

Nga Tangata  
Oho Mairangi



# Homeownership and Labour Market Flexibility: New Spatial-Econometric Evidence for New Zealand

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Pathways

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# Introduction

- In this paper we:
  - Outline what the 'Oswald hypothesis' is;
  - Briefly discuss the macro & micro evidence for it;
  - Present the results of our estimation of a model using a range of non-spatial and spatial estimators;
  - Draw some conclusions about what support our findings provide for the 'Oswald hypothesis';
  - Provide some ideas for future directions in this literature.

# The Oswald Hypothesis

- In several papers Andrew Oswald (1996, 1999) has advanced the view that there is a causal relationship between dwelling tenure and unemployment.
- Oswald found that *higher* rates of homeownership were associated with *higher* rates of unemployment, with an elasticity of 0.2 – i.e. a difference of 10 percentage points in the rate of home ownership is associated with a 2 percentage point difference in unemployment rates.
- Oswald's primary explanation for this relationship is that homeowners face higher transaction costs than renters when they consider a move to a new location to accept a job offer.
- If Oswald is correct, the increase in homeownership in many countries during the second half of the 20<sup>th</sup> century may have led to a significant increase in structural unemployment.
- Recently, Blanchflower and Oswald (2013) estimate the long-run elasticity to be even larger: greater than unity!

# Causes of the Oswald Effect

- Recent view: even though homeowners are generally less unemployed than renters, the housing market generates *negative externalities* for the labour market:
  - Transaction costs incurred when buying and/or selling real estate;
  - High levels of home ownership segment urban labour markets: renters do not have access to jobs in predominantly owner-occupied areas;
  - Owners resist development of land for non-residential purposes in their neighbourhood;
  - Owners often need to commute further: this increases reservation wages and may increase unemployment.

# The Macro Evidence

- Early macro studies provided some support for Oswald's hypothesis:
  - Partridge & Rickman, 1997: US State data
  - Pehkonen, 1999: Finnish regional data
  - Nickel & Layard, 1999: OECD country data
- Later macro studies, however, were less favourable:
  - Green and Hendershott, 2001: US data
  - Flatau et al., 2002, 2003: Australian data
- New Zealand research:
  - Maré and Timmins, 2004: no support for the Oswald hypothesis.
  - Cochrane and Poot, 2007: NZ data up to 2001 – hypothesis confirmed

# How Important are Buying and Selling Transaction Costs?

<i>Country</i>	<b>Total Cost</b>		<b>Buyer Range</b>		<b>Seller Range</b>	
	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
Australia	3.80	21.15	1.80	9.35	2.00	11.80
Belgium	13.90	22.10	10.90	18.10	3.00	4.00
Canada	4.68	11.42	1.00	3.00	3.68	8.42
Denmark	1.31	3.04	0.81	1.04	0.50	2.00
France	11.06	19.35	8.67	13.37	2.39	5.98
Germany	7.88	12.64	6.09	9.07	1.79	3.57
Greece	11.39	19.01	10.14	16.01	1.25	3.00
Ireland	2.56	15.42	2.56	15.42	0.00	0.00
Italy	10.00	22.10	7.60	18.50	2.40	3.60
Korea	20.57	21.22	20.57	21.22	0.00	0.00
Netherlands	10.52	13.74	9.33	11.36	1.19	2.38
New Zealand	4.25	5.74	0.21	0.74	4.04	5.00
Spain	10.66	14.24	8.16	11.24	2.50	3.00
UK	2.89	14.41	0.54	5.15	2.35	9.26
US	7.56	11.20	1.05	2.20	6.51	9.00

# The Micro Evidence

- Extensive review by Rouwendal and Nijkamp (2010);
- Owner-occupiers are more reluctant to accept jobs outside their local labour market than others;
- While most micro data based studies have confirmed the relative immobility of owner occupiers, they have almost all rejected the Oswald thesis' general applicability;
- The negative effect of immobility on the labour market outcomes of owner occupiers is offset by positive selection and greater search intensity;
- This has to some extent been confirmed by studies such as Munch et al. (2005) that have found that the group with the lowest mobility has the shortest unemployment duration.

