Twenty years of econometric research on trans-Tasman migration

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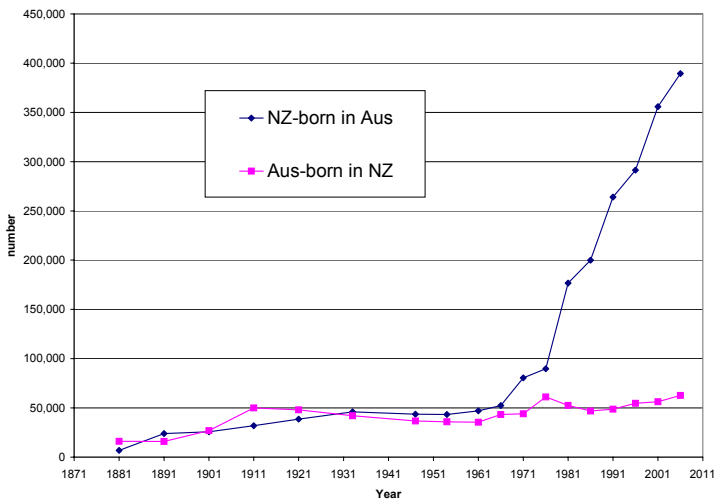
Background

- Trans-Tasman Travel Agreement (TTTA): NZ and Australian citizens may freely live and work in each other's country
- Trans-Tasman migration became a concern in the late 1970s when net migration to Australia became "noticeable" for the first time
- Initial research was primarily descriptive (census data, arrival and departure cards data)
  - Feb 1980 report edited by Ian Pool
- First regression models: DoL (1979), Pope (1985), Brosnan and Poot (1987)
- Electronic "tracking" of international movements of immigrants in Aus & NZ since 1990s now permits micro-level analysis of longitudinal mobility data

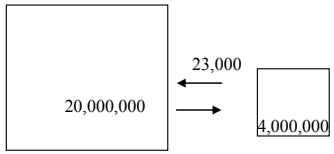
A very long-term perspective: New Zealanders in Australia and Australians in New Zealand 1881-2006



Can the gravity model explain what has been going on?

- "Almost the same proportion of people living in Australia was born in New Zealand (1.9%) as people living in New Zealand was born in Australia (1.5%).... Being about seven times as large, the Australian economy should be able to attract seven Kiwis for each Aussie attracted to our shores.....Although we lose slightly more people than our gravitational theory should suggest... (Andrew Whiteford, *Waikato Times*, Saturday, October 27, 2007)
- But the gravity theory would suggest that:
  - net migration is zero (it is a theory of equilibrium)
  - because Australia's population is five times New Zealand's, the % of Kiwis in Oz should be one fifth of the % of Aussies in NZ!

The gravity model and the labour market



the **probability** of a Kiwi finding a job in Aus is $c \times P_{AUS}$

and the **probability** of an Aussie finding a job in NZ is $c \times P_{NZ}$

so the **number** of Kiwis migrating is $c \times P_{AUS} \times P_{NZ}$

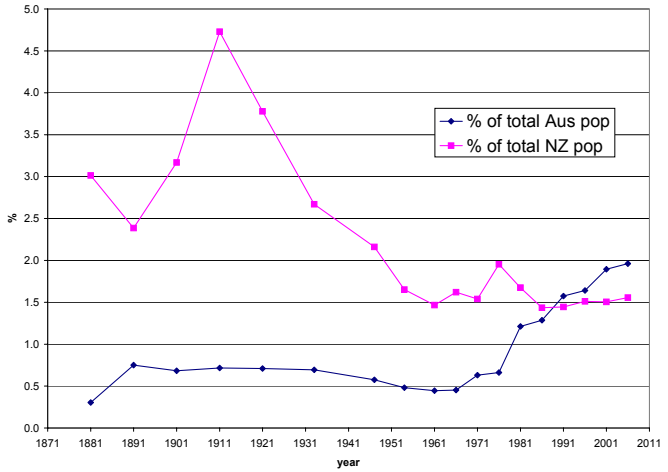
and the **number** of Aussies migrating is $c \times P_{NZ} \times P_{AUS}$, **i.e. the same!**

The following gravity model is actually more theoretically plausible (% of foreign born are then no longer scale dependent):

