

Reference: 20150281

27 August 2015



Thank you for your Official Information Act request, received on 10 July 2015. You requested the following:

*all documents relating to each of the following policy options:*

*Interest levy,  
Partial deduction disallowance,  
Auckland investment levy*

*Referred to in this document: Treasury Report T2015/844: Housing Options*  
<http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3170499.pdf>

On 16 July following discussion with a Treasury official, you agreed to refine your request to the following:

*“all advice and modelling relating to each of the following policy options:*

*Interest levy,  
Partial deduction disallowance,  
Auckland investment levy*

*Referred to in this document: Treasury Report T2015/844: Housing Options*  
<http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3170499.pdf>

On 24 July I sought an extension of 20 working days. A response to your request is due by 4 September 2015.

## **Information Being Released**

Please find enclosed the following documents:

<b>Item</b>	<b>Date</b>	<b>Document Description</b>	<b>Decision</b>
1.	22 April 2015	Email: Modelling Request with attachment: Partial Deduction Disallowance Model	Release in part
2.	22 April 2015	Email: Indicative Calculations on Policy Options for Auckland Housing with attachment: Indicative Calculations on Policy Options for Auckland Housing	Release in part
3.	28 April 2015	Email: Modelling Request	Release in part

I have decided to release the relevant parts of the documents listed above.

### Information Publicly Available

The following information is also covered by your request and is publicly available on the Treasury website:

Item	Date	Document Description	Website Address
4.	24 April 2015	Treasury Report: Housing Options	<a href="http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3170499.pdf">http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3170499.pdf</a>
5.	30 April 2015	OIA20150174, item 6: Costings for Housing Measures	<a href="http://www.treasury.govt.nz/downloads/pdfs/oia/oia-20150174.pdf">http://www.treasury.govt.nz/downloads/pdfs/oia/oia-20150174.pdf</a>
6.	1 May 2015	Tax Policy Report: Additional Information on Housing Options	<a href="http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3176146.pdf">http://www.treasury.govt.nz/downloads/pdfs/b15-info/b15-3176146.pdf</a>

Accordingly, I have refused your request for the documents listed in the above table under section 18(d) of the Official Information Act – the information requested is or will soon be publicly available.

Some relevant information has been removed from documents listed in the above table and should continue to be withheld under the Official Information Act, on the grounds described in the documents.

In making my decision, I have considered the public interest considerations in section 9(1) of the Official Information Act.

Please note that this letter (with your personal details removed) and enclosed documents may be published on the Treasury website.

This fully covers the information you requested. You have the right to ask the Ombudsman to investigate and review my decision.

Yours sincerely

Suzy Morrissey  
Team Leader, Tax Strategy

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**From:** David Hargreaves [David.Hargreaves@rbnz.govt.nz]  
**Sent:** Wednesday, 22 April 2015 4:00 p.m.  
**To:** Tracy Mears [TSY]; Chris Bloor; Phil Whittington [TSY]  
**Subject:** RE: Modelling request  
**Attachments:** tax2015.xlsx

Spreadsheet as promised...

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**From:** David Hargreaves  
**Sent:** Wednesday, 22 April 2015 3:49 p.m.  
**To:** 'Tracy Mears [TSY]'; Chris Bloor; Phil Whittington [TSY]  
**Subject:** RE: Modelling request

Hi Tracy

We found an issue with our modelling of option 2 (we forgot rent was taxable. When you recalibrate based on that to make the model explain current rental yields, the model is more sensitive to changes to tax rates). Because the impacts end up looking bigger, we felt switching to a 50% deductability assumption in scenario 2 made more sense. We will double check this again but for now the text below should work. I'll send you the spreadsheet we used to generate the second number too once it is checked and documented better!

Cheers  
David

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**From:** Tracy Mears [TSY] [<mailto:Tracy.Mears@treasury.govt.nz>]  
**Sent:** Wednesday, 22 April 2015 2:07 p.m.  
**To:** David Hargreaves; Chris Bloor; Phil Whittington [TSY]  
**Subject:** RE: Modelling request

How about this as a summary?

### *Market impacts*

In general, in the short term, such a levy would **reduce demand** by leveraged investors for residential rental property by increasing the holding costs. This is likely to both reduce competition for properties for sale and may increase the supply of housing assets for sale. Overall we would expect a reduction in house price inflation.

