

BUILDING JOBS

HOW RESIDENTIAL CONSTRUCTION
DRIVES THE ECONOMY



Australian Government



National Housing Finance
and Investment Corporation

KEY INSIGHTS

- New analysis shows that the residential building construction industry has the second-largest economic multiplier of all 114 industries that make up the economy.
- The analysis shows that \$1 million of residential building construction output supports around \$2.9 million of industry output and consumption across the broader economy.
- Each \$1 million of residential building construction industry output supports nine jobs across the economy.
- Each new home built would support three jobs (on average) across the economy, based on these newly constructed multipliers and current average dwelling costs.



OVERVIEW

Contributing around 5 per cent to annual gross domestic product (GDP) and accounting for about 134,000 jobs, the residential construction industry plays an important role in the Australian economy. Economic activity in this industry also affects output across the broader economy.

Understanding the extent to which residential construction activity (including social and affordable housing) affects output and jobs across the broader economy is important, given the impact of COVID 19 and general market uncertainty.

The National Housing Finance and Investment Corporation (NHFIC) has generated economic multipliers for residential construction. These are based on the most recent available economic data released by

the Australian Bureau of Statistics (ABS) in its input–output tables at the end of May 2020.

NHFIC’s analysis confirms that, relative to other industries, residential construction activity has strong economic spillovers in terms of economic output and jobs, particularly when there is spare capacity.

Because NHFIC analysed output and employment data from 2017–18, the effect of any industry linkages over the next two to three years is likely to be similar to estimates in this paper. Input–output multipliers can overstate industry effects when the economy has limited spare capacity, but the current economic outlook means that is unlikely to occur over the next few years.

ESTIMATING THE RESIDENTIAL CONSTRUCTION MULTIPLIER

Economists and policymakers have had a longstanding interest in economic multipliers because they highlight how activity in one industry ripples through the broader economy. Economic activity in industries with high multipliers has relatively large spillovers into other industries, making larger contributions to GDP and jobs. Industries with relatively low multipliers engage fewer other industries in producing output, and have less impact on GDP and jobs.

Given the increasing commentary around how output in residential construction affects the broader economy, we thought it timely to update the analysis using the most recent data. The ABS attempts to quantify the supply and use of products in the Australian economy with input–output tables.

The tables are produced annually and present a comprehensive picture of the supply and use of all products in the economy, and the income generated from production at the detailed industry level. They provide a more detailed disaggregation of GDP than is available in the ABS national accounts.

This paper uses the most recent available ABS data to estimate multipliers; that is, the 2017–18 input–output tables¹. The ABS released these tables at the end of May 2020. For consistency, this paper also uses ABS employment data at the sub-industry level for the same year. This allows for estimates of the direct impact of output from residential construction, and its direct and indirect impacts on other industries.

When the industry produces output, it has two broad economic impacts: on production and consumption.

The production impact can be broken up into sub-components, which the ABS estimates in its input–output tables:

- **Initial impact**
The initial output of the industry to kickstart production is included in the calculations. All production effects are presented in the tables, based on \$1 million of output by the industry.

1 Australian Bureau of Statistics, Australian National Accounts: Input–Output Tables, 2017–18, cat. no. 5209.0.55.001, ABS.

- **First-round industry impacts**

When the residential construction industry produces its notional \$1 million of output, it directly engages suppliers of goods and services used in building homes.

For example, subcontractors (construction services), structural steel fabricators (structural metal product manufacturing), engineers, architects and town planners (professional services). This has an impact on the output of the relevant supplier industries and is known as first-round effects for the residential construction industry.

- **Industrial support impacts (second-round effects)**

The industries directly affected by residential construction also engage other industries, such as manufacturing, raw materials and transport, in producing its output. These are 'second-round effects' for the residential construction industry.

- **The consumption effect**

This is the subsequent inducement provided by the extra income and employment from the output of the residential construction industry. It includes consumption by wage and salary earners across all first- and second-round industries and consumption by wage and salary earners in the residential construction industry.

In estimating the multipliers for residential building construction, we adopted a similar approach to that of the Department of Industry, Science, Energy and Resources, and the ABS in relation to the broader construction industry².

We estimate the multiplier for residential construction is around 2.9 (Figure 1).

The first-round and industrial production components (multiplier of 1.5) account for around 50 per cent of the total, with direct output accounting for 35 per cent and the remaining 15 per cent attributed to consumer spending.

It's also important to assess the **relative** strength of multipliers (Figure 2).

The data shows that the residential building construction industry has the second largest multiplier of the 114 industries that make up the economy behind basic non-ferrous metal manufacturing.

Non-residential building and some parts of manufacturing also have relatively large multipliers. This compares with industries such as primary and secondary school education services, defence and library services, which have relatively low multipliers. These multipliers differ from those in Figure 1 because they are calculated on industry production only and don't include the consumption multiplier.

Figure 1: Residential building construction - multiplier components

Multiplier	Initial	First Round	Industrial (Second Round)	Production	Consumer	Total
	(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6) = (1) + (4) + (5)
Output (\$m)	1.0	0.723	0.769	1.492	0.43	2.9
Employment (No.)	3	2	2	5 ³	1	9

Source: ABS Cat 5209. FY18 estimates. Direct allocation of imports method.

² Article in ABS cat. no. 1301–2002, with a contribution by the Department of Industry, Science, Energy and Resources' Industry Information Unit, Business Competitiveness Division.

³ Total production doesn't add to individual parts, due to rounding.

