Research on housing as an enabler of economic growth and productivity

RESEARCH ON HOUSING AS AN ENABLER OF ECONOMIC GROWTH AND PRODUCTIVITY			
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INFORMATION FOR MINISTER	
Hon Chris Bishop **Minister of Housing, Resource Management Act Reform and Infrastructure**	**Note** the contents of the following aide-memoire.

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MINISTER'S OFFICE TO COMPLETE	
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Background and Purpose

1. You are planning to put in place a comprehensive set of supply-side reforms intended to significantly increase housing supply, improve housing affordability, increase living standards, and address interlinked infrastructure issues.

2. You asked "*Treasury/HUD to pull together the best and most up to date research on how abundant housing and solving our housing crisis would help the broader economy, particularly from a productivity point of view.*"

Executive Summary

3. New Zealand has a productivity and a housing affordability problem. Much of the economic evidence has similar conclusions; that abundant, well-functioning housing systems can have positive effects on economic growth and productivity. The estimated size of the effects differs significantly, is highly contingent on local circumstances, and on how the change in housing is achieved. We have provided detail of some of these key issues in the *Summary of Current Research* section of this paper.

4. Research shows that housing and productivity are connected through several pathways. The most studied ones, which this note explores, are: how workers are distributed across jobs and locations (labour allocation), the benefits that come from people and businesses clustering together (agglomeration economies), the skills and knowledge of the workforce (human capital), and how resources are invested in various projects and assets (capital allocation).

5. Modelling by Nunns 2021 estimates that in New Zealand, if all supply constraints were able to be removed, this might increase output per worker by up to 1.6%, increase the amount of workers moving from Australia towards high productivity New Zealand's regions by up to 7.2%, and increase GDP by up to 8.4%.

6. Broader research (mostly focussed on overseas examples) suggests that allowing cities to freely grow improves overall productivity, but there is disagreement on the size of the impact. The likely impact in New Zealand is not fully researched but is likely to be comparatively smaller than US studies. This is due to the smaller productivity gap between Auckland and the rest of New Zealand and because New Zealand has less of the highly productive industries found in more diverse economies.

7. The costs of infrastructure constraints also reduce the benefits of growth. Supply reform, especially when done in conjunction with broader reform, that provides enough affordable housing in the right places can improve wages and economic output.

8. Auckland is more productive than the rest of New Zealand and enabling Auckland's growth is likely to have the biggest impact on productivity. However, the difference in productivity between Auckland and the regions (the productivity gap) is smaller than the difference in productivity that for example, big US cities have between them. Both enabling housing supply and improving the supply and renewal of transport and other infrastructure are important to increasing Auckland's productivity.

9. In New Zealand, as well in cities, the benefits that come from people and businesses clustering together also occur in the regions around specific industries. These industries would benefit from better availability of housing.

10. People's skills, knowledge and experience (human capital), which affects their productivity, can be significantly improved through the influence of housing conditions, housing costs, and accessibility to employment centres.

11. Urban land prices are too high. Removing constraints on land supply would reduce speculative investment, some of which could be redirected into more conventional investment in firms, equipment, projects and people. Also, more of the productivity benefits of work and entrepreneurship would go to workers and firms rather than be extracted by urban landowners, enhancing incentives for productivity.

12. The construction sector is critical in providing productivity improvements through housing. Inefficient consenting processes are one example of inefficiencies that hinder productivity, making adoption of innovative designs, methods, and technologies more difficult.

13. Research on removing constraints on land supply and good infrastructure provision show these would bring wider economic benefits, including reduced costs of congestion and improved public amenities and services.

14. Our brief is to focus on the role of supply-side solutions (eg using land for housing). We do not focus here on demand side issues, but the most important, such as the role of taxation in driving up land values, is mentioned in this paper as crucial demand side factors that would have an impact on productivity.

15. In summary, housing and productivity are highly connected. Whilst housing reform alone is not sufficient to transform New Zealand's productivity the joint actions needed to fix the housing crisis – if done well – would make meaningful improvements to productivity and economic growth. Further New Zealand specific research would help better quantify those gains, including estimates of the combined effect of the different categories of impact detailed in this paper.

Summary of Current Research

16. It is commonly known New Zealand has a productivity challenge (McCann, 2009). We consider a broad definition of productivity as 'more outputs from less inputs', including distributional effects (MacIennan et al, 2021).

17. This paper summarises research on;

    a. Efficient allocation of labour resources (i.e. people can locate where they perform best)

    b. Agglomeration economies (positive benefits of cities and regional industry-specific clusters)

    c. Increasing human capital

    d. Wider benefits of supply reform

    e. Impact on capital allocation (eg less investment distortions away from productive firms and assets)

Impact on Labour Allocation (a)

18. Urban population and employment growth are very closely related to, if not central to, the housing sector (Vermeulen and Ommeren 2009, Glaeser 2008, Baum-Snow 2023). International research has recently attempted to calculate potential productivity gains of removing restrictions on growth based on 'spatial equilibrium' approaches. That is when households and firms relocate between cities freely, changing prices and wages, until they are indifferent to where they live and work.