The size of effect will depend on the exact design choices made and particularly the size of levy. Modelling has been done on two options:

- 1 2% levy on all borrowing applied temporarily (say for 3 years) with exemption for borrowing against new builds
- 2 Permanent disallowing 50% of interest deductions.

Using a simple discounted rent model, a 70 percent geared investor facing option 1 would expect a 4 percent decline in the value of the rental investment. Option 2 for a 70 percent geared investor would result in a 17 per cent reduction in the expected value of the investment.

These are not estimates of the size of the impact on the market price given that there are other types of buyers in the market. If you pro rata the effect according to the proportion of sales to leveraged investors (around 28%), the impact on the market price could be around 1 percent for option 1 and around 5 percent for option 2. However, this could be an under-estimate of the shorter-term impacts, given that geared investors are often likely to be the marginal buyer in the market.

**Tracy Mears** | Principal Advisor | **The Treasury**  
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**From:** David Hargreaves [<mailto:David.Hargreaves@rbnz.govt.nz>]  
**Sent:** Tuesday, 21 April 2015 5:06 p.m.  
**To:** Chris Bloor; Tracy Mears [TSY]; Phil Whittington [TSY]  
**Subject:** RE: Modelling request

Hi all

Phil – here is the analysis we’ve done on the levy idea. Will share your draft with Chris and revert with any comments. Cheers

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**From:** Chris Bloor  
**Sent:** Tuesday, 21 April 2015 4:42 p.m.  
**To:** 'Tracy.Mears@treasury.govt.nz'  
**Cc:** David Hargreaves  
**Subject:** RE: Modelling request

Hi Tracey,

We’ve had a rough go at quantifying the effect of removing tax deductibility, or imposing a 2% investor mortgage levy, using a discounted rent model. It’s a bit rough, but hopefully indicative of the kinds of magnitudes of effects we could be looking at.

This paper by Dominick Stephens at Westpac used a similar model to measure the impact of various tax changes <http://www.westpac.co.nz/assets/Business/Economic-Updates/2012/Bulletins-2012/Taxandhouseprices.pdf>. He didn’t specifically look at removing interest tax deductibility, but he was getting similar impacts to the 19 percent below for a range of other tax changes.

Let me know if you have any questions.

Cheers,  
Chris

Policy 1: Permanently disallow interest deductions on residential investment property. 5 year exemption (say) for new builds.

Policy 2: 2% tax levied on borrowings where the borrowing is used (is being deducted against) investment property, levied temporarily (say for 3 years). Exempt borrowing against new builds.

Policy 1 could have a substantial impact on the price at which heavily geared investors are willing to transact. A good starting point is a fundamental value model of housing using the discounted present value of rents. Under constant interest rate and growth assumptions, a simple version of this can be expressed as:

$$\text{House prices} = \frac{\text{Rent}}{r - \pi + c - g}$$

Where  $r$  is the interest rate,  $P$  is the tax rate,  $c$  is costs including depreciation and  $g$  is the expected growth rate of rent.

The denominator of this equation is equal to the rental yield, and is likely to be in the vicinity of 3-4 percent in Auckland currently (assume 3.5 percent). An interest rate of 6 percent, tax rate of 30 percent, costs and depreciation of 3 percent and expected rental growth of 3.7 percent are reasonable parameters to justify current rental yields.

For a 70 percent geared investor, completely removing tax deductibility increases the post-tax interest rate by 1.26 percentage points, increasing the required rental yield to 5.26 percent. With unchanged rents, this would lower the price at which this investor would be willing to transact by 19 percent. The impact on a 100% geared investor (using equity in family home as collateral) would be even larger. However, these models probably overestimate the impact of policy changes to some degree (e.g. some investors are probably not this forward looking, and some investors may have built the risk of tax changes into their bidding already).

19% is likely to be a substantial overestimate of the actual effect that the policy would have on prevailing prices, given that it will only affect a portion of owners and potential owners. One simple assumption would be to scale the effect by the proportion of sales that are transacted by leveraged investors, around 28 percent in Auckland currently, giving an impact of 5.3 percent. This may be an underestimate of shorter term impacts, given that geared investors are often likely to be the marginal buyer in the market.

