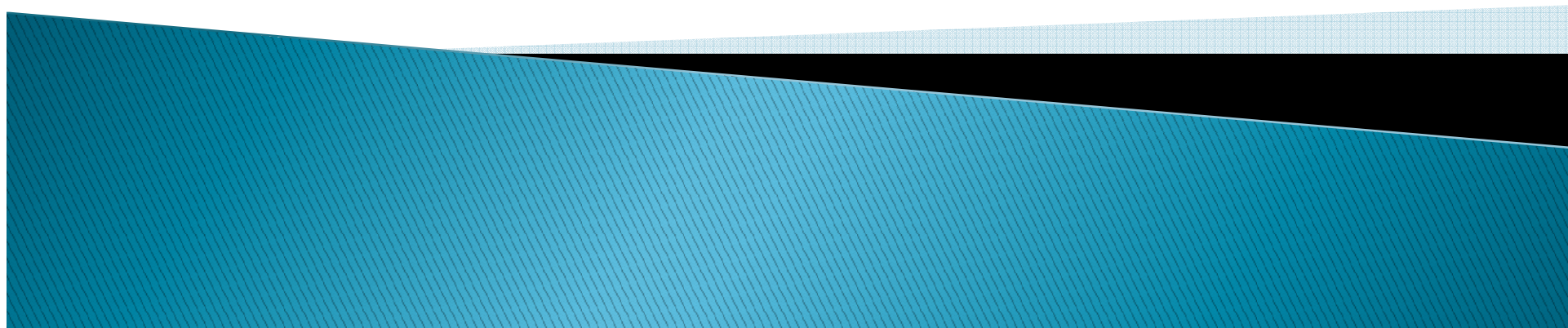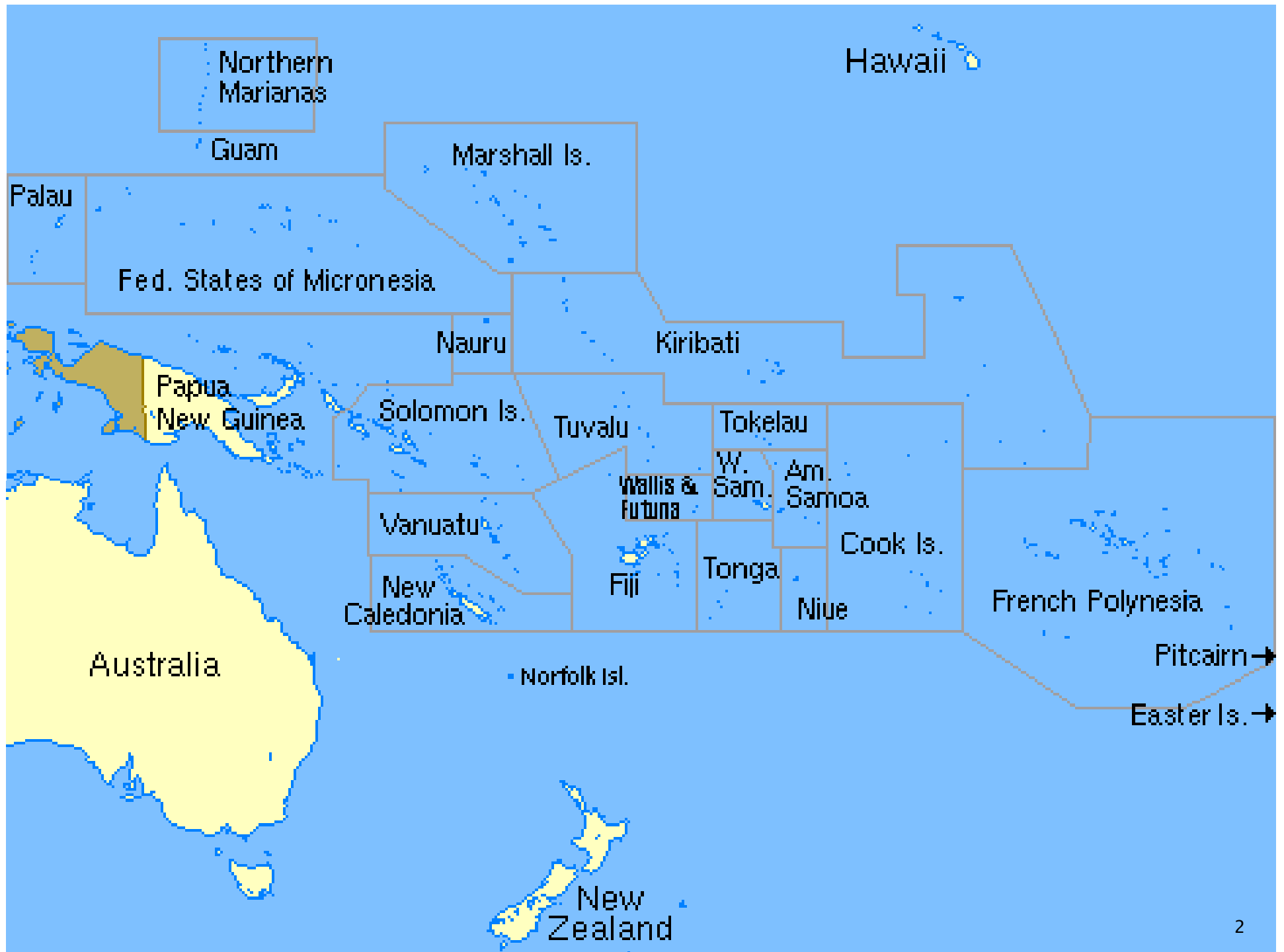# Role of Remittances in Economic Growth in Pacific Island Countries

