

Do Remittances Decay?

Evidence from Tuvaluan Migrants in New Zealand

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Abstract

Many Pacific Island states are concerned that remittances may decline in the future as links between migrants and home countries weaken. This paper uses specially collected survey data to analyse the remittance behaviour of Tuvaluan migrants in New Zealand. The results do not support the hypothesis that remittances decrease with the length of time that migrants spend in the host country.

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Introduction

The sustainability of remittances is an important issue for many Pacific Island states. Some commentators suggest that remittances are falling because of lower migration rates, recession in the host countries, and diminished willingness of migrants to remit (James, 1991; Campbell, 1992). Based on studies in other regions, Forsyth (1992) suggests that Pacific Island migrants will exhibit remittance decay behaviour – with remittances declining in the future as the links between the migrant and the home country weaken.

The proper testing of this remittance decay hypothesis requires microeconomic data because the time profile of aggregate remittances may bear no relation to the profile of a typical, individual migrant's remittance function. As Brown (1998) points out, there is a time effect, a composition effect and a size effect in the aggregate level of remittances. If the size or composition of the migrant group is changing then aggregate remittances will be affected, and the tendency for the remittances of an individual to increase or decrease over time may be masked.

However, the only previously published microeconomic evidence available is for the remittances by Tongan and Western Samoan migrants in Australia (Brown, 1997, 1998). The purpose of this paper is to add to the evidence on the validity of the remittance decay hypothesis for Pacific Island migrants. Specifically, we report results from an empirical model of remittances, which is estimated with data from a specially collected survey of Tuvaluan migrants in New Zealand. The results provide no support for the hypothesis that remittances decrease with the length of time that migrants spend in the host country. In conjunction with the earlier results of Brown (1997), our findings suggest that remittances may be a sustainable source of revenue for Pacific Island economies.

In addition to contributing to broader debates about remittance decay, the results reported here are also the first available on Tuvaluan remittance patterns. With limited development options for becoming financially self-reliant, Tuvalu is heavily dependent on aid and remittances. According to the 1994 Household Income and Expenditure Survey, 18 percent of gross household income in Tuvalu is in the form of overseas remittances (Ministry of Finance and Economic Planning, 1998). These remittances are also important to the aggregate economy, providing a much needed source of foreign exchange which is equivalent to approximately 11 percent of GDP (Fairbairn, 1993).

Tuvaluans in New Zealand

The New Zealand Population Census does not specify how many Tuvaluans there are in New Zealand. However, leaders of the Tuvaluan community in New Zealand suggest that there is a working population of approximately 400, which is equivalent to almost one-third of the number in cash employment at home in Tuvalu. These migrants are located mainly in the West Auckland area, where there is a demand for unskilled labour, especially in market gardening.

One source of these migrants is the Tuvalu/New Zealand guest-worker scheme, which began in 1986, and provides work permits for up to 80 workers from Tuvalu to be employed in New Zealand at any one time, for a maximum period of three years. Despite the requirement for these workers to return, many have either renewed their visas, overstayed, married New Zealand residents, or gained residency through other means. Some Tuvaluan migrants also appear to be entering New Zealand under the three month visa-free period that they are allowed for family visits and holidays and then overstaying this period, obtaining paid employment and applying for permanent residency.

The Survey

A total of 100 Tuvaluans, living mainly in West Auckland, but also in Pukekohe, Hamilton and Wellington, were surveyed between May and November, 1998. The sample was drawn in two stages; in the first stage 50 households were randomly chosen from a list provided by the Tuvalu congregational church, with this list stratified according to the island community in Tuvalu the household had originated from. This key informant method was used because of the absence of a proper sampling frame, and has also been used in other studies of migrant populations (Brown, 1997). In the second stage, working age adults within the selected households were interviewed.

The focus on individuals was needed because of the variation within households in the key explanatory variable for the model of remittances – the length of time that each person had spent in New Zealand.¹ This variation was partly because many households had multiple families and/or individual adults who were not part of the core family. Consequently, many remittances were made on an individual basis with more than one-half of the remitters in the sample (25 out of 46 in 1997) living in households where other adults were also remitting to Tuvalu. To avoid cases of double counting in these instances, the household heads were consulted about the remittances that individuals had reported separately.