A feature of the residential construction industry is that it is labour intensive. To calculate the impact on the labour market for every \$1 million of output from residential construction, we used the ABS's quarterly industry employment data. We used the 2017–18 employment data so that it is consistent with the most recent input–output tables. Employment in the industry averaged around 106,100 in FY17 and 117,700 in FY18. Industry output increased from \$75.6 billion in FY17 to \$79.1 billion in FY18. The remaining final demand consisted of wages and salaries, company profits, taxes and imports.

We estimate that \$1 million of residential building construction output supports nine jobs across the economy (on average).⁴

Around three jobs are directly supported in the residential construction industry for this output, while another five jobs are supported via the production of other industries servicing the residential construction industry.

A further one job is supported by the income generated by all industries engaged in the production process because this income is spent on consumer goods and services. Of the total of nine jobs, around four can be considered 'on-site' jobs (for example, site managers and subcontractors), while the remaining five can be considered 'off-site' (for example, people who supply materials and other off-site services).

The employment impact on construction services such as plumbing, electrical, bricklaying and carpentry is almost four times that of any other industry leveraged to the residential construction industry. But the analysis shows that several other industry sub-sectors are also leveraged to residential construction, including manufacturing and transport services (Figure 3).

To see how this residential construction multiplier translates into impacts on the broader labour market, we calculated the number of jobs that could be supported for each newly constructed median dwelling across the country.

Figure 2: Top 10 industries with the largest production multipliers

Industry	Multiplier
Basic non-ferrous metal manufacturing	2.53
Residential building construction	2.49
Non-residential building construction	2.48
Meat and meat product manufacturing	2.48
Dairy product manufacturing	2.46
Grain mill and cereal product manufacturing	2.45
Electricity generation	2.36
Tanned leather, dressed fur and leather product manufacturing	2.35
Oils and fats manufacturing	2.29
Iron and steel manufacturing	2.28

Source: ABS cat. no. 5209. FY18 estimates. Total requirement coefficients (direct allocation of imports method).

⁴ While our analysis shows that \$1 million of output in residential construction supports \$2.9 million in output and nine jobs across the economy (on average), it doesn't follow that adding an extra \$1 million of spending on residential construction creates nine jobs or an extra \$2.9 million in output. This is because production multipliers are calculated on an average (not marginal) basis.

The average cost of building a home in Australia is around \$320,000, which would support three jobs (on average) across the economy.

For each build, around 45 per cent of jobs created can be considered 'on-site' jobs, while the remaining 55 per cent can be considered 'off-site' jobs.

Of course, there are some limitations when interpreting input-output multipliers (see the Appendix). These include a debate about the extent to which the multiplier effect of industry activity varies across the economic cycle. For instance, increasing demand in a time of full employment is likely to have an inflationary effect without significantly increasing economic output.

This paper has selected output and employment data from 2017–18, when capacity across the Australian economy was not overly stretched and inflationary pressures were very modest.

The multiplier we have calculated is therefore likely to be a reasonable estimate of any residential construction industry linkages over the next two to three years, when capacity is also not likely to be stretched.

Recent Australian data shows substantial job losses have already occurred in the construction industry following the onset of COVID-19. Recent ABS payroll data showed that employment fell by 5.8% between 14 March and 30 May 2020⁵.

The National Australia Bank's *Monthly Business Survey* showed a small bounce in confidence in April, and confidence increased again in May, but it remains near its lowest level since the series began in 1997. Additionally, residential construction firms surveyed as part of the Reserve Bank of Australia's business liaison program indicated that new business had sharply declined in recent months.

Figure 3: Top 10 industries leveraged to residential building construction output

Industry	Multiplier
Construction services	0.44
Professional, scientific and technical services	0.12
Wholesale trade	0.06
Other wood product manufacturing	0.05
Structural metal product manufacturing	0.05
Non-residential property operators and real estate services	0.04
Road transport	0.04
Finance	0.04
Employment, travel agency and other administrative services	0.04
Auxiliary finance and insurance services	0.03

Source: ABS Cat 5209. FY18 estimates. Total requirement coefficients (Direct allocation of imports method).

5 Australian Bureau of Statistics, *Weekly Payroll Jobs and Wages in Australia*, Week ending 30 May 2020, cat. no. 6160.0.55.001, ABS.

CONCLUSION

The paper demonstrates that residential construction output supports more activity across the economy than nearly every other industry because it has so many substantial links with other industries.

Based on our analysis using the latest ABS data, residential construction plays a vital role in supporting jobs both on and off building sites.

APPENDIX

As part of its input–output analysis, the ABS discusses a number of limitations of using input–output tables to gain reliable estimates of economic activity. These should be taken into account when interpreting the calculation of multipliers:

- **Lack of supply–side constraints**
The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply-side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to depend on the extent to which the economy is operating at or near capacity.
- **Fixed prices**
Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding-out effects are not captured.
- **Fixed ratios for intermediate inputs and production**
Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed

to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount.

- **No allowance for purchasers' marginal responses to change**
Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
- **Absence of budget constraints**
Assessments of economic impacts using multipliers that consider consumption-induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
- **Not applicable for small regions**
Multipliers that have been calculated from the national input–output table are not appropriate for use in economic impact analysis of projects in small regions. For small regions, multipliers tend to be smaller than national multipliers since their inter-industry linkages are normally relatively shallow. Inter-industry linkages tend to be shallow in small regions since they usually don't have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.



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