



**The Importance of Selectivity and
Duration-Dependent Heterogeneity
When Estimating the Impact of
Emigration on Incomes and
Poverty in Sending Areas:
Evidence from the Samoan Quota**

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Background/Motivation

- A priori unclear whether emigration raises income levels in source areas and lowers inequality and poverty
 - Household size and structure changes (fewer mouths to feed)
 - Some households receive more remittances
 - but lose labour for local employment or food production
- Case study of some impacts of emigration from Samoa to NZ through an immigration channel where a **random ballot** is used to select amongst excess applicants
 - Two main contributions
 - What are the impacts on income and poverty for the remaining family unit of the emigrants
 - How do these impacts change as time since migration increases
- Important element of regional economic development
 - 120,000 Samoans currently live in New Zealand
 - NZ\$15 mil out of \$250 mil budget for development assistance
 - More than one-third of GDP in Samoa is from remittances



Overall Impact of Migration on Sending Household is Ambiguous

- Increase in remittances
 - Income effect
 - May ease liquidity constraints
- Loss of mouth to feed
- Loss in earnings and home production
- Possible transfer of knowledge and attitudes
- Possible changes in household bargaining power
- Mental health impact of family separation
- Change in incentives to migrate in the future



Triple (or Quadruple) Selectivity problem

- Typical approach to studying household impacts is to compare households with migrants to those without
- Selection 1: Households decision of whether or not to have member migrate
- Selection 2: Among households engaging in migration, decision of whether or not to have whole household move
- Selection 3: Decision of which households return
- (Selection 4): Decision of households on the timing of when to migrate

Duration-Dependent Heterogeneity

- The impact of migration on sending households is likely to vary with the duration of migration
 - In the short-term:
 - Households lose the domestic income that the migrating members normally generated and perhaps have less assets to work with due to the costs of financing migration.
 - Migrants may take some time to start paying off their moving costs and to earn enough to start sending remittances
 - In the medium-term
 - Left behind household members adapt to their new circumstances and household composition changes
 - Remittances may either increase as migrants earn more or decay as migrant attachment declines with time away

Samoan Quota lottery allows us to overcome these selectivity issues

■ Samoan Quota (SQ)

- 18-45 year old Samoans can register to migrate to NZ
- Random ballot used to fill quota of 1100
- Ballot provides reason why some households have migrants and others do not.
 - < 6% chance of having name drawn in the ballot

■ Winning applicants can take spouse and dependent children 24 and under with them. Cannot take other household members.

- ⇒ This rule provides a way of knowing which household members would stay and which would leave.
- ⇒ We have also surveyed households in Samoa with return SQ migrants (which is quite uncommon)

SAMOA

SOUTH PACIFIC OCEAN



Background

- History of Samoan Migration to NZ:
 - Started with temporary workers in 1960s and 1970s, some of whom overstayed
 - New Zealand had administered Samoa from 1920-62, making the citizenship status of Samoans uncertain
 - British Privy Council ruled in 1982 that all Samoans born between 1924 and 1948 were NZ citizens
 - NZ responded by restricting citizenship to only lawful residents of New Zealand
 - However, as compensation a “Samoan Quota” was agreed to allow a specified number of Samoans to be granted New Zealand permanent residence annually

Process

- One month a year period during which principal applicant can lodge a free application
- Many more applications than quota allows, so computer used to randomly select among them.
- Then notified if successful, and have 6 months to fill out application for permanent residency
 - At this step must show evidence of valid job offer in NZ.
 - This can be for any full-time job (eg there is no selection process from the New Zealand side of things)
- Then 3-9 months to get decision on application.
- Then once receive approval, given one year to move.

Few other migration options

- Permanent and long-term arrivals from Samoa to New Zealand average 2,000 per year
- Settlement migrants from Samoa average 500 per year into Australia and 200 per year into the US, mostly through family reunification policies
- Samoan Quota is a major channel for settlement emigration out of Samoa, accounting for approximately 40 percent of all emigration
- => Few options for *substitution*.

Samoaan Labour Mobility Survey

- Self-weighting sample of 622 households in 90 villages, drawn by SBS from all regions of Samoa
- Four groups used for this paper
 - 53 households with previous member who has moved to NZ through 2002-2008 SQ (treatment group)
 - 29 households (34%) with member successful in ballot, but who has never moved (non-complier group)
 - 4 households with member successful in ballot, moved to NZ but returned to Samoa (included in treatment grp)
 - 121 households with member who applied for ballot but were not successful (experimental control group)

TIMING: survey occurs when migrants gone for median of 3.5 years, 37% interviewed when migrant abroad for more than four years but only 6% more than six years

Stayers and Movers

- Use age and relationship rules which govern which secondary applicants can move with successful applicant to identify:
 - Movers – individuals who would move had their household won the lottery and migrant moved
 - Stayers – individuals who would stay behind had their household won the lottery and the migrant moved
 - All-move households: households where everyone would move if principal applicant won lottery.
 - Stayer households: households where someone would stay if principal applicant won lottery.
 - Drop ~22% of the 121 unsuccessful ballot households in our sample, who are all-move households

Who are the household members left behind?