Policy 2 can be modelled in much the same way as policy 1, except that the discount rate is only impacted for three years. With a 2 percent levy for three years, the value to a 70 percent leveraged investor would decline by about 4 percent. The overall impact could be around 1.1 percent, using the same assumptions as above. This illustrates the value of the policy being seen as being applied indefinitely (or perhaps until the affordability issues in Auckland are resolved).

A policy applied to Auckland would probably have a somewhat smaller effect on Auckland (given the ability of some investors to reallocate borrowing away from Auckland) and little effect on the rest of the country.

[Information not relevant to Request]

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Text from Hargreaves 2008 (see link below, used to generate first calibration)

<http://www.victoria.ac.nz/sapl/centres-and-institutes/cagtr/twg/publications/5-the-tax-system-and-housing-demand-in-newzealand-reservebank.pdf>

A numerical example of all 4 potential owners of a home follows. If A=10,000, i=8%, r=7.2%, f=2% and g=4%, t=39%, and t<sub>c</sub>=33% we have the following valuations:

$$\text{100\% mortgaged landlord value } V = \frac{A(1-t)}{(i+f)(1-t)-g} = 290,000$$

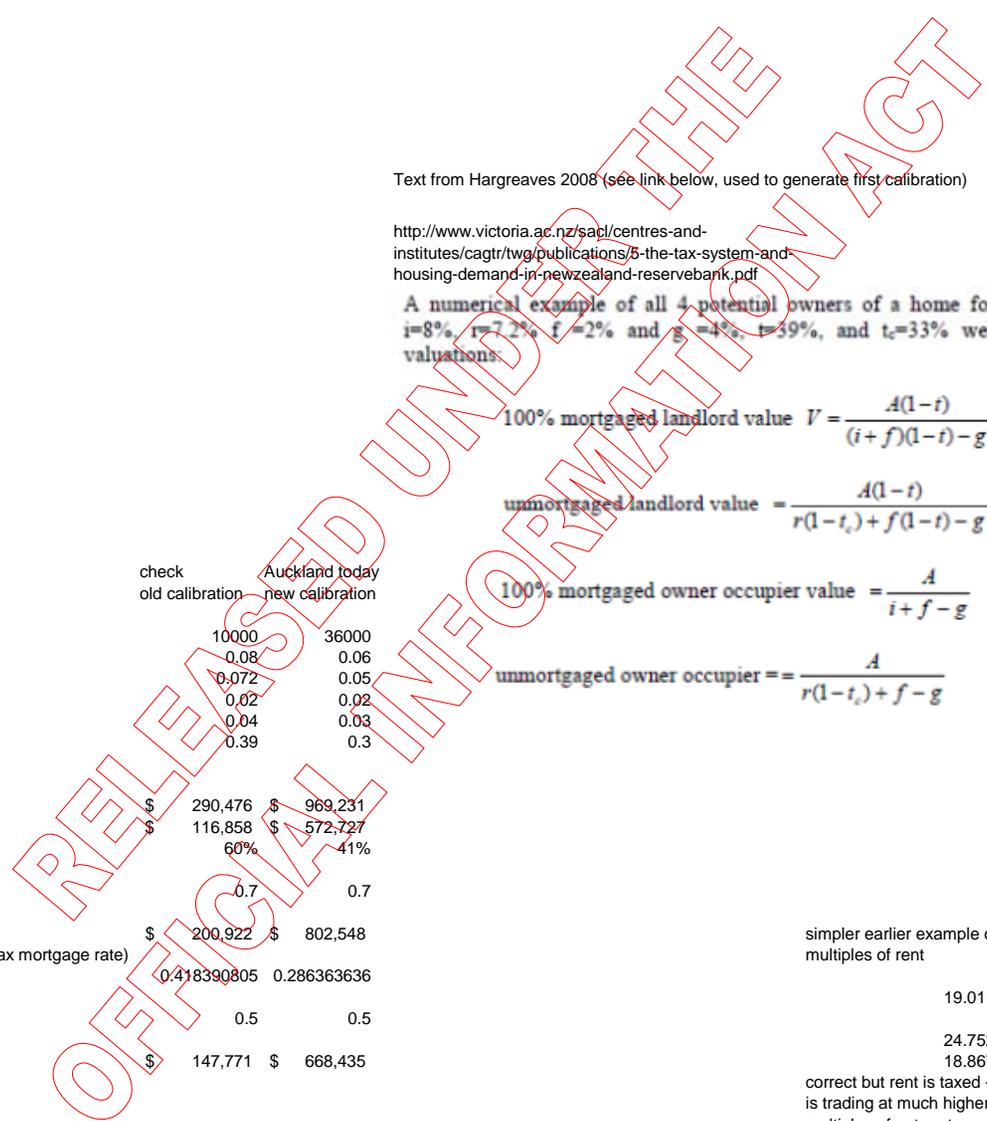
$$\text{unmortgaged landlord value} = \frac{A(1-t)}{r(1-t_c)+f(1-t)-g} = 298,000$$