19. Hsieh and Moretti (2019) calculated that relaxing land use restrictions on three large US cities to the level of the median city would have raised US GDP in 2009 by 3.7 per cent, translating to an additional $3,685 in average annual earnings. This paper is still being digested by experts, with some authors rerunning the analysis with significantly different findings. We have noticed subsequent literature quotes different key findings, suggesting results are being updated over time. We suggest it is too early to quote this paper's findings with confidence.

20. Glaeser and Gyourko (2018) estimate up to 2% of US GDP losses from housing restrictions. They note several difficulties with any such analysis including the impacts on migration of lowering prices in origin cities and missing any benefits from 'good housekeeping' zoning restrictions.

21. Ganong and Shoag (2017) finds similar qualitative results to Hsieh and Moretti, noting restrictive housing supply deters low-skill migration to cities that are more productive.

22. Duranton and Puga (2023) found a scenario where seven particularly restricted large US cities were able to build as much as high growth cities eventually produced aggregate output increases of 7.95% and aggregate consumption by 2.16% [and] weakens pressure on other housing markets".

23. Applying these approaches to NZ rather than US metros would likely find much more subdued results for two reasons.

    - There is large variation in productivity across US metro areas, compared to modest productivity variation across New Zealand's (Donovan et al 2022).
    - The USA's 262+ metropolitan housing markets are considerably more varied than New Zealand's. Earlier Treasury analysis (advancing on Glaeser and Gyourko 2018) found the urban US population split evenly between the 50% of cheap USA metros with low or no population growth, the 30% that were affordable and fast-growing metros, and the 20% that were expensive. In contrast NZ cities are all generally expensive regardless of metro area or population growth rates. Coleman and Zheng (2020) found an increase in NZ house prices on average has a small negative effect on worker mobility, after accounting for local productive amenities.

24. In the NZ context Nunns (2021) estimates different modelled scenarios of removing housing supply restrictions. The most 'aspirational' scenario imagines all regulatory constraints on housing supply can be eliminated across all locations and workers are perfectly mobile (have no desire to stay in one place and will move for work over anything else). In this scenario the direct contribution to overall productivity would be: output per worker, which is a proxy for labour productivity, about 1.1% to 1.6% higher; the NZ labour force would become 3.3% to 7.2% larger (depending on frictions for

people relocating between NZ and Australia); and total economic output (GDP) would increase between 5.0% to 8.4%.

25. In summary, we think these within and across-city spatial equilibrium approaches are powerful and potentially insightful. A New Zealand specific research programme would help analysis of policy impacts and forecasts of housing market and domestic and international migration in the New Zealand context.

Impact on Agglomeration Economies (b)

26. Agglomeration economies occur when people are more productive through proximity to others. They are the catchall explanation for why cities can be so productive and why so many people flock to urban areas despite higher housing costs (Glaeser 2008).

27. The city-specific aspects of agglomeration economies are uncertain, but could include knowledge spillovers/learning, input sharing, and labour market pooling/matching (Glaeser 2008, Duranton and Puga 2004). These may occur within firms, local industries, or entire cities. Determining their cause is challenging due to correlations, reverse causality issues, and mulitiplier issues. Views conflict as to whether larger and denser cities are more productive (Glaeser 2008) or that population density may be caused by people moving to more productive places (Cheshire, Nathan, and Overman 2014).

28. For New Zealand, the best recent estimates of productivity advantages from concentrating economic activity (agglomeration elasticities) at the city level are Donovan et al 2022. They find an average elasticity of about 0.05 for NZ cities *for production* since 2006. This means a 1% increase in population size/density raises output per hour by 0.05%. A doubling of a city's population might increase output by 3.5%.[1] These advantages have reduced since the 1980s and 1990s, probably because of urban congestion (e.g. traffic, crime, pollution etc, Donovan et al 2024) meaning those issues must be addressed simultaneous to gain larger benefits from growing cities.

29. Because of the large role of primary industries in the economy agglomeration can also happen around specific regional industries. There are many examples of how elaboration in one industry can increase productivity and transform the social, cultural and economic activity and spaces of the people that live in the region (Mackay and Perkins, 2019). Additionally, the growth of productive industries in regional New Zealand has been limited by the lack of appropriate housing. One example is the viticulture industry in Marlborough which cites the lack of housing as a challenge to increasing their labour force (Marlborough regional workforce plan, 2022).