The sample was carefully selected so as exclude anyone currently on the guest-worker scheme. The continuous recruitment of these contract workers means that they have spent only a short time in New Zealand and they are also meant to return to Tuvalu, so their remittance behaviour may not be representative of other migrants. However, a number of the sample were former guest-workers, who have either overstayed, married New Zealand residents or

renewed their visas by returning to New Zealand after spending a few months with relatives in neighbouring countries.

Respondents answered a written questionnaire (available in Tuvaluan or English) which covered demographic and economic details. These details included education and income levels, household size, number of close relatives in Tuvalu, an inventory of remittances (money and goods) and expectations about whether they would reside in New Zealand or return to Tuvalu in the future. Respondents had previously been informed about the aims of the survey through publicity delivered in church and on the Pacific Islands radio station in Auckland. This community support, and the fact that the interviewer was Tuvaluan, was important because the residency status of many respondents was a sensitive issue.

The survey results show that in the year prior to the survey (1997), 46 percent of respondents had remitted money to Tuvalu, 45 percent had sent goods, and a combined total of 55 percent had sent either money or goods. According to a longer term recall, a further 20 percent had remitted at some stage since arriving in New Zealand (including 1998) even though they did not remit in 1997. This longer term recall also showed that remittances of goods were unusually high in 1997, mainly because the visit of the Tuvaluan ship *Nivaga II* to Auckland made it easier to send goods home.² Consequently, the empirical model pays most attention to the remittances of money, which even in 1997 were twice as high as the remittances of goods (\$290 per person – averaged across remitters and non-remitters – versus \$140 for goods).

Both the incidence of remitting and the level of remittances appear to be lower than found by Brown (1997) amongst Tongan and Western Samoan migrants. There are likely to be two reasons for this pattern. First, the unit of analysis in the current study is individuals rather than

households, so remittances per person will tend to be lower than remittances per household. Secondly, the survey suggests that Tuvaluans are fairly recent migrants to New Zealand, with only 20 percent of the sample having lived in New Zealand for more than 10 years. This short tenure should be borne in mind when interpreting their remittance behaviour because Brown (1998) notes a lower incidence and level of remittances for newly arrived migrants. The most likely reasons for this are due to the initial transfer, establishment and job search costs facing new migrants. It is also apparent that the Tuvaluan migrants in the current sample have low incomes (Table 1), with 80 percent of the respondents earning less than NZ\$15,000 per annum. These low incomes may also reflect their relatively recent arrival in New Zealand.

Most of the respondents (84 percent) had come directly from Tuvalu, with the others moving in steps that often involved spells as workers at the Nauru phosphate mines. At the time of the survey, 68 percent of the respondents were not permanent residents, and almost all of these people were processing or awaiting applications for residency. Most of the sample (81 percent) had come to New Zealand specifically to find employment, including 22 who were originally recruited under the guest worker scheme. Almost all of the sample indicated that they had been employed at some time in the 12 months prior to the survey, although in many cases this was for part-time or seasonal work, especially in the agricultural sector.

Disaggregating the sample characteristics according to remittance behaviour in 1997 suggests that remitters are less likely to be male, are less likely to be highly educated, are less likely to be engaged in agriculture and are less likely to have low incomes (Table 1). The members of the sample who remitted in 1997 also appear to have spent an average of two more years in New Zealand than had the non-remitters. However, formal testing of these patterns requires a suitable econometric model, the specification of which is detailed below.

The Model of Remittances

The general specification of the model is based on that used by Brown (1997), although data limitations prevented the inclusion of some variables. Specifically, data on assets were not gathered by the survey, due to the complications of co-family land ownership in Tuvalu and the likely low value of New Zealand assets, given the low incomes and insecure residency status of many respondents. Table 2 contains descriptive statistics and the precise definitions of each variable, while a general description of the variables is set out below.