A Study of Samoa

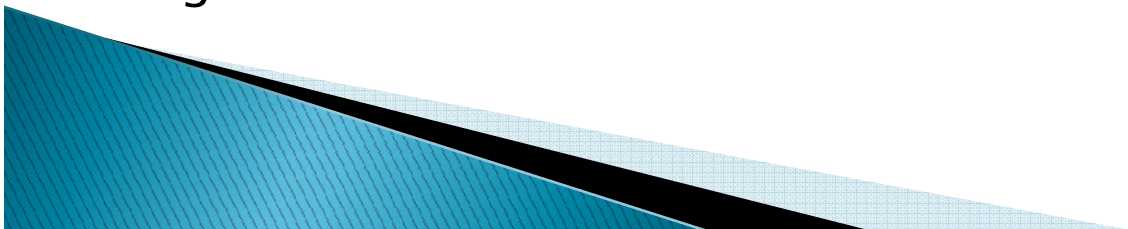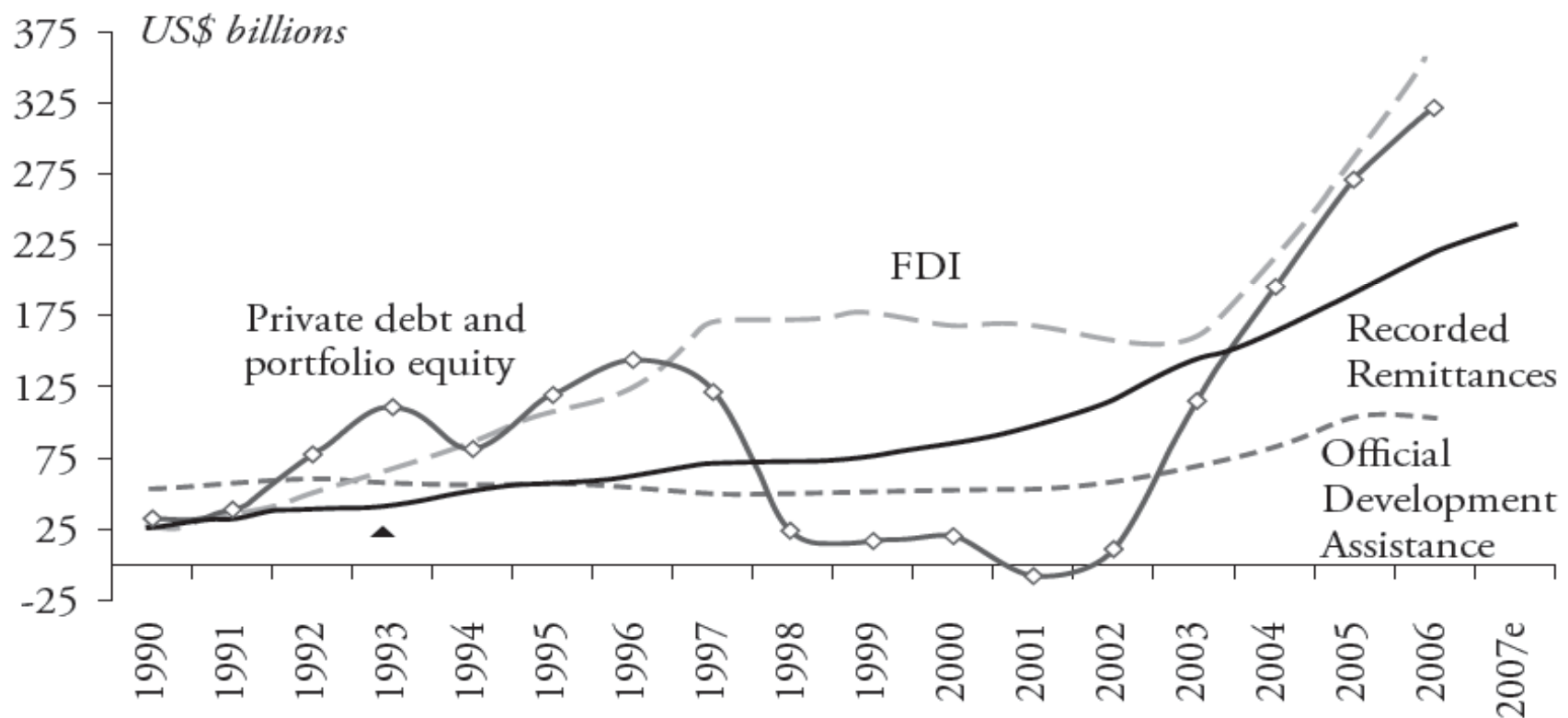T. K. Jayaraman, Chee-Keong Choong, and Ronald Kumar

