lease.

Direct impact of construction and development costs

The direct impact on value added of construction and development is somewhat lower than the costs as some part of the costs is spent on intermediate inputs. For a typical construction project in Australia, value added accounts for 30 per cent of project costs (ABS 2008c).

The additional value added created from the construction and development activity is expected to be \$140 million per year till 2014 and \$90 million per year until 2020.

The additional value added from construction and development is expected to employ up to 1400 people for the four years to 2014 and then 900 people for the six years after that, based on past analysis of construction projects in Australia.

Additional indirect activity

The impact of new construction and development activity will flow through to other sectors. The indirect value added is roughly similar to the direct value added. For the first four years of construction, indirect effects are expected to increase Sydney's value added by just under \$140 million per year for the first four years and \$90 million per year for the six years till 2020.

The indirect effects are expected to generate between 900 and 1350 additional jobs.

Key points

Building Barangaroo South would provide between 900 and 1400 direct additional jobs for Sydney from 2011 to its expected completion in 2020. These jobs are in the construction sector and other sectors involved in financing and developing Barangaroo South. Indirectly, Barangaroo South is expected to generate between 900 and 1350 additional jobs for Sydney, as construction activity requires inputs and the incomes of people involved in the development are spent on goods and services.

4 *Economic value from use*

The main value of a new development is in its use not in its construction. The costs of construction of Barangaroo South are incurred so as to obtain the benefits of expanding Sydney's CBD through more office, residential, hotel, retail and other space. These benefits accrue to the developer and to surrounding areas, businesses and people.

The extent to which Barangaroo South expands Sydney's economic activity will depend on capacity constraints within Sydney, the ease with which businesses can move interstate and internationally and the attractiveness of the new development to these mobile businesses. A recent study on the activity of foreign multinationals in Sydney suggests that Barangaroo South is playing to Sydney's strengths in attracting multinationals (box 4.1).

As discussed in chapter 2, the estimates in this report are based on one fifth of economic activity that will occur in Barangaroo South being additional. The residential, retail and commercial activity is valued together, as the value of this space is inter-linked. The economywide value of additional hotel space is valued separately.

4.1 **Multinational companies in Sydney**

A recent study by the Australian Business Foundation (2009) investigated the activities of multinational companies in Sydney. It found that:

- Multinational activities in Sydney are primarily sales, marketing and customer service management. Sydney is relatively unimportant as a location for production and research and development activities.
- Most foreign multinational headquarters or regional headquarters located in Sydney serve only the Australia and New Zealand region, rather than the broader Asia-Pacific region.
- Sydney is viewed as being more important to the parent company of foreign multinationals as a location for regional headquarters than it was in 1998;
- The activity of foreign multinationals in Sydney encompasses a wide range of industries, business sizes and international experience.

(Continued on next page)

4.1 Multinational companies in Sydney (continued)

- Global Sydney is currently more of an aspiration than a reality. Turning it into a reality will require Sydney operations to be embedded within multinationals, rather than the standalone operations that presently predominate.

The implications of the study are positive for the value of Barangaroo South. Multinationals are looking to connect to customers and use Sydney's skilled labour force, rather than undertaking research and manufacturing. The CBD location of Barangaroo South provides multinationals with what they need, allowing connectivity with Sydney's economic centre and a diverse workforce.

Source: Australian Business Foundation (2009)

Direct values of use

The new commercial space in Barangaroo South Stage 1 is expected to be filled with 22 000 employees. The space will be filled with high value added activities such as finance and insurance, with key tenants already in discussions with Lend Lease. On average, the valued added per employee in finance and insurance activities in Australia is \$250 000 per year.⁶ The new Barangaroo South development could therefore house activities generating about \$5.5 billion of value added each year when it is complete.⁷

Some of the incomes of the employees will be spent on the retail and residential parts of the Barangaroo South development. People in other parts of the CBD will also redirect part of their incomes from current retail options to Barangaroo South and some may move from their existing homes to locate in Barangaroo South.

A substantial component of the activity will not be new, but will be directed from other parts of the CBD and Sydney. But even if only 20 per cent of the activity is new, the annual direct Sydney-wide increase in value added is over \$1 billion per year. This is equivalent to an increase in Sydney's value added of over 0.5 per cent.

The additional hotel space provided by Barangaroo South would generate revenue of \$16 million per year, if it achieves occupancy rates and room rates of a typical Australian five star hotel. As only a part of the revenue reflects additional hotel stays in Sydney, and some of the revenue is spent on costs, the increase in value added from the additional hotel space is likely to be just over \$1 million per year.

⁶ Based on employment data from ABS (2009a) and industry value added from ABS (2009b).

⁷ There could be additional costs to businesses involved in generating this value added, such as capital costs. These have not been factored into the analysis as discussed in chapter 7.

Indirect values of use

Based on typical relationships between sectors, the commercial, residential and retail space will generate an additional \$400 million per year in value added across Sydney. This reflects inputs into the financial and insurance sectors, as well as spending by the people employed in businesses that operate in Barangaroo South. The multiplier reflects the additional spending diverting activity from other areas, as well as generating new activity to some extent.