# The Data

- Data provided by Motu Economic and Public Policy Research
- Covers census years 1986,1991,1996,2001 & 2006
- Variables used:

<i>unempr</i>	% unemployment rate
<i>home_ownership</i>	% owner-occupier dwellings
<i>single_household</i>	% single person households
<i>older_population</i>	proportion of population aged 40 and over
<i>maori</i>	proportion Maori
<i>asian</i>	proportion Asian
<i>manual</i>	proportion in manual occupation
<i>net_migration</i>	net migration as % of end of period population
<i>pred_employ.</i>	Bartik index (predicted employment growth on the basis of industry structure in labour market area)



# Labour market areas (LMA)

- Based on travel to work data (representative commuting flows)
- Outcomes at LMA level are better linked to local labour market adjustment than administrative boundaries
- LMAs partition the country: weighted aggregates are national statistics
- In order to link LMA employment data with other local characteristics, the number of LMAs must remain manageable
- Newell & Papps: 140 (1991), down to 58 for 1986-2006 analysis

# Model specification

- OLS with spatial diagnostics
- Fixed effects (FE) or random effects (RE) panel model
- Spatial lag model
- Spatial error model
- Panel spatial lag model
- Panel spatial error model
- All of the above with period fixed effects
- For all spatial models direct and indirect effects were calculated (LeSage & Pace, 2009)

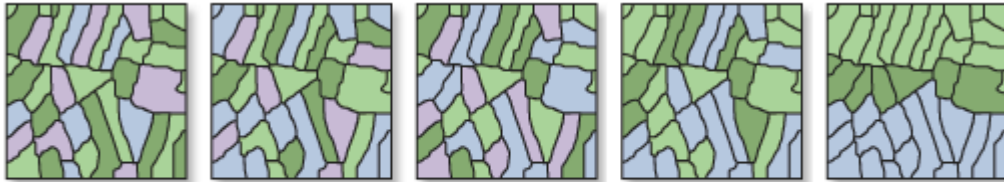
# Direct and Indirect Effects

- However an interpretation issue arises when spatial effects are addressed through the inclusion of spatially lagged variables in a model
- As LeSage and Pace (2009) point out, a marginal change in a single observation will not only affect the observation itself (direct effect), but also potentially influence all other observations in the sample (indirect effect),
- This implies that the marginal effect of a variable is no longer simply its coefficient

# Direct and Indirect Spatial Effects

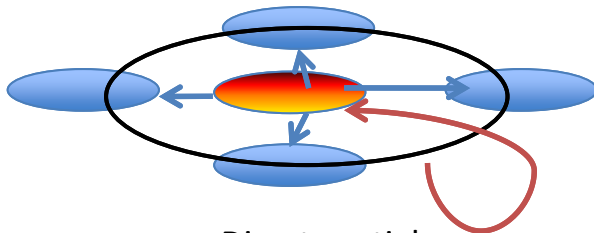
Low spatial correlation

High spatial correlation

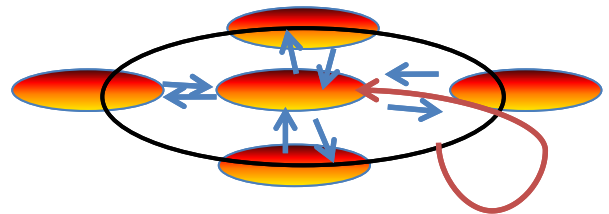


Dispersed

Clustered



Direct spatial effect



Indirect spatial effect

# Results – OLS (robust vce with spatial diagnostics)

Nobs	232					
F( 8, 223)	83.120					
Prob > F	0.000					
R-squared	0.765					
Root MSE	1.656					
	<b>Coef.</b>	<b>Robust std error</b>	<b>t</b>	<b>P&gt; t </b>	<b>[95% Conf. Interval]</b>	
home_ownership	0.379	0.027	14.280	0.000	0.327	0.431
singe_household	0.130	0.072	1.810	0.072	-0.012	0.271
older_population	-0.337	0.042	-8.030	0.000	-0.419	-0.254
māori	0.203	0.013	15.340	0.000	0.177	0.229
asian	0.289	0.039	7.430	0.000	0.212	0.365
manual	-0.317	0.069	-4.590	0.000	-0.453	-0.181
net_migration	0.063	0.015	4.110	0.000	0.033	0.093
predicted_employment	-0.146	0.017	-8.520	0.000	-0.180	-0.112
_cons	-7.974	1.834	-4.350	0.000	-11.588	-4.361
<b>Test</b>	<b>Statistic</b>	<b>df</b>	<b>p-value</b>			
Moran's I	3.25	1	0.001	← Indicates spatial auto correlation in residuals of OLS		
<b>Spatial error</b>						
Lagrange multiplier	7.45	1	0.010			
Robust Lagrange multiplier	1.37	1	0.240			
<b>Spatial lag</b>						
Lagrange multiplier	20.66	1	0.000			
Robust Lagrange multiplier	14.58	1	0.000			

# Preferred Model – Spatial Panel (SAR with LMA FE)

Number of obs	232
Variance ratio	0.969
Squared corr.	0.971
Sigma	0.570
Log likelihood	-203.138