10 January, 2009

Introduction

- Inward remittances are important notably for Samoa and Tonga, and to a lesser extent for Fiji, Kiribati and Tuvalu (World Bank 2006a).

- Although there are indications that global recession would result in decline in remittances, a report by Asian Development Bank (2009b) strikes an optimistic note by referring to the resilience shown by remittances in recent years.

- We investigated the relationship between economic growth and remittances in Samoa, which averaged about 25 percent of GDP during 2004-2008. This is also the period during which bank lending to private sector registered a high growth.

- The indications are that remittance receipts are now increasingly entering the system through banking channels, improving greater financial intermediation.

A Look at Remittances Trend

Figure 1   Remittances and capital flows to developing countries*

US$ billions

FDI

Private debt and portfolio equity

Recorded Remittances

Official Development Assistance

(y-axis: 375, 325, 275, 225, 175, 125, 75, 25, -25)

(x-axis: 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007e)

Source: World Bank (2006b, 2007)

* Remittances data for 2008 was $327 billion.

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Remittance and Capital Inflows

Remittance, Capital Inflows to Developing Countries from 1990-2007*

(In Billions)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2005	2007e
Remittances	31	34	40	42	52	57	62	71	73	77	84	95	116	143	163	194	226	251
FDI	25	35	50	67	89	105	128	169	170	178	166	173	161	162	226	289	368	460
Private Debt and Portfolio Equity	33	38	80	112	81	122	144	122	23	18	19	(17)	9	109	196	292	393	543
ODA	54	58	62	56	59	59	56	49	52	53	54	52	58	69	79	107	104	104

Source: The World Bank—Briefing 3: Remittance Trends 2007 (updated July 10, 2008); e = estimate of 2007.
* In 2008, estimated remittance inflow to developing country was $327 billion.