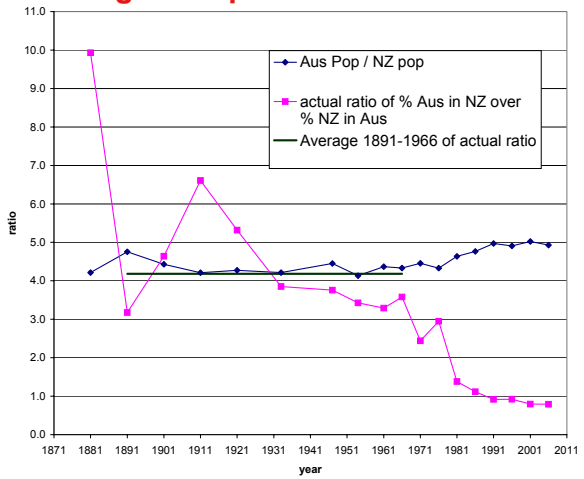
$$M_{AUSNZ} = M_{NZAUS} = 0.0026\sqrt{P_{AUS}P_{NZ}}$$

For the 20th century, the trans-Tasman gravity constant was **increasing** but on average about 0.0026 (and a sharp drop around 1991); the "equilibrium" flow each way would be about 23,000 at present.

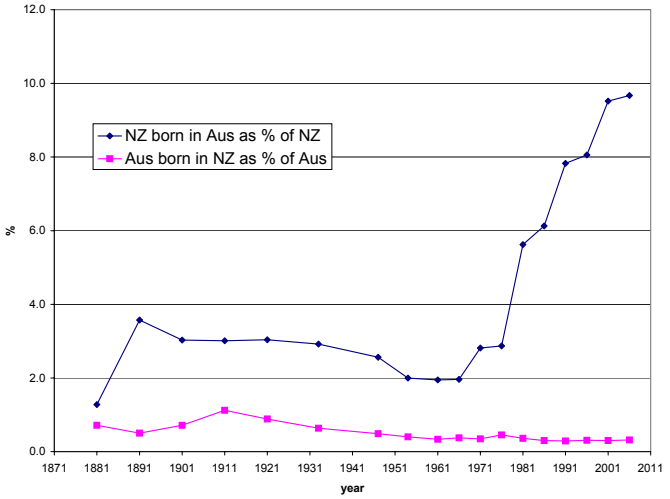
So let's look at the actual % Kiwis in Australia and Australians in NZ,1881-2006



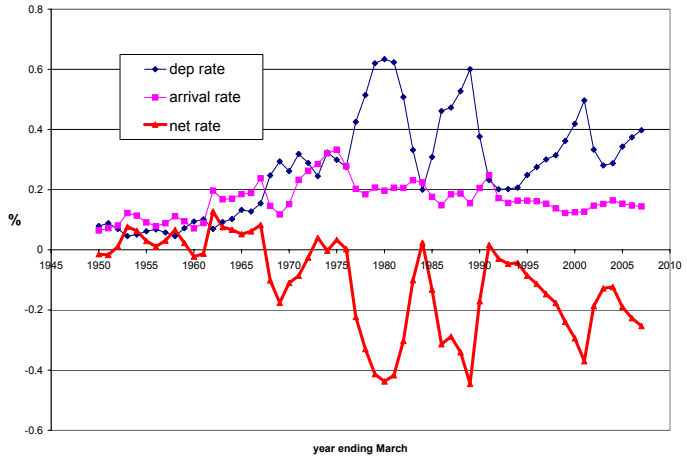
The gravity model explained trans-Tasman migration well until 1967, but migration has been moving away from "long run equilibrium" since then