$$\text{100\% mortgaged owner occupier value} = \frac{A}{i+f-g} = 167,000$$

$$\text{unmortgaged owner occupier} = \frac{A}{r(1-t_c)+f-g} = 354,000$$

	check old calibration	Auckland today new calibration
A	10000	36000
i	0.08	0.06
r	0.072	0.05
f	0.02	0.02
g	0.04	0.03
t	0.39	0.3
value to 100% mortgaged investor	\$ 290,476	\$ 969,231
value if no interest deduction	\$ 116,858	\$ 572,727
decline	60%	41%
assumed investor leverage	0.7	0.7
value with full deduction	\$ 200,922	\$ 802,548
(here we are assuming investor cost of funds = before tax mortgage rate)		
decline in value if no interest deduction	0.418390805	0.286363636
assumed proportion of interest deduction allowed	0.5	0.5
house value	\$ 147,771	\$ 668,435
decline from disallowing proportion of interest deductability	0.264534884	0.167108753
pro rate impact if 28% of buyers are geared investors	7.4%	4.7%
memo (pre tax changes, 100% mortgaged)		
gross rental yield	0.03442623	0.037142857
net rental yield		0.026

simpler earlier example of 70% gearing (ignore multiples of rent  
 25  
 19.01140684  
 24.75247525  
 18.86792453  
 correct but rent is taxed - stuff is trading at much higher multiples of net rent



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**From:** Martin Fukac [TSY]  
**Sent:** Wednesday, 22 April 2015 2:35 p.m.  
**To:** Phil Whittington [TSY]  
**Cc:** Tracy Mears [TSY]  
**Subject:** Some indicative calculations for Options 1-3  
**Attachments:** Assessing\_policy\_options\_for\_AKL\_housing\_market.doc

[SEEMAIL][SENSITIVE]

Phil

Attached are a few thoughts on the expected quantitative impacts. The calculations are only indicative. I don't use any sophisticated method to get them.

Please have a look what you think. No worries if you don't find it helpful.

If you have any comments/questions/ideas please let me know.

Martin

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## IN-CONFIDENCE

The Ministers are considering various options for slowing down housing market activity in the Auckland metropolitan area. All options look at the investor segment of the market.

**This note summarizes back-of –the-envelope calculations** of the potential impact on house price growth that can be expected assuming government policy is successful in completely discouraging investor demand for housing. It further discusses calibrations of the policy options. All estimates should be treated as indicative only.

**Policies aiming at investors are affecting less than half of the market demand in Auckland, with the impact on medium-term house price growth potentially ranging between 0 and 3.2 percentage points.**

Investors create about 40% of housing demand in the Auckland area, with about 25% of the purchases financed by cash and the rest financed by secured or unsecured borrowing. Hence the considered policy options can potentially affect between 30 to 40% of the total house sales in Auckland.

If government can successfully discourage investor driven demand without affecting the rest of the market, medium-term house price growth in Auckland may potentially be slower by 2.4 or 3.2 percentage points. It is 30 to 40% percent of the average 8% growth rate observed over the last five years. Similarly, house price growth could potentially have been between 9 and 10.5%, instead of 15% in 2014.

The calculations assume that by eliminating investor demand there will be less price competition for home buyers. By taking some of the heat off the market all other things remain unchanged. In particular (i) there is no or minimal housing supply response to higher house prices; stock of housing is fixed in the Auckland area over a five-year period; (ii) the inflow and outflow of houses (listings and sales) remain unchanged; (iii) investor demand won't be replaced by new home buyers' demand.