- Working age and older adults who are the siblings or parents of the winners
- Children who are the nephews and nieces of winners

Reasonably common type of migration – migrant moving with spouse and leaving other family members behind. E.g. majority of married new migrants to the U.S. have spouse present

– the stereotype of single migrant leaving spouse and kids behind is not the most common form of migration.

Estimation

- IV-LATE estimates of the experimental effect, with and without controls
 - Controls are the number of adult and child stayers in the household, whether there are any adult stayers in the household, the proportion of adult stayers who are female, the average age for adult stayers, the highest education level of stayer adults, and the location of household in Samoa
- IV estimates that interact being in the treatment group with the number of years since migration
 - Allows for the effect of migration to vary with duration
 - Requires the further assumption that similar people apply in each year
- IV estimates “forgetting” to remove all-move households from unsuccessful group (not shown)

Impacts on Household Size and Composition

	Total Hhold Size	Adults 18 to 45	Children Under 18	Adults Over 45
<i>Panel A: Experimental Estimates without Controls</i>				
Impact of Migration	-1.17*	-0.83***	-0.08	-0.25
	(0.66)	(0.31)	(0.48)	(0.18)
<i>Panel B: Experimental Estimates with Controls</i>				
Impact of Migration	-1.86***	-0.81***	-0.87***	-0.19
	(0.32)	(0.17)	(0.21)	(0.19)
<i>Panel C: Experimental Estimates by Years in New Zealand with Controls</i>				
Impact of Migration	-2.17***	-0.95**	-1.07**	-0.15
	(0.74)	(0.39)	(0.46)	(0.43)
Added Impact of Each Year in NZ	0.08	0.04	0.05	-0.01
	(0.13)	(0.06)	(0.08)	(0.08)
Impact of One Year in NZ	-2.09***	-0.91***	-1.02**	-0.16
	(0.63)	(0.33)	(0.39)	(0.36)
Impact of Three Years in NZ	-1.93***	-0.84***	-0.91***	-0.18
	(0.40)	(0.22)	(0.26)	(0.24)
Impact of Five Years in NZ	-1.78***	-0.77***	-0.81***	-0.20
	(0.26)	(0.13)	(0.17)	(0.16)
Mean for Unsuccessful Stayers	8.23	3.53	3.31	1.39
Sample Size	174	174	174	174

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Measures of Household Resources

Built up from and annualised:

- Household earnings (individual reports for the previous week)
- Net remittances received, both cash and in-kind (household totals of transaction-level reports for the previous 6 months)
- Net returns from sales of fish, crops, livestock, handicrafts (household reports on an average month)
- Imputed value of own-produced or own-captured food consumed by the household (household reports for the previous week)
- Income from investments, pensions, rentals etc (household reports for the previous fortnight)
- Household expenditures (sum of cash expenditures and the value of own-produced or own-captured food consumed by the household, recalled over the previous week, month or six months, depending on the particular item)

Impact on Household Resources

	Total Income	Household Labor Earn	Agricultural Income	Subsistence Income	Net Remittances	Total Consumption
<i>Panel A: Experimental Estimates without Controls</i>						
Impact of Migration	2,358	-1,172	976**	669	1,954***	2,393
	(3325)	(3168)	(393)	(695)	(694)	(2587)
<i>Panel B: Experimental Estimates with Controls</i>						
Impact of Migration	472	-2,373	1,090**	944	1,379*	2,818
	(3571)	(3165)	(430)	(735)	(777)	(2975)
<i>Panel C: Experimental Estimates by Years in New Zealand with Controls</i>						
Impact of Migration	4,677	-3,831	2,770***	1,994	2,989*	4,340
	(8235)	(7351)	(1026)	(1705)	(1769)	(6729)
Added Impact of Each Year in NZ	-1,073	371	-428**	-267	-415	-392
	(1462)	(1305)	(183)	(301)	(314)	(1198)
Impact of One Year in NZ	3,604	-3,459	2,342**	1,727	2,574*	3,948
	(6957)	(6092)	(938)	(1444)	(1452)	(5891)
Impact of Three Years in NZ	1,458	-2,717	1,486***	1,192	1,743*	3,165
	(4611)	(4034)	(563)	(947)	(936)	(3785)
Impact of Five Years in NZ	-687	-1,975	630	657	913	2,382
	(3121)	(2847)	(397)	(653)	(651)	(2362)
Mean for Unsuccessful Stayers	22,860	14,377	443	3,785	2,227	25,143
Sample Size	171	171	171	169	170	170