The additional value added across Sydney from office, retail and residential space would employ about 1800 people per year, once the development is completed.

The additional hotel space could generate additional activity because it provides accommodation for visitors from overseas and interstate, who spend money on other activities as well as accommodation. Hotel space also generates a multiplier in a similar way to other activities. Using average relationships from the Australian Bureau of Statistics, hotel space could generate an additional \$6 million per year in value added, equivalent to over 100 jobs, mainly in accommodation, cafes, restaurants and tourism activities, once the development is complete.

Key points

Lend Lease's proposed development of Barangaroo South offers enormous potential value added to Sydney. If even one fifth of the activity that is generated is new, then Sydney's value added would increase by \$1.5 billion per year or 0.8 per cent when Barangaroo South is completed. The expansion in employment would also be substantial at 0.5 per cent of current employment in Sydney, or 6000 new jobs once the development was completed.

Over the period 2010 to 2050, the impacts are smaller, as the development is half built by 2014 and only reaches full capacity by 2020. The average annual increase in employment from additional space is estimated at over 5300 new jobs, from additional value added equivalent to \$940 million in Sydney for each year from 2010 to 2050 (chart 4.2). The majority of these impacts are from the joint contribution of new office, residential and retail space in Sydney's CBD.

4.2 Value of using Barangaroo South to Sydney from 2010 to 2050

	<i>Value added</i>		<i>Employment</i>	
	Gross (\$m)	Net (\$m)	Gross (no.)	Net (no.)
Office, residential and retail				
▪ Over life of project	49 049	13 421	-	-
▪ Annual equivalent	3 422	936	18 915	5 300
Hotel				
▪ Over life of project	54	61	-	-
▪ Annual equivalent	4	4	64	72

Note: Employment numbers are reported as average annual employment over the period 2010 to 2050.

Source: The CIE.

5 *Uncertainty in evaluation of economic impacts*

There are a number of uncertainties around the evaluation of the economic impacts of Barangaroo South. The main area of uncertainty is the additionality of Barangaroo South, given the current economic climate and the lack of previous robust ex post evaluation of major Australian developments. The development of Barangaroo South may offer an opportunity to improve the accuracy of evaluation in Australia, if good baseline data are identified before the project begins, enabling the additionality of Barangaroo South to be comprehensively measured in the future. This is an approach that has been used in the UK, generating a more sophisticated understanding of the impact of urban development and renewal.

An additional area of uncertainty in this study is the additional costs to government and other businesses of investing in the construction and use of Barangaroo South. New businesses that set up in Sydney will face some set up costs and will require various levels of capital in order to run their businesses. These costs have not been factored into the analysis. Governments may also bear some costs of the development of the southern part of Barangaroo South, if this requires additional transport links or possibly infrastructure for new housing development for a growing Sydney population. On the other hand, the NSW and Australian governments may also receive substantial revenues from new activities, reflecting higher payrolls, company profits, personal incomes and expenditure on goods and services, which are all taxed.

Finally, the study has not valued the impacts on social capital reported in chapter 6. Nor has it valued potential additional visitation to Sydney arising from the area, except through a small increase from additional hotel space. There is considerable evidence that good urban design standards improve commercial and economic outcomes, although the increment in value from this source is difficult to measure and apply with precision. Including these impacts would raise the value of the proposed project.

Reflecting these uncertainties and others this report should be viewed as an impact analysis. It provides an indication of the areas where the most economic value is likely to be derived from the development of Barangaroo South and an estimate of the magnitude of these impacts. It would be a worthwhile enterprise to set up comprehensive baseline data for Barangaroo South and Sydney's CBD in order to evaluate the economic impacts on Sydney once the development is complete.

A The use of multipliers

Multipliers have been widely used in economic analysis to measure flow-on effects. However, multipliers have a number of limitations, as outlined below.

- Excess productive capacity — multipliers are based on the assumption of excess productive capacity. To the extent to which this is not valid in practice, multipliers will overstate the impacts of a project. This project has adjusted the multipliers to reflect assumptions about excess capacity.
- Opportunity cost — the multiplier effect from other potential projects is difficult to determine. This means that the multiplier is applied to the benefits of a project but not the cost.
- Average effects — multipliers account for average effects rather than the marginal effects of a specific project.
- Short run versus long-run effects — in the long-run multipliers may be less relevant given that capacity will likely be taken up through other activities.
- Price effects — large projects may change prices or wages through increasing demand and supply for different projects. An increase in prices reflecting an increase in demand for a product may change elasticities and may alter outcomes as businesses and consumers substitute one product for another. This is not reflected by the use of fixed multipliers and generally results in an overstatement of impacts.

A more robust method of estimation that takes into account resource constraints and price signals is computable general equilibrium modelling. Such modelling is time consuming and was outside the scope of this project.

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