Trans-Tasman migration relative to source country population, 1881-2006



In, out and net (into Aus) trans-Tasman migration rates 1950-2007



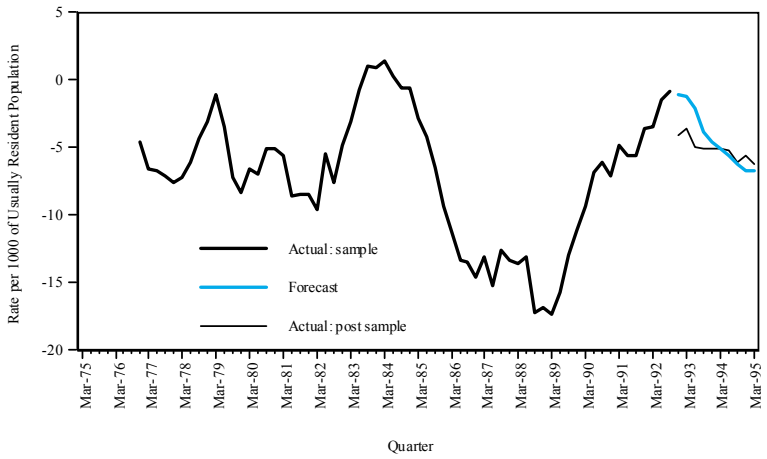
Econometric explanations for "divergence" and "volatility"

- article in *The Economic Record*, 1987 (1953-1985 data) (with Peter Brosnan)
  - mobility increased because
    - real travel costs declined to a third of those in the 1950s
    - youthful "baby boom" populations
  - real earnings grew on average faster in Australia, but the difference fluctuated
  - employment growth was faster in Australia, but the difference fluctuated (and impacted by e.g. "NZ reforms")
  - "waves" led to "counter waves"
  - unemployment rates are relatively unimportant to migrants
- These results remained robust with adding another five years of observations (in: Gordon Carmichael (ed), 1993)

Is it possible to forecast the short-run fluctuations in net trans-Tasman migration? (with Susi Gorbey and Doug James, *International Regional Science Review*, 1999)

- Due to "category switching" and "third country" migration, net TTM is hard to measure
- Needs data from both countries, which is cumbersome to compare and update
- Strong seasonality in the flows
- Methodology of (Bayesian) VAR model is not very user-friendly
- Nonetheless, the "wave effect" (e.g. 12 months OE); the Australia/NZ real GDP growth differential and the Australian labour market (measured by unemployment growth) were useful in forecasting quarterly net TTM

Net (into NZ) trans-Tasman migration (moving four quarter sum) rates, 4th quarter 1976 until 1st quarter 1995



Is trans-Tasman migration a kind of internal migration to the faster growing states of Australasia?

- Motu research (Arthur Grimes, 2005): "NZ is relatively poor, but medium growing region" (of Australasia)
- Sydney is 3200 km from Perth and 2200 km from Auckland
- Real GDP per capita growth pa 1990-2003: NZ 1.6%; higher in NSW (2.0%), QLD (2.2%), VIC (1.9%) and WA (2.2%); lower in SA (1.5%) and Tas (1.2%)
- Aggregate employment growth in NZ was negatively affected by job shedding during the restructuring years; but even since the mid-1990s not faster than in Aus
- NZ sectoral structure has bigger share of agriculture, forestry & fishing & related processing; less in e.g. investment sectors and business and financial services
- All this is consistent with net migration to Australia

Net internal migration in Australasia
(with Tom Wilson and Phil Rees, forthcoming)

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	
Employed									
1976-1981	-4,446	-22,237	30,843	-12,336	4,820	-3,309	5,549	1,116	
1981-1986	-27,700	-11,336	29,116	-6,488	5,932	-3,247	6,335	7,388	
1986-1991	-32,060	-15,264	44,930	-7,252	6,566	-3,147	1,736	4,491	
1991-1996	-19,650	-39,434	62,679	-15,081	10,452	-5,393	4,823	1,604	
1996-2001	-19,487	9,780	27,898	-10,629	1,551	-10,885	1,619	153	
Unemployed									
1976-1981	-1,530	-3,701	5,121	20	927	-31	-442	-364	
1981-1986	-4,932	-6,401	10,957	-429	1,904	-61	-380	-658	
1986-1991	-11,424	-4,747	14,519	1,072	1,501	334	-1,066	-189	
1991-1996	-7,644	-6,222	14,791	19	761	-355	-1,059	-291	
1996-2001	-5,480	-426	7,977	154	-121	-427	-1,128	-549	
Not in labour force									
1976-1981	-12,437	-17,889	29,345	-528	3,074	-752	-1,220	407	
1981-1986	-15,561	-15,192	29,333	-741	4,793	913	-1,913	-1,632	
1986-1991	-28,961	-15,964	39,757	1,392	4,056	2,257	-2,842	305	
1991-1996	-18,831	-15,569	35,200	-26	2,553	492	-3,269	-550	
1996-2001	-21,481	-2,136	28,438	826	269	89	-4,110	-1,895	
Total									NZ : NZ born
1976-1981	-18,413	-43,827	65,309	-12,844	8,821	-4,092	3,887	1,159	-86,922
1981-1986	-48,193	-32,929	69,406	-7,658	12,629	-2,395	4,042	5,098	-23,186
1986-1991	-72,445	-35,975	99,206	-4,788	12,123	-556	-2,172	4,607	-64,195
1991-1996	-46,125	-61,225	112,670	-15,088	13,766	-5,256	495	763	-27,294
1996-2001	-46,448	7,218	64,313	-9,649	1,699	-11,223	-3,619	-2,291	-64,377