(Table 2 about here)

Although the key focus of the model is on the effect that time spent in New Zealand has on the value of money remitted in 1997, there are three other sets of explanatory variables included. There are *demand-side pressures* on a migrant from the receiver's end, in particular family and community ties. These are proxied by the presence of any parents still living in Tuvalu, whether the respondent received visitors from Tuvalu in the past 12 months, and whether they migrated directly or via other countries. This *STEP* variable may also be needed in the model because in contrast to the specification of Brown (1997), which uses time since emigration, time since *arrival* in New Zealand is used here and this will under-estimate the length of absence from Tuvalu for those who migrated via another country.

There are *supply-side factors* that affect the migrant's capacity to remit, which are proxied here by the respondent's annual income and the size of the household they reside in (even with a focus on individuals, household size matters because of the increase in disposable income that may result from sharing expenses with more people). Finally, there are *motivational characteristics* which may affect remittance decisions, for example, self-interested remitters may send more money if they are building up capital (or reciprocal obligations) for some

future return to Tuvalu. The gender of the remitter may also matter to this investment motive if it is easier for men to set up businesses or inherit land. Remittances may also be the repayment of informal loans, given initially to help the migrant with their moving costs or other human capital investments (Poirine, 1997), so variables for the educational level of the migrant are also included in the model.

Estimation Methods and Results

The Tobit estimation method was used because a large fraction of the sample reported zero remittances for 1997, and ignoring this censoring causes bias (Greene, 1997). The Tobit method uses one set of variables to explain both parts of the remittance decision – whether to remit and conditional upon that decision, how much to remit. Other methods require some variables to affect the decision to remit but not the level of remittances and it is difficult to find any theoretical reason for this.

The Tobit coefficients give the effect of the explanatory variables on remittances, just for the subset of remitters (correcting for the fact that remitters and non-remitters may differ systematically). To get the effect of explanatory variables on the expected value of remittances across the full population, taking into account the probability of remitting and the expected value conditional upon that decision, the Tobit coefficients are multiplied by the fraction who remit (McDonald and Moffitt, 1980). These “adjusted coefficients” are the most useful ones for policy simulations.

The other feature of the estimation method is that it allows non-zero correlations between the regression disturbances for individuals within the same household. This contemporaneous

linking of the errors will occur if there are unobservable factors that affect the remittance behaviour of all individuals within the same household.

(Table 3 about here)

The first column of Table 3 contains the results of a model that has a quadratic in the time variable, to allow for the possibility of a nonlinear decay in remittances. However, both coefficients in the quadratic are statistically insignificant and the joint hypothesis that time spent in New Zealand has no effect on remittances is not rejected ($p < 0.29$). Even the pattern of the point estimates is not supportive of the remittance decay hypothesis, with remittances predicted to *increase* for 30 years after arrival in New Zealand, only declining to zero by 60 years after arrival.³ When the adjusted coefficients are used, so that the results apply to the full population, the same ‘turning point’ of 30 years applies but the overall value of remittances is lower.

The second column of Table 3 contains the results when the quadratic in time is interacted with the dummy variable that indicates whether the respondent expects to be residing in New Zealand in the future. The combined effects of the point estimates for the interaction terms and the quadratic in time suggest that those respondents who do not expect to remain in New Zealand have a much more rapid remittance decay, with remittances rising for three years and then falling to zero by eight years after arrival. However, both of the quadratic terms and the two interaction terms are statistically insignificant so a larger sample would be needed to give more precise evidence on this point.

Turning to the other variables, it appears that the only significant demand-side pressure comes from having a parent still living in Tuvalu, which raises the expected value of annual cash remittances by \$230 (averaged over remitters and non-remitters). The income of migrants is a significant supply-side constraint on their capacity to send money back to Tuvalu, with a marginal propensity to remit of approximately six percent. Given the currently low income level of most Tuvaluans in New Zealand, an improvement in their incomes – which may follow from longer tenure in the host country – will tend to raise remittances. Remittances also appear to rise with the size of the household, which presumably reflects the increase in disposable income from sharing living expenses.

