THE RELATIVE INCOME HYPOTHESIS—A CROSS COUNTRY ANALYSIS

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This paper presents an attempt to examine the applicability of the relative income hypothesis (RIH) in terms of its various specifications proposed by Duesenberry, Duesenberry, Eckstein and Fromm (DEF), Davis and the authors (MD). Using the time series data for 1951 through 1968 the analysis has been carried out for Canada, Finland, Guatemala, Honduras, India, Japan, Philippines, Sweden, United Kingdom and the United States. It is found that RIH provides a fairly good representation of the consumption behaviour of all the countries included in the study. All specifications, however, do not perform equally well. DEF and Davis functions score the maximum points; MD comes at par with DEF in case of Finland, Guatemala, and India. The original Duesenberry specification performs very poorly. This leads us to conclude that the process of habit formation is continuous contrary to what is implied by Duesenberry's original specification and that consumption is a better indicator of the standard of living than income is. Estimates of the long-run marginal propensities to consume are essentially the same as those computed from the permanent income hypothesis by Singh and Drost [1970]. This lends support to the view that the two hypotheses have essentially the same long-run implications.

1. INTRODUCTION

The failure to predict post-war consumption expenditure by means of its regression on personal disposable income stimulated the interest of many an economist in the theory of consumer behaviour. During and in the period immediately following the second world war numerous consumption functions were proposed.[1] All these proposals were limited to the use of different deflators and/or to the introduction of one or two additional explanatory variables. Unfortunately however, none questioned the validity of the basic Keynesian hypothesis. The faith in this hypothesis was shattered by the startling finding of Kuznets [1942] and Goldsmith [1955] that average propensity to consume, contrary to Keynesian contention, had remained stable over a fairly long period, even in the face of substantial rises in income. Nevertheless, on the basis of the findings of the family budget studies,[2] it was still being maintained that for any given period of time, an individual's consumption-income ratio declines as income rises. A reconciliation of these apparently diverse findings was attempted by Duesenberry in terms of his relative income hypothesis (RIH)[3]. Subsequently modified functional forms for the hypothesis have been proposed by Davis [1953] and Duesenberry, Eckstein and Fromm [1960].

[1]Samuelson, [1941], Mosak [1945], Smithies [1945], Bassie [1946], Bean [1946], Liu and Chang [1950].

[2]U.S. Bureau of Labour Statistics, *Bulletins*, 642–649, 723–724 and Friend and Schore [1959], pp. 213–248.

[3]Essentially the same suggestions were forwarded by Brady and Friedman [1947] and Modigliani [1949] around the same time.

The recent literature on the consumption function, however, has been so much dominated by Friedman's permanent income hypothesis (PIH) that the RIH has only rarely been subjected to detailed empirical investigation. True, the PIH is relatively more comprehensive, yet the fact, often realised but overlooked, remains that it has numerous complexities as to the measurability of the permanent components of income and consumption. On the other hand RIH does not suffer from any such problems. In addition the long run implications of the two hypotheses are essentially the same. In fact, it can be argued that though not identical, the two theories have "at least a family connection".[4] In view of these considerations, it is our contention that the predictions—in terms of the long run marginal propensity to consume (LMPC)—made by the two theories may not differ significantly.

In the present note, therefore, we not only examine the applicability of RIH for countries with diverse economic structures but also attempt a verification of the above contention by comparing our findings with those of a recently completed study by Singh and Drost [1970]. They have analysed PIH for almost the same set of countries and using the same data. In addition, they have been able to overcome to a very great extent the difficulties faced in the estimation of permanent components of income and consumption. The analysis has been carried out for ten countries, namely, Canada, Finland, Guatemala, Honduras, India, Japan, Philippines, Sweden, United Kingdom, and the United States. The data employed have been obtained from the Dominion Bureau of Statistics for Canada, from Mukherjee [1970] for India, and from the United Nations for the remaining countries.[5]

The organisation of the present study runs as follows. Section 2 presents the theoretical framework. The modifications proposed by Davis [1953] and Duesenberry, Eckstein, and Fromm (DEF) [1960] are also discussed in the same section. The original Davis function is also modified on the lines of DEF in this section. The empirical results are discussed in Section 3, the final section.

2. Theoretical Framework

2.1

Based on the socio-psychological behaviour of the consumer, the RIH originates from the two basic postulates, viz., (a) that the consumption behaviour of individuals is interdependent, and (b) that this behaviour is irreversible over time.