Selected PICs Remittances Profile

PICs: Remittances (US$ millions): 1970-2008

Selected Pacific Country	1970-1974 (Average)	1975-1979 (Average)	1980-1984 (Average)	1985-1989 (Average)	1990-1994 (Average)	1995-1999 (Average)	2000-2004 (Average)	2005	2006	2007	2008
PNG	n.a.	10 (0.6)	5 (0.2)	9 (0.3)	17 (0.4)	13 (0.3)	11 (0.3)	13 (0.3)	13 (0.2)	13 (0.2)	13 (0.2)
Solomon Is.	n.a.	n.a.	n.a.	n.a.	n.a.	2 (0.6)	4 (1.6)	7 (2.4)	20 (6.0)	20 (5.1)	20 (4.8)
Fiji	n.a.	4 (0.5)	8 (0.7)	26 (2.2)	24 (1.6)	30 (1.5)	73 (3.6)	184 (6.2)	165 (5.2)	165 (4.8)	175 (4.7)
Kiribati	n.a.	2 (4.5)	2 (6.9)	4 (15.8)	6 (19.3)	7 (15.2)	7 (13.3)	7 (11.4)	7 (11.3)	7 (9.0)	9 (10.7)
Samoa	n.a.	10 (13.2)	19 (19)	34 (33.8)	37 (28.1)	44 (19.6)	54 (18.9)	110 (25.9)	108 (24.0)	120 (22.9)	135 (24.0)
Tonga	2 (7.5)	6 (16.4)	10 (16.5)	19 (22.5)	21 (15.4)	n.a.	61 (37.7)	66 (30.6)	72 (30.5)	100 (39.6)	100 (36.9)

Figures in parentheses denote percentages to GDP.
Source: World Bank (2008, 2009).

Remittance (% of GDP)
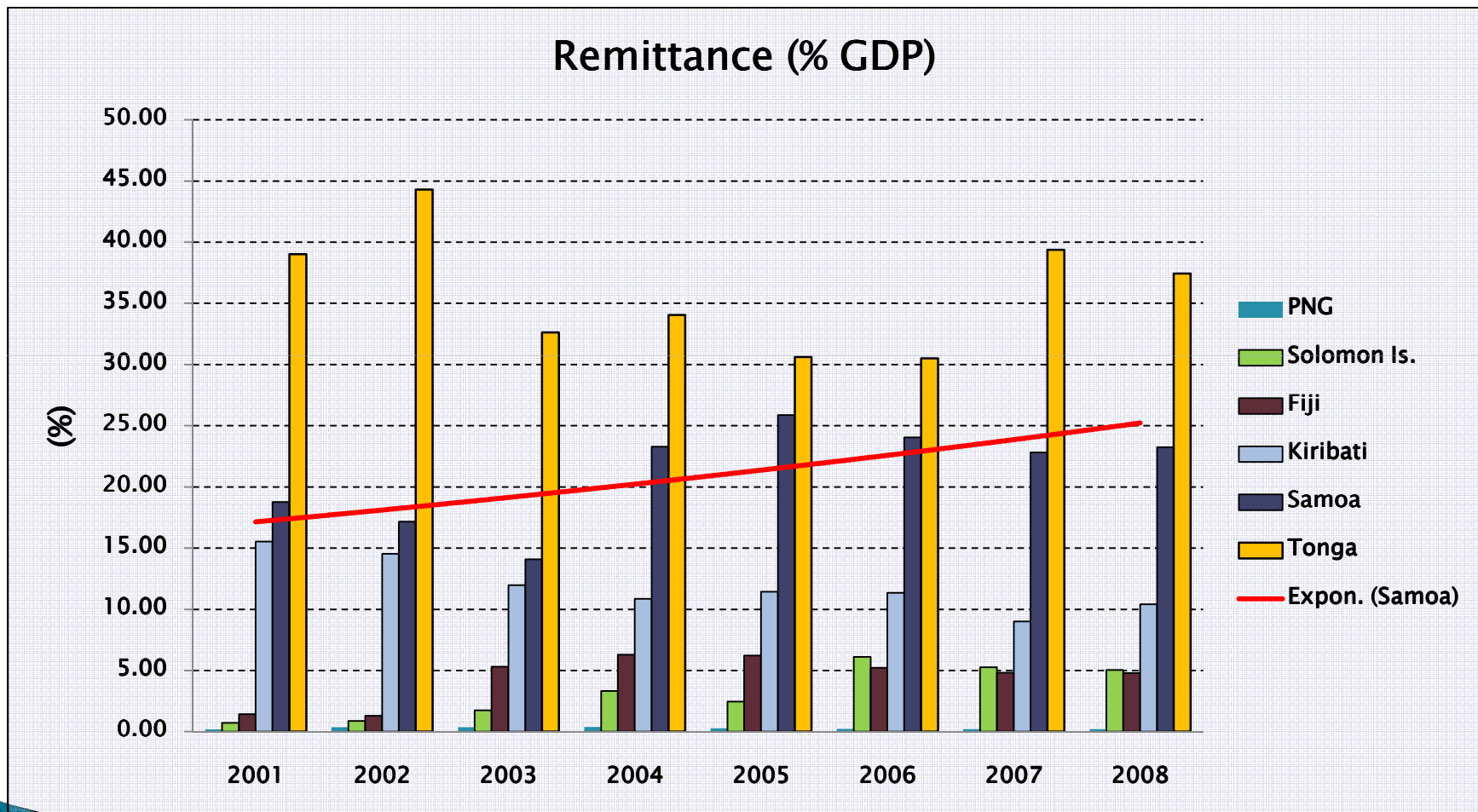
Remittance (% GDP)