What explains then migration between the States of Australasia? (*Australasian J of Regional Studies*, 1995)

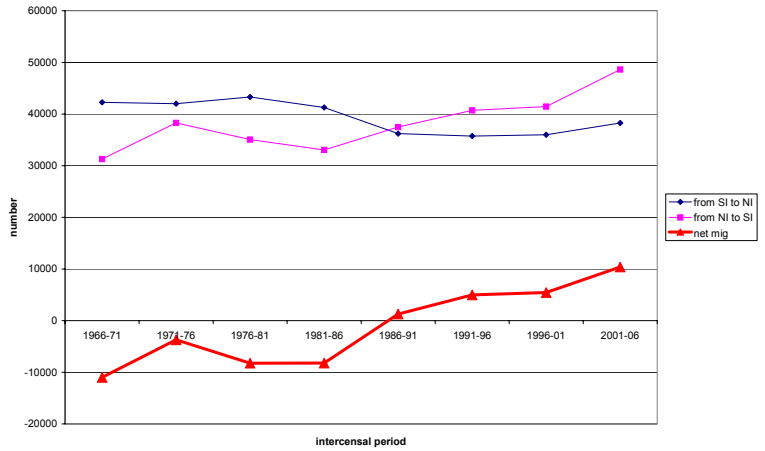
Using the 1981-86 gross flows matrix:

- expected real wage gain (controlled for cost of living differences)
- distance between regions, "gravity model"
- sea
- sending region "scale" (coefficient 0.4) and receiving region "scale" (coefficient 0.6), again "gravity model"
- employment growth in origin and destination regions
- unemployment rates have a counterintuitive effect
- elasticities of flows from/to NZ wrt determinants are significantly different, there are "border effects":
  - presence of "border effects" lowers migration
  - once a trans-Tasman move is undertaken, distance is less important than for within- Australia migration

Would further economic integration reduce or increase trans-Tasman net migration to Australia?

- There are two stories: "convergence" and "divergence"
- With convergence, net migration will become less, even though gross migration may increase
- In the neoclassical world, trade or factor mobility helps convergence in highly integrated regions
- A CGE model of Australia and NZ (with Ganesh Nana, *Studies in Regional Science*, 1996) predicted exactly what the neoclassical convergence model would suggest, following greater Australasian integration and greater trade with ROW:
  - Australasia would allocate more labour to NZ; i.e. net migration towards NZ
  - Australasia would allocate more capital and human capital (!) to Australia
- But "New economic geography" and "endogenous growth" theories predict further growth of (and net migration to) "cores" at the expense of the "peripheries": "death of distance" effects are offset by "agglomeration" effects (see also e.g. Peter Bushnell and Wai Kin Choy Treasury paper 01/07)

Compare with net "inter-Island" migration within NZ: the 20th century "drift north" eventually reversed (but evidence on convergence/divergence is mixed)



What about non-economic migration, e.g. retirement migration?