In an aggregative time-series analysis, such as attempted in the present study, it is the second postulate which is of most import. The irreversibility emanates from the supposition that the consumption mechanism is "not one of rational planning but of learning and habit formation".[6] Duesenberry, however, believes that this process is more important for explaining the consumption behaviour

[4]Friedman [1957], p. 158.

[5]The authors are grateful to Dr. Y. Shimizu of the United Nations and Dr. A. S. Foti, Director, National Income and Expenditure Division of Dominion Bureau of Statistics, Ottawa, Canada, for making the relevant data available to them.

[6]Duesenberry [1949], p. 24.

during depression.[7] The habits and standards of living experienced during periods of rising incomes get impressed on the consumer's mind. These, then, are viewed as symbols of one's social status from which it is extremely difficult for the consumer to step down. As a result, during the periods of declining income, he finds it hard to reduce his consumption expenditure proportionately. In principle, therefore, all past incomes, from the peak to the current year, exert an influence on current consumption, yet it is the peak income which makes the most significant contribution. Moreover, there is a problem of determination of relative contributions of the past incomes. As an approximation, therefore, Duesenberry chooses current income relative to past peak income for explaining consumption expenditure. Thus if

C = private consumption expenditure
Y = personal disposable income and
Y^0 = past peak income

we may write Duesenberry's consumption function as

$$\left(\frac{C}{Y}\right)_t = \alpha + \beta\left(\frac{Y}{Y^0}\right)_t. \tag{2.1.1}$$

α and β are the parameters to be estimated, the latter, in general, being negative. Clearly, the consumption function is irreversible: C/Y is higher when $Y < Y^0$ than when $Y > Y^0$.

Subsequently, DEF suggested a modification in (2.1.1). This consists of considering $(C/Y)_t^*$—the expected or desired consumption income ratio—as the regressand, i.e.,

$$\left(\frac{C}{Y}\right)_t^* = \alpha + \beta\left(\frac{Y}{Y^0}\right)_t. \tag{2.1.2}$$

$(C/Y)_t^*$ being determined by Nerlovian "partial adjustment" process:

$$\left[\left(\frac{C}{Y}\right)_t - \left(\frac{C}{Y}\right)_{t-1}\right] = \gamma\left[\left(\frac{C}{Y}\right)_t^* - \left(\frac{C}{Y}\right)_{t-1}\right], \tag{2.1.3}$$

where γ is the coefficient of adjustment. The DEF consumption function is, therefore, written as

$$\left(\frac{C}{Y}\right)_t = \alpha' + \beta'\left(\frac{Y}{Y^0}\right)_t + \gamma'\left(\frac{C}{Y}\right)_{t-1} \tag{2.1.4}$$

where α', β' and γ' are defined as

$$\begin{aligned} \alpha' &= \alpha\gamma \\ \beta' &= \beta\gamma \\ \gamma' &= 1 - \gamma. \end{aligned} \tag{2.1.5}$$

Prior to DEF, a variant of (2.1.1) was proposed by Davis [1953] who replaced past peak income by past peak consumption. Clearly, the standard of

[7] *Ibid.*, p. 84.

living does not so much refer to income earned as to actual consumption habits. Examples are not far to seek. Any two households with equal incomes may have different standards of living depending upon their different consumption habits. Needless to emphasize, habits are not formed instantaneously; instead they result from an evolutionary process of repeated actions and reiterations over a period of time. A lag may, therefore, appear between peak income and correspondingly formed consumption habits, thereby limiting the use of Y^0 as the appropriate variable in (2.1.1). Moreover, past peak income may, at times, be a disguised reflection of large transitory gains which make very little, if any, contribution towards the process of habit formation. In view of these considerations, the modification suggested by Davis seems quite understandable. Accordingly, (2.1.1) and (2.1.3) may, respectively, be transformed as

$$\left(\frac{C}{Y}\right)_t = \alpha + \beta\left(\frac{Y}{C^0}\right)_t \tag{2.1.6}$$

and

$$\left(\frac{C}{Y}\right)_t = \alpha' + \beta'\left(\frac{Y}{C^0}\right)_t + \gamma'\left(\frac{C}{Y}\right)_{t-1} \tag{2.1.7}$$

where α', β' and γ' are defined by (2.1.5), and C^0 stands for past peak consumption.