Remittances Receivers –2007

Top Ten Remittance Recipients of 2007 (as percentage of GDP)

Country	Percentage of GDP	USD (millions)
Tajikistan	46	1,691
Tonga	39	100
Moldova	34	1,498
Lesotho	28	443
Guyana	26	278
Lebanon	24	5,765
Samoa	23	120
Jordan	22	3,434
Honduras	21	2,625
Kyrgyz Rep.	19	715

Source: World Bank (2008, 2009)

The Model

$RGDP = f(REM, PCR, XGS)$

where

$RGDP$ = real GDP in millions of tala;

REM = remittances as percent of GDP;

PRC = credit to private sector as percent of GDP;

XGS = exports of goods and services as percent of GDP.

And the ARDL model is:

$$\Delta LRGDP_t = \beta_0 + \beta_1 LRGDP_{t-1} + \beta_2 LREM_{t-1} + \beta_3 LPCR_{t-1}$$

$$+ \beta_4 LXGS_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta LREM_{t-i}$$

$$+ \sum_{i=0}^{p} \alpha_{3i} \Delta LPCR_{t-i} + \sum_{i=0}^{p} \alpha_{4i} \Delta LXGS_{t-i} + \varepsilon_t$$

Hence, bounds test is based on the F-statistics (or Wald statistics) with the null hypothesis of no cointegration (*H0 : β1 = β2 = β3 = β4 = 0*) *against its alternative hypothesis of a long-run* cointegration relationship (*H1 : β1 ≠ β2 ≠ β3 ≠ β4 ≠ 0*).

Results of Bounds Tests

Dependent Variable	Computed F-statistic
LRGDP	7.7888***
LREM	1.2965
LPCR	1.2805
LXGS	1.4337

Critical Value	Pesaran et al. (2001)[a]		Narayan (2005)[b]	
	Lower bound value	Upper bound value	Lower bound value	Upper bound value
1 per cent	4.29	5.61	4.614	5.966
5 per cent	3.23	4.35	3.272	4.306
10 per cent	2.72	3.77	2.676	3.586

[a] Critical values are obtained from Pesaran et al. (2001), Table CI(iii) Case III: Unrestricted intercept and no trend, p. 300.
[b] Critical values are obtained from Narayan (2005), Table case III: unrestricted intercept and no trend, p. 10. *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Results of Unit Root

Variable	ADF		Ng and Perron	
	Level	First Difference	Level	First Difference
LRGDP	-0.9307 (0)	-4.1269** (0)	-1.8483 (0)	-12.6420** (0)
LREM	-2.1362 (0)	-4.8305** (0)	-4.4507 (0)	-12.9806** (0)
LPCR	-2.8756 (0)	-6.3891** (0)	-10.2536 (0)	-12.1329** (0)
LXGS	-2.6333 (3)	-5.4608** (0)	-5.9232 (0)	-12.5241** (0)

Notes: The ADF critical values are based on Mckinnon. The optimal lag is chosen on the basis of the Akaike Information Criterion (AIC). The null hypothesis for both ADF and Ng-Perron tests is that a series has a unit root (non-stationary) while the null hypothesis of the KPSS test is that it does not contain a unit root (stationary).