	Coef.	Robust std error	t	P> t	[95% Conf. Interval]	
home_ownership	0.172	0.030	5.720	0.000	0.113	0.231
singe_household	-0.049	0.070	-0.700	0.482	-0.185	0.087
older_population	-0.233	0.050	-4.690	0.000	-0.330	-0.136
māori	0.027	0.039	0.680	0.496	-0.050	0.103
asian	0.098	0.044	2.220	0.026	0.012	0.184
manual	0.065	0.051	1.290	0.195	-0.034	0.165
net_migration	0.010	0.007	1.310	0.189	-0.005	0.024
predicted_employment	-0.049	0.011	-4.440	0.000	-0.071	-0.027
_cons	0.291	2.508	0.120	0.908	-4.625	5.206
rho	0.374	0.078	4.810	0.000	0.221	0.526

Wald test of rho=0: chi2(1)      23.11      0.000

Lagrange multiplier test rho=0: chi2(1)      20.47      0.000

Acceptable range for rho:  $-1.229 < \rho < 1.000$

# Direct and Indirect Effects - Interpretation

**Average Total Effect = Average Direct Effect + Average Indirect Effect**

**Average Direct Effect** => If a region's homeownership rate changes, what will be the average impact on unemployment in that region? This measure will take into account feedback effects that arise from the change in the  $i$ th region's homeownership on unemployment in neighbouring regions

**Average Indirect Effect** => This effect measures the impact of change in homeownership in all other regions on unemployment in an individual region, averaged over all regions.

**Average Total Effect** => If all regions home ownership changes by  $x$ , what will be the average total impact on unemployment in the typical region? Or what is the total cumulative impact arising from a change in homeownership in one region on unemployment in other regions (on average) (LeSage, 2008)

## Direct and Indirect Effects – Spatial Panel (SAR with LMA FE)

		Coef.	Robust std error	t	P> t	[95% Conf. Interval]	
Direct	home_ownership	0.178	0.031	5.680	0.000	0.115	0.241
	singe_household	-0.045	0.091	-0.500	0.621	-0.228	0.137
	older_population	-0.242	0.058	-4.140	0.000	-0.359	-0.124
	māori	0.025	0.051	0.490	0.624	-0.077	0.128
	asian	0.111	0.054	2.030	0.047	0.001	0.220
	manual	0.083	0.062	1.350	0.183	-0.041	0.207
	net_migration	0.010	0.010	0.960	0.340	-0.011	0.030
	predicted_employment	-0.049	0.008	-5.940	0.000	-0.066	-0.033
Indirect	home_ownership	0.102	0.033	3.140	0.003	0.037	0.168
	singe_household	-0.024	0.055	-0.430	0.666	-0.135	0.087
	older_population	-0.136	0.041	-3.310	0.002	-0.219	-0.053
	māori	0.013	0.028	0.460	0.650	-0.044	0.070
	asian	0.066	0.041	1.590	0.119	-0.018	0.149
	manual	0.049	0.040	1.210	0.233	-0.033	0.130
	net_migration	0.005	0.005	0.980	0.332	-0.005	0.016
	predicted_employment	-0.028	0.006	-4.340	0.000	-0.041	-0.015
Total	home_ownership	0.280	0.054	5.200	0.000	0.172	0.389
	singe_household	-0.069	0.145	-0.480	0.635	-0.360	0.222
	older_population	-0.378	0.084	-4.480	0.000	-0.548	-0.208
	māori	0.038	0.079	0.490	0.630	-0.120	0.197
	asian	0.176	0.092	1.910	0.062	-0.009	0.362
	manual	0.132	0.100	1.330	0.190	-0.068	0.332
	net_migration	0.015	0.015	0.980	0.331	-0.016	0.046
	predicted_employment	-0.077	0.011	-7.170	0.000	-0.099	-0.056



# Conclusion

- The decline in home ownership in NZ may have contributed to the drop in the long-term rate of unemployment before the Global Financial Crisis;
- The effect is somewhat larger than what Oswald originally found: an increase in homeownership of 10 percentage points would lead to an increase in the unemployment rate of about 2.8 percent points (around 1.8 percent points due to direct and 1 percent point due to indirect effects);
- Conversely, at face value this would suggest that the decline in home ownership from 74% in 1986 to 65% by 2006 had a downward effect on the unemployment rate of 2.5 percent points ;
- Although the decline in homeownership appears to have increased labour market flexibility, broader social and economic issues have been ignored. This research does not suggest that renting is desirable as a policy goal (see also Roskrige et al. 2013 in Urban Studies).

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