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Impact on Household PCY/PCE

	Income	Log Income	Consumption	Log Consumption
	Per Adult Equiv	Per Adult Equiv	Per Adult Equiv	Per Adult Equiv
<i>Panel A: Experimental Estimates without Controls</i>				
Impact of Migration	961	0.21	980*	0.23*
	(612)	(0.17)	(548)	(0.12)
<i>Panel B: Experimental Estimates with Controls</i>				
Impact of Migration	930	0.25	1,362**	0.31**
	(632)	(0.19)	(575)	(0.13)
<i>Panel C: Experimental Estimates by Years in New Zealand with Controls</i>				
Impact of Migration	2,152	0.68	1,956	0.38
	(1537)	(0.45)	(1404)	(0.32)
Added Impact of Each Year in NZ	-323	-0.11	-157	-0.02
	(286)	(0.08)	(261)	(0.06)
Impact of One Year in NZ	1,829	0.57	1,799	0.36
	(1294)	(0.39)	(1268)	(0.30)
Impact of Three Years in NZ	1,182	0.34	1,485*	0.32*
	(836)	(0.26)	(778)	(0.19)
Impact of Five Years in NZ	536	0.12	1,170**	0.28**
	(519)	(0.18)	(481)	(0.11)
Mean for Unsuccessful Stayers	3,533	7.93	3,983	8.15
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Poverty Lines

- Samoa has an existing Cost of Basic Needs Poverty Line calculated from the 2002 HIES
 - St\$2,962 annual per adult equivalent in June 2008
 - = US\$ \$1,007, used in Samoa, and by ADB and SPC
 - May capture 'hardship' rather than 'poverty'
- Food Poverty Line also calculated as St\$1,850 in June 2008 (US\$ \$663)
- Also asked one adult respondent in each household about subjective poverty, using a 10-rung Cantril ladder question:

Impact on Household Poverty

	Headcount Basic Needs	Headcount Food Poverty	Poverty Gap Basic Needs	Poverty Gap Food Poverty	Subjective Poverty Ladder
<i>Panel A: Experimental Estimates without Controls</i>					
Impact of Migration	-0.20*	-0.01	-0.03	-0.01	-0.49
	(0.10)	(0.07)	(0.04)	(0.02)	(0.48)
<i>Panel B: Experimental Estimates with Controls</i>					
Impact of Migration	-0.24**	0.00	-0.04	-0.02	-0.55
	(0.11)	(0.08)	(0.04)	(0.02)	(0.52)
<i>Panel C: Experimental Estimates by Years in New Zealand with Controls</i>					
Impact of Migration	-0.35	0.11	-0.03	0.01	-0.97
	(0.28)	(0.20)	(0.11)	(0.06)	(1.26)
Added Impact of Each Year in NZ	0.03	-0.03	0.00	-0.01	0.11
	(0.05)	(0.04)	(0.02)	(0.01)	(0.23)
Impact of One Year in NZ	-0.32	0.08	-0.03	0.00	-0.86
	(0.26)	(0.21)	(0.11)	(0.06)	(1.03)
Impact of Three Years in NZ	-0.26	0.02	-0.04	-0.01	-0.64
	(0.16)	(0.13)	(0.07)	(0.04)	(0.66)
Impact of Five Years in NZ	-0.20**	-0.04	-0.05	-0.03	-0.41
	(0.10)	(0.07)	(0.04)	(0.02)	(0.42)
Mean for Unsuccessful Stayers	0.366	0.120	0.095	0.033	5.44
Sample Size	174	174	174	174	167

Impact on Household Poverty

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Impact of One Year in NZ	-0.32	0.08	-0.03	0.00	-0.86
	(0.26)	(0.21)	(0.11)	(0.06)	(1.03)
Impact of Three Years in NZ	-0.26	0.02	-0.04	-0.01	-0.64
	(0.16)	(0.13)	(0.07)	(0.04)	(0.66)
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Conclusions

- Addressed triple-selectivity issue
- Allowed for duration dependent heterogeneity
- Found that emigration, on average, raised per adult equivalent consumption and reduced poverty among remaining members of SQ hholds
- Found suggestive evidence that the impact varies with duration since migration
 - Remittances, agricultural income and subsistence income decline with the duration since emigration
 - Only a small increase in labor earnings with duration
 - Thus, consumption and income fall relative to the first year effects as more time is spent abroad.

Caveats

- The small sample size prevents us from getting precise estimates of how impacts change with duration
- May not be generalisable to other studies of the impact of emigration on source areas
 - Family left behind are typically parents, siblings, aunts, uncles, nephews, nieces
 - Typical of many migration policies worldwide.
 - Samoan immigrants in NZ under this program have similar characteristics to developing country immigrants to the US
- We cannot do much to look at changes in the distribution of resources within households or the adaption process used in different households

Acknowledgements

- Collaborators and supporters and assistants
 - Government of Samoa
 - Samoan Bureau of Statistics
- Funders
 - Marsden Fund (Grant UOW0503)
 - New Zealand Department of Labour
- For more information visit:
www.pacificmigration.ac.nz