If the assumptions don't hold, the actual impacts would likely be lower than the ones indicated. The impact can be expected to be lower in particular if housing supply (new construction or sales) declines in response to weaker demand, offsetting some of the downward price pressures in the region.

**Capital gains lead among incentives to invest in Auckland.**

Using a simple cost of capital methodology, we calculate that returns exceed costs of property investment (see Table 1 below)<sup>1</sup>. Over the past five years the annual investment costs averaged around 2% of the initial nominal investment. On the other hand the rental yield averaged 4% over the same period. In 2014, the difference was even starker. The positive gap incentivises investment. Looking at the individual factors for the gap, we see the capital gains as a key factor making the property investment attractive.

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<sup>1</sup> The cost of capital approach compares the costs and benefits of property investment. It looks at the costs of capital (as percent of initial investment) that makes investors indifferent between investing in housing or other classes of assets.

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**Table 1: Indicative Costs and Returns of Housing Investment**  
(percent of house purchase price)

	Cost of Capital						Rental income(*)	
	(1)	(2)	(3)	(4)	(5)	(6)		
	Foregone equity return	Risk premium	Maintenance costs/Depreciation	Local rates	House price growth (capital gain)	Recurrent investor levy	Total costs (1)+(2)+(3)+(4)-(5)+(6)	
<i>Actual</i>								
2009-2014	3	4	2.5	0.5	8	<i>n.a.</i>	2	4
2014	4	4	2.5	0.5	15	<i>n.a.</i>	-4	4
<i>Counterfactual with recurrent investor levy</i>								
2009-2014	3	4	2.5	0.5	8	2	4	4
2009-2014	3	4	2.5	0.5	5.6	0.4**	4.8	4
2014	4	4	2.5	0.5	15	8	4	4
2014	4	4	2.5	0.5	9	0.4**	2.4	4

**Source:** RBNZ, CoreLogic, REINZ, MBIE, own calculations

**Note:** Calculations are based on the cost of capital approach. (\* Rental income is approximated by the synthetic rental yield, comparing the median price to median rent. By the nature of the data, the synthetic yield tends to understate the actual rent income. For simplicity we further assume that the rental yield is an after-tax yield. (\*\* 0.5bps levy applies to 80% of loan (assuming 80% loan-to-value ratio).)

**The policy option 2 has the biggest potential to achieve the above impact as it includes investor (borrower) levy that is recurrent.**

What is the policy intervention that would make the investors indifferent between investing in housing or in any other kind of assets? Using the data in Table 1, we see that a recurrent investor levy of 2% would make the average costs and returns equal over the past five years, making the property investment a less attractive option (Table 1, counterfactual). In 2014, such a recurrent levy would have had to be 8% to help offset the capital gains of 15%. That assumes that the levy would not have any negative impact on observed house price growth.

The methodology highlights the importance of the recurrence of the levy. If it was only a one-off payment, its marginal effect on investor demand would diminish over time.

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Investors would tend to hold on their properties longer and let the capital gains to gradually offset this additional cost.

The policy option 2 has the potential to be effective in taking investor demand off the market as it gets the closest to the recurrent levy out of all three options. But we have to be aware that the option 2 will affect only the investor *borrower*, which is only about 75% of the total investor demand.

Will a 50bps levy be sufficient to curb the investor borrower demand? The calibration of this policy is very delicate. The actual impact will depend on the demand price elasticity – how sensitive house prices are with respect to the levy. The 50bps levy may be sufficient if it eliminates investor borrower from the market completely. Using the numbers above, house price growth would be 5.6% as opposed to the five-year average of 8% (2.4 percentage points lower). That would bring the cost of capital to 4.8% and make property investment unattractive.

The 50bps levy may not be enough curbing investor demand and thus the total net impact on house price growth may be lower. Using the 2014 data, the house price growth would slow down to 9% (Table 1, last row). Capital costs would significantly increase (relative to the no-levy scenario), but the costs still would be lower than the rental yield. It still would be attractive for some to borrow and invest. The levy can be even less effective if the actual rental return was higher or if rents growth accelerated.