2001-06 relative growth in the population by age groups, Oceania born population resident in Australia
Source: 2001 and 2006 Australian census

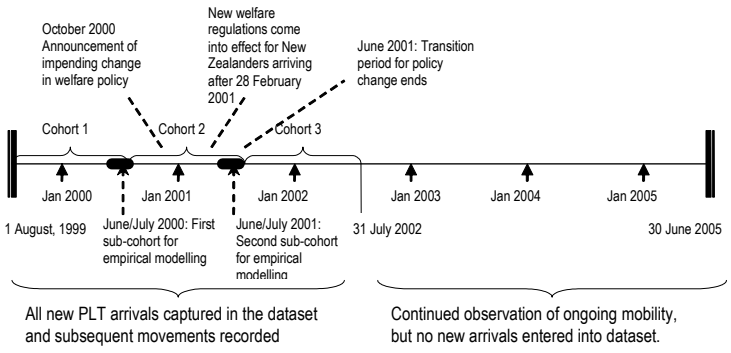
0-14	0.88
15-24	0.87
25-44	0.94
45-54	1.11
55-64	1.32
65-74	1.25
75+	1.09
total	1.00

Australian response: 2001 social security changes

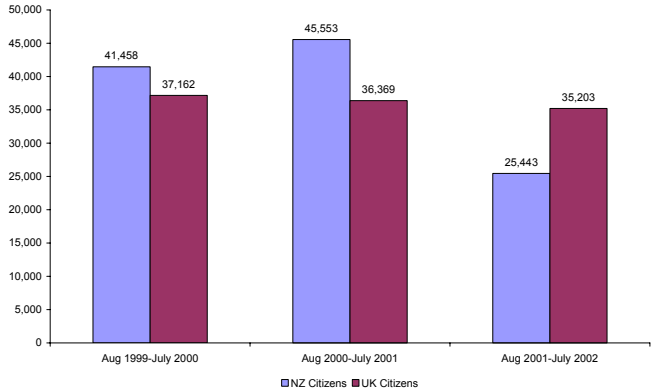
- Australia:
  - perceived fiscal burden
  - "backdoor entry" of immigrants from third countries
- New Zealand:
  - brain drain
  - unfilled vacancies in trades, nursing, etc.
  - net flow is big enough to affect aggregate demand
- Australian policy response (from June 2001) targeted at "Special Category Visa" New Zealand migrants:
  - removal of labour market related social security
  - no eligibility for Australian citizenship (*)
  - no eligibility of sponsored migration of family members (*)

  (*) applies only to non-"Protected Special Category Visa" holders
- So: was there any impact of policy changes on mobility behaviour of migrants?" (using UK migrants as control group)

Timeline of data collection, policy changes, and selection of samples
(with Lynda Sanderson, PSC DP 65, 2007)



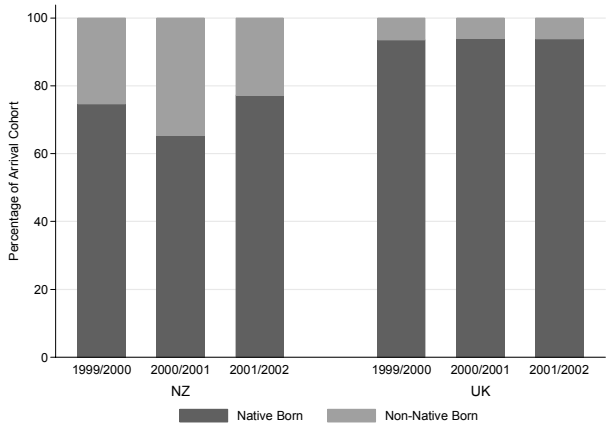
Size of arrival cohorts, by citizenship
(Total is 221,188 people and 1,272,531 border crossings)



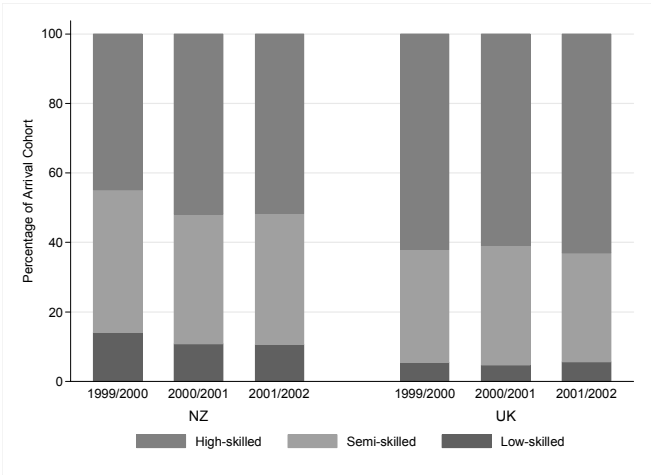
Two-month sub-samples, with defined occupation