The asterisk ** denotes the rejection of the null hypothesis at the 5% level of significance.

Granger Causality Test

| Dependent Variable	F-statistics				ECT (t-statistics)
	ΔLRGDP	ΔLREM	ΔLPCR	ΔLXGS	
ΔLRGDP	–	44.9999***	63.0110***	54.8284***	-0.0395*** (-9.5262)
ΔLREM	1.7986	–	5.6151**	5.2093**	-0.0724 (-1.2865)
ΔLPCR	2.2965	5.8016**	–	11.0208***	-0.0185 (-0.3732)
ΔLXGS	3.7951*	6.1760**	19.4565***	–	-0.0165 (-0.4792)

Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively. Figures in parentheses are t-statistics.

Long-run equation

$$LRGDP_t = -58.786 + 2.114 LREM** + 3.868 LPCR** + 9.954 LXGS**$$

$$t = \quad (-2.105) \quad (2.737) \quad (2.781) \quad (3.0150)$$

** indicates significance at 5% level. Figures in parentheses are t-statistics.
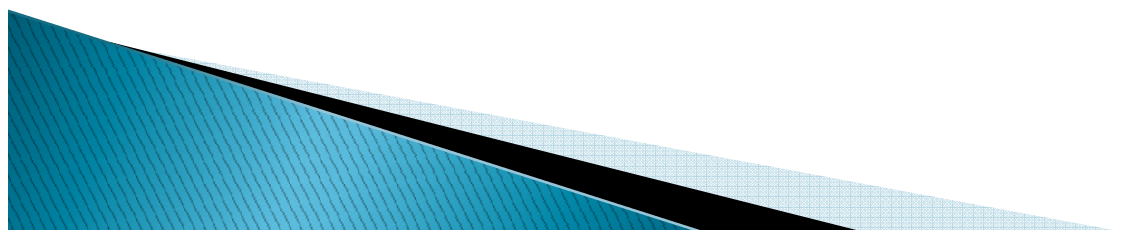
Results ...

- In the short-run we find that there is a bi-directional causality between real output and exports, remittances and exports, remittances and credit to private sector, and credit to private sector and exports

- We find a unidirectional causality running from both remittances and credit and real output.

- Growth in output is influenced by the growth in remittances

- The results confirm the hypothesis that *remittances play an important role in developing countries (Samoa)*

- This also depends upon the scale and intensity of financial sector development by adding liquidity in the banking system, which in turn promotes greater credit to private sector, resulting in rise in growth.

Conclusion and ...

- Amongst the PICs, Tonga and Samoa receive large amounts of inward remittances from citizens and residents of their national origin overseas, which are primarily meant for supporting their families and relatives back home.

- This paper undertook an empirical investigation of the nexus between remittance and economic growth in Samoa during the past 28–year period (1981-2008). The results showed that remittances have helped Samoa to register greater economic growth.

- Specifically, remittances by adding to the liquidity in the banking system, led to increases in credit to private sector, which in turn resulted in greater economic activities and resultant rise in exports, thereby leading to growth in GDP.

… and Some Policy Matters

▸ Financial sector development is the key to growth as it channels remittance inflows into the banking system;

▸ Decision makers in the government and financial sector can devise appropriate incentive measures to encourage the remittance recipient families to deposit them in financial institutions, which would contribute to accumulation of higher domestic savings and greater resource mobilization;

▸ Incentive measures would include offering higher interest rates for remittances than available for domestic currency deposits

▸ Financial institutions should review the current structure of fees and other charges levied on inward remittances at both ends.

▸ Remove hurdles that come in the way of remitting the funds through formal channel (ensuring easy access to financial services such as ATMs)

▸ Encourage remittances through financial formal channels for better remittance data management