[Information not relevant to Request]

[Pages 1 & 2 not relevant to request]

[Information not relevant to Request]

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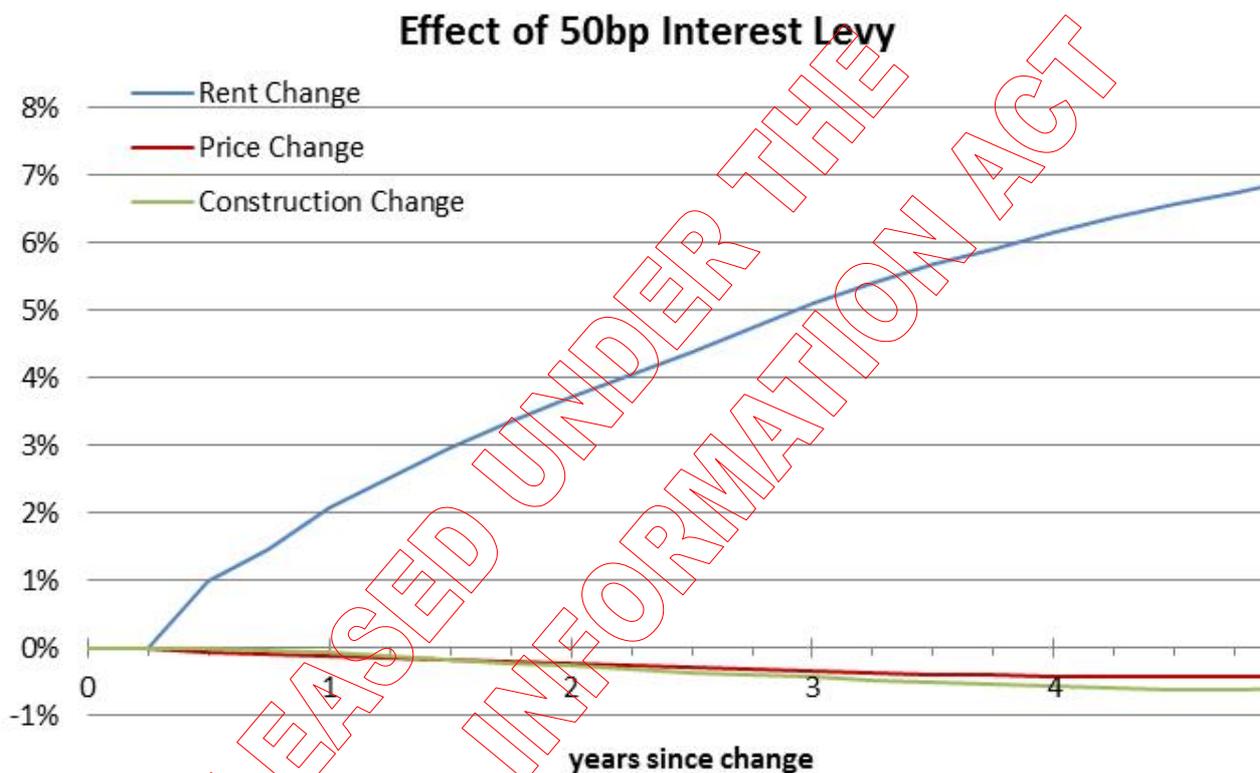
**From:** Warwick Terry [<mailto:Warwick.Terry@mbie.govt.nz>]  
**Sent:** Wednesday, 22 April 2015 3:54 p.m.  
**To:** Phil Whittington [TSY]  
**Cc:** Tracy Mears [TSY]; James Kerr; Andre Anderson; Bryan Field; Chris Bunny  
**Subject:** RE: Modelling request [SENSITIVE]

Phil

James has completed the modelling work agreed. The results:

Policy 2: Interest levy

*Caveat:* The regional housing model cannot distinguish between borrowing by investors vs home owners. The model assumes a 50bps levy on interest paid by all Auckland housing borrowers (investor + owner). While this isn't the proposed scenario, the model dynamics seem to us to point to broadly similar effects for owner-occupier of investment properties:



Results: 5 years after the application of the levy:

- Rent change: +6.9%
- House price change: -0.4%
- Dwelling construction change (volume): -0.6%

i.e. model shows that the primary effect is on rents, not prices.

[Information not relevant to Request]