The role of Auckland

30. Auckland, NZ's largest metropolitan area by some way, has about the same agglomeration elasticity of 0.04 as other major NZ cities (Maré and Graham 2009; Coleman and Zheng 2020; Donovan et al 2022). But its overall size gives it a productivity gain of about 5%–8% over other major NZ metros. Our preliminary calculations suggest

[1] NZTA Waka Kotahi's formula for calculating benefits of increased agglomeration is $\left(\frac{Effective\ density\ (after)}{Effective\ density\ (before)}\right)^{Elasticity} minus\ one$. So a doubling of agglomeration is $2^{0.05} - 1 \approx 0.035$.

a marginal increase in population, say 100,000, from more housing supply would be more productivity enhancing if it occurred in Auckland.

Table 1 Auckland productivity premium from its scale

	Auckland	Hamilton	Tauranga	Wellington	Christchurch
Population 2022	1,695,200	329,300	218,000	492,500	536,500
Auckland larger by a factor of:	1.0	5.1	7.8	3.4	3.2
Auckland output premium (if its agglomeration elasticity is 0.04)	0.0%	6.8%	8.6%	5.1%	4.7%

31. Given Australia's major metros of Sydney and Melbourne are about three times the size of Auckland, then the lack of urban agglomeration might explain about a third of the 20% productivity gap with Australia, not all of which could realistically be closed via supply reform.

Impact on Human Capital (c)

32. Better and more affordable homes and neighbourhoods foster higher levels of human capital with significant wellbeing and productivity effects. An extensive 2021 Australian international review on the effects of housing on productivity (McIennan, Long et al, 2021) found housing impacts productivity as:

- Poor physical housing conditions, especially in childhood and teenage years, are strongly associated with diminution of and underutilisation of lifetime human capital.
- High burdens of housing costs, especially for lower income households and renters, may divert household spending from efficient sectors to 'rentier' incomes and diminish the capabilities to enhance human capital.

33. In New Zealand, excessive house and urban land prices lead renters and recent home buyers to work longer and harder to pay the higher economic rent. NZ has a relatively high labour force participation rate, underpinning its high growth in hours worked (Galt 2023), and decisions to forgo having families (Liu and Clark, 2017).

Wider Benefits of Supply Reform (d)

34. How well broader development effects are managed (MRCagney 2019, Litman 2015) as well as how public goods, services and amenities are provided to the community (Anas 2011, Gordan and Richardson 2011, PCE 2023) can have productivity gains alongside those more directly obtained from housing supply.

35. Improving the way housing supply meets the needs of growing demand can also benefit various aspects of the community. This includes enhancing the resilience and service levels of infrastructure, responding better to major damage events, and improving local goods and services. By, for example, upgrading underperforming wastewater networks, the natural environment, public health and overall quality of life can be significantly improved.

36. Poor transport infrastructure worsens housing supply issues (Te Waihanga 2022). Taking steps to improve transport can lead to productivity gains by lowering transport costs for households, allowing businesses to choose locations more freely and increasing well being and human capital benefits from larger, less crowded homes

(NZIER 2014, Greenaway-McGrevy and Allan 2023). NZIER (2017) estimated that not addressing Auckland congestion issues cost over $1 billion per annum, or over 1% of regional GDP – a number that has likely increased with population growth.

37. Since the construction industry contributes a large share to the whole economy, poor productivity growth in this industry can act as an overall drag. Neri (2010) attributed part of the increase in real house prices to slower technological progress in the US construction sector.

38. In New Zealand, although the construction sector has matched the economy overall for productivity growth since the late 2000s, inefficient consenting processes are correlated with slower construction productivity growth, potentially through making the adoption of new designs, methods and technologies more difficult (Nunns, 2022).

Impacts on Capital Allocation (e)

39. New Zealand's total value of the housing stock is currently about $1.6 trillion (RBNZ), which is about four multiples of GDP. In contrast it was about two multiples of GDP over the 1990s. Urban land prices are inflated (Te Waihanga 2023; Knoll et al 2017; Nunns 2021; Productivity Commission 2015). Reducing house prices could have some negative productivity impacts as house price inflation and equity encourage entrepreneurship (Corradin, Popov 2013). The more dominant impact of a supply-side reduction in house prices is less investment in urban land speculation, and more investment in firms, capital, infrastructure, and people (Ryan-Collins et al 2017; Doucet 2022; Coleman 2019).

40. If systems don't function well and displace resources or power from the majority of the people, they are called extractive. These type of malfunctioning systems and institutions can be one of the reasons economic development and progress can stall and decline in many countries (Acemoglu and Robinson 2013). Parker (2021) found that if urban land becomes increasingly uncompetitive over coming decades, then productivity benefits can be expected to be directly extracted by landowners through land speculation and house rent escalation (leading to higher land and house prices).

41. Although outside the scope of this paper Coleman (2017) argues that tax policy settings distort investment by making owning one's own home substantially more attractive to save for retirement than formal retirement investment schemes that would invest in productive endeavours.

Annexes

Annex A: References

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