The gender of the migrant and their expectations with regard to future New Zealand residency have no statistically significant effect on remittance behaviour. There also appears to be a negative effect of education on remittances, although it is not statistically significant ($p < 0.26$ for the joint test of the three education dummy variables in the model). This result on the education variables appears to count against Poirine's (1997) hypothesis that remittances are to recompense the family in the home country for the initial sacrifices during the migrant's schooling.

As noted above, the remittances of goods in 1997 may not be representative, because of the unusual opportunity afforded by the visit of a Tuvaluan ship to Auckland. Therefore, detailed results of the remittance function for goods are not presented but the main points are:

- both terms in the quadratic specification on *TIME* are statistically insignificant and the joint hypothesis test that time spent in New Zealand has no effect on remittances is not rejected ($p < 0.45$),

- the presence of a parent living in Tuvalu increased the value of goods remitted by about \$40 per person (averaged over remitters and non-remitters) and is statistically significant ($p < 0.01$),
- education has a negative effect on remittances ($p < 0.02$ for the joint test of the three education variables),
- males remit less than females ($p < 0.03$), and
- the marginal propensity to remit goods is approximately two percent.

This last point means that the overall marginal propensity to remit is almost eight percent, which is similar to what Brown (1997) found for Tongan migrants (albeit with household data) and twice as large as what he found for Samoan migrants.

Conclusions

The remittance behaviour of Tuvaluan migrants in New Zealand, as estimated from a specially collected survey, does not seem to be consistent with the hypothesis that remittances decrease with the length of time that migrants spend in the home country. In fact, remittances appear to rise for 30 years after a migrant has arrived in New Zealand.

These results accord well with the findings of Brown's study of the remittances from Samoan and Tongan families in Sydney (Brown, 1997, 1998) which showed no evidence of remittance decline setting in once a migrant family became established in a new community. For the Tongan migrants Brown found no statistically significant relationship, either positive or negative, between length of absence and remittances, while for the Samoan community the relationship was weakly positive indicating that remittances tended to increase with time.

The model used in the present study of Tuvaluan migrants is based on these earlier studies by Brown (1997, 1998), with the exception that the unit of analysis has been treated as the individual rather than the household. The other difference between the studies relates to differences in the time spent in the host countries, because migration from Samoa and Tonga began much earlier than from Tuvalu. The similarity of the findings across the studies does therefore appear to present a challenge for the remittance decay hypothesis and may suggest that remittances can be a sustainable source of revenue for Pacific Island states.

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Table 1: Characteristics of the Sample of Tuvaluan Migrants in New Zealand

	Remitted money in 1997	Did not remit money in 1997	Total Sample
Male	20	30	50
Female	26	24	50
<i>Highest qualification level</i>			
Primary	23	17	40
Secondary	13	19	32
Trade/Technical	6	9	15
Professional/university	4	9	13
<i>Main income source (past 12 months)</i>			
Agriculture	23	33	56
Production, sales, service	15	11	26
Trade and professional	8	8	16
Nil/Unemployed	0	2	2
<i>Annual income range^a</i>			
≤ \$10,000	3	6	9
\$10,001-\$15,000	34	38	72
>\$15,000	9	10	19
TOTAL	46	54	100
Average years in NZ	6.6	4.5	5.5

Source: Author's survey, May-November 1998.

^aThe questionnaire had eight income intervals, which have been aggregated for presentation purposes.

Table 2: Description of Variables Used in the Tobit Model of Remittances

Variable	Definition	Mean
<i>REMIT</i>	Total value of money remitted by the respondent to Tuvalu in 1997 (\$NZ)	289.6 (557.7)
<i>PARENT</i>	=1 if at least one parent of the respondent is living in Tuvalu	0.50 (0.50)
<i>VISITOR</i>	=1 if received a visitor from Tuvalu in their NZ household during the last 12 months	0.34 (0.48)
<i>STEP</i>	=1 if migrated to NZ from a country other than Tuvalu	0.15 (0.36)
<i>INCOME</i>	Annual income level of the respondent (\$NZ)	13700 (5768)
<i>HHSIZE</i>	Number of residents in the respondent's household in NZ	5.71 (2.20)
<i>MALE</i>	=1 if respondent is male	0.50 (0.50)
<i>SECONDARY</i>	=1 if highest education level is secondary school qualification	0.32 (0.47)
<i>TECHNICAL</i>	=1 if highest education level is trade/technical qualification	0.15 (0.36)
<i>UNIVERSITY</i>	=1 if highest education level is tertiary or professional qualification	0.13 (0.34)
<i>RESIDNZ3YR</i>	=1 if the respondent believes they will still live in NZ in three years time	0.82 (0.39)
<i>TIME</i>	Number of years since the migrant first emigrated to NZ	5.46 (4.27)

Note: Standard deviations in parentheses.