	June/July 2000	June/July 2001
NZ Permanent Settlers	2,197	1,276
UK Permanent Settlers	550	561

Birthplace of new arrivals, by citizenship and entry cohort



Skill distribution of new arrivals, by citizenship and entry cohort



The impact of the 2001 social security changes: example of a "difference in differences" calculation

Population: young high-skilled female immigrants

	Percentage remaining in Australia		Share of total time actually in Australia		International trip frequency		Number of persons	
	NZ	UK	NZ	UK	NZ	UK	NZ	UK
A: "Before" Cohort	69.66%	64.86%	0.77	0.715	3.07	1.77	1,539	629
B: "After" Cohort	69.31%	70.17%	0.76	0.756	3.54	1.79	1,111	637
B−A	−0.35%	5.31%	−0.01	0.041	0.47	0.02		
NZ_{B-A} − UK_{B-A}	−5.66%		−0.051		0.45			

Migration generates subsequent trips visiting family back home (with Philip McCann and Lynda Sanderson, PSC DP, forthcoming)

Negative binomial model of number of visits

	NZ PLT migrant to Aus			UK PLT migrant to Aus		
Variable	Coef.		Std. Err.	Coef.		Std. Err.
Semi-skilled	-0.380	***	0.030	-0.018		0.079
Low-skilled	-0.443	***	0.046	-0.521	**	0.240
Age	-0.022	**	0.008	0.146	***	0.031
Age Squared/100	-0.026	**	0.013	-0.161	***	0.041
Non-native	-0.385	***	0.036	0.356	***	0.124
Female	0.382	***	0.028	0.372	***	0.069
Eastern State	0.457	***	0.048	0.097		0.083
Re-migrates again from Aus	0.416	***	0.035	-0.092		0.101
Intercept	-0.469	**	0.144	-5.431	***	0.565
Alpha	0.409	***	0.036	0.739	***	0.180
n	15,973			8,067		
Log pseudolikelihood	-12803.6			--2963.8		
$\chi 2(8)$	829.82			94.44		

Significance levels: * : 10% ** : 5% *** : 1%

Concluding remarks: Growing mobility and growing complexity

- The "new migration paradigm" is particularly relevant for trans-Tasman migration
- The international mobility of New Zealanders is high. This affects both gross migration and fluctuations in net migration
- As our nearest neighbour, more than half of the NZ population exchange is with Australia; there are 1.3 million NZ citizens arrivals in Aus per year
- Among permanent Kiwi settlers to Australia, one third re-migrates within three years
- However, NZ citizens in Aus, born outside NZ, are less likely to remigrate to NZ

The determinants of trans-Tasman migration

- Trans-Tasman migration is a "barometer" of demographic, economic and social changes but not a major cause of these changes:
- econometric models confirm all the 'classic' hypotheses
- 2001 policy changes in Australia had all the anticipated effects:
  - there is relatively less "back-door" migration
  - the likelihood of re-migration increased
  - "attachment" to Australia became less
  - frequency of international travel increased

Prospects for the future

- The stock of NZ born migrants and NZ citizens in Australia will continue to increase for some time to come
- The phenomenon remains more important to NZ than to Australia
- Long-run trend will depend on:
  - relative economic performance
  - extent of economic integration (including harmonisation of economic policy)
  - impact of Kiwi "diaspora"
  - continuation of TTTA
  - return migration of older New Zealanders?
  - global warming?

Future research

- A lot is known about determinants and composition of stocks and flows, but less about the impacts:
  - impact of population growth volatility on long-run investment uncertainty and levels in NZ
  - impact on future immigration policy (Immigrants replace New Zealanders leaving: between April 1978 and March 2007 there was a net outflow of 492,311 New Zealand citizens and a net inflow of 694,044 citizens from other countries)
  - impact on the NZ labour market (e.g. contribution to current “tight” conditions)
  - impact on the Australian labour market (consider substitution/complementarity effects of NZ migrants, other immigrants and the Australian born workers in the Australian labour market)
- Also consider:
  - further in-depth study of NZ citizens in Australia (Elsie Ho and Richard Bedford) using census data specifically on NZ family contexts
  - assessment of “return migration” hypothesis with new Australian data
- International mobility will be a dominant feature of globalisation research!