Table 3: Determinants of the Value of Money Remitted by Tuvaluan Migrants in 1997

Variable	Tobit coefficients	Adjusted coefficients ^a	Tobit coefficients	Adjusted coefficients ^a
<i>DEMAND-SIDE VARIABLES</i>				
<i>PARENT</i>	504.995 (2.21)*	234.32	518.321 (2.27)*	240.50
<i>VISITOR</i>	83.834 (0.36)	38.90	90.830 (0.38)	42.15
<i>STEP</i>	-127.935 (0.27)	-59.36	-164.014 (0.34)	-76.10
<i>SUPPLY-SIDE VARIABLES</i>				
<i>INCOME</i>	0.057 (2.19)*	0.03	0.056 (2.18)*	0.03
<i>HHSIZE</i>	54.705 (1.66)+	25.38	53.017 (1.61)	24.60
<i>MOTIVATIONAL VARIABLES</i>				
<i>MALE</i>	-131.775 (0.65)	-61.14	-138.812 (0.69)	-64.41
<i>SECONDARY</i>	-307.638 (1.47)	-142.74	-271.944 (1.24)	-126.18
<i>TECHNICAL</i>	-384.253 (1.32)	-178.29	-330.398 (1.14)	-153.30
<i>UNIVERSITY</i>	-686.243 (1.56)	-318.42	-647.549 (1.48)	-300.46
<i>RESIDNZ3YR</i>	-76.095 (0.38)	-35.31	923.196 (0.89)	428.36
<i>TIME VARIABLES</i>				
<i>TIME</i>	71.501 (1.01)	33.18	796.557 (1.36)	369.60
<i>(TIME)²</i>	-1.201 (0.39)	-0.56	-107.490 (1.37)	-49.88
<i>RESIDNZ3YR × TIME</i>	...		-719.809 (1.23)	-333.99
<i>RESIDNZ3YR × (TIME)²</i>	...		106.169 (1.35)	49.26
<i>CONSTANT</i>	-1,474.093 (2.52)*		-2,497.670 (2.18)*	
<i>s</i>	784.740		782.205	
<i>R²</i>	0.243 ^b		0.244 ^b	
<i>LR (slopes=zero) test</i>	$\chi^2_{(12)}=32.32^{**}$		$\chi^2_{(14)}=33.47^{**}$	
Predicted probability of remitting ($R>0 x$) ^c	0.464		0.464	

Note: Absolute *t*-ratios in parentheses robust to within-household correlation in disturbances.

** significant at 1%; * significant at 5%; + significant at 10%. *N*=100.

^a Adjusted coefficients give the marginal effect of the independent variable on the unconditional value of remittances (i.e., the marginal effect averaged over the remitting and non-remitting sub-samples).

^b Squared correlation between observed and expected values.

^c Calculated at the mean of the independent variables, using a probit model.

Notes

¹ The within-household variation in time spent within New Zealand is shown by the low correlation coefficient of 0.37 for the arrival dates for members of the same household.

Treating the household as the unit would implicitly force this correlation to be 1.0 because of the assumption that all household members arrive in New Zealand at the same time.

² The value of goods remitted in 1997 was 2.2 times higher than in the previous year and 2.5 times higher than the average for the three highest years other than 1997.

³ If the model is restricted to just have a linear time effect it also does not support the remittance decay hypothesis, with each remitter appearing to increase their annual cash remittances by NZ\$48 for each additional year they spend in New Zealand. This linear time effect is also statistically insignificant ($p < 0.12$).