2.2. *The Long-Run Behaviour*

Distinct from the short-run, the long-run has often been defined as the period long enough to enable various forces to so adjust that a stable behavioural pattern emerges. In the context of the theory of consumer behaviour this would imply a sufficiently long period to ensure the evolution of a stable (equilibrium) relationship between income and consumption. Although there are points of difference, yet it is widely recognized that the long run consumption function passes through the origin, implying that a consumer with zero income is bound to have zero consumption. Furthermore, some empirical studies[8] suggest that the consumption-income ratio has been stable (constant) for sufficiently long periods. This suggests that the long run consumption function is linear as well. This means that the consumer in the long run adjusts to the changes in income in such a way that the marginal propensity to consume becomes equal to the average propensity to consume. In the present study, therefore, we may derive the long-run marginal propensity to consume under the following assumptions:

(i) $$\left(\frac{C}{Y}\right)_t = \left(\frac{C}{Y}\right)_{t-1} = \text{constant}$$

(ii) $$Y_t^0 = Y_{t-1} = (1 + G)^{-1} Y_t$$

(iii) $$C_t^0 = C_{t-1} = (1 + G)^{-1} C_t$$

where G is the long term rate of growth in disposable income. The long-run marginal propensities to consume corresponding to (2.1.1), (2.1.4) (2.1.6) and

[8]Kuznets [1942], p. 30 and Goldsmith [1955], p. 22.

(2.1.7) may, respectively, be written as

$$\alpha + \beta(1 + G) \tag{2.2.1}$$

$$[\alpha' + \beta'(1 + G)]/(1 - \gamma') \tag{2.2.2}$$

$$[\alpha + \sqrt{\alpha^2 + 4\beta(1 + G)}]/2 \tag{2.2.3}$$

$$[\alpha' + \sqrt{\alpha'^2 + 4\beta'(1 + G)(1 - \gamma')}]/2(1 - \gamma'). \tag{2.2.4}$$

3. Numerical Results

As indicated above, the RIH has been analysed in terms of its different specifications discussed in section 2, viz., Duesenberry's original function (2.1.1), Davis' original function (2.1.6), DEF function (2.1.4) and the Modified Davis (MD) function (2.1.7). Table 1 below summarizes the salient findings of the present empirical experiment.

TABLE 1

The Most suitable Form of the Consumption Function for Individual Countries and Estimates of Long Run Marginal Propensity to Consume

Country	Consumption Function	Long Run MPC	
		Ours	Singh-Drost
1. Canada	Davis	0.948	0.930
2. Finland	Modified Davis/DEF	0.896/0.895	0.896
3. Guatemala	Modified Davis/DEF	0.966/0.967	0.966
4. Honduras	Davis/DEF	0.941/0.949	0.944
5. India	Davis/Modified Davis/DEF	0.915/0.933/0·928	0.933
6. Japan	DEF	0.802	0.813
7. Philippines	Davis	0.941	0.914
8. Sweden	DEF	0.901	0.893
9. U.K.	Davis/DEF	0.989/0.932	0.944
10. U.S.A.	Davis	0.939	0.936

Source: Tables A.I, A.II, A.III and A.IV.

It is found that the RIH provides a fairly good representation of the consumption behaviour of all the countries in this study. All functional forms, however, do not perform equally well. The selection of the form of the consumption function most suited to a particular country has been made on basis of minimum sum of squares of the residuals corrected for the degrees of freedom (SSR/T-Λ)[9]. In terms of relative performance of different functions, DEF and Davis function score almost equally well; DEF providing minimum SSR/T-Λ in the case of Finland, Guatemala, Honduras, India, Japan and Sweden, while Davis' function does so in the case of Canada, U.S.A., U.K., Honduras and Philippines.[10] For Finland, Guatemala, and India, the MD function turns out

[9]In case the regressand remains the same this criterion is identical with that of $\bar{R}^2$.

[10]It should be noted that for U.K. DEF provides smaller SSR/T-Λ than that provided by Davis function. We, however, prefer, Davis' specification firstly because the difference between the two SSR/T-Λ's is not statistically significant and secondly because the estimate of the LMPC as computed from Davis' function is more realistic and is also consistent with the available evidence.

to be at par with DEF. In fact, the estimates of the corresponding parameters also do not differ significantly (see Tables A.II and A.IV). This may be taken to mean that in such a specification (2.1.2) of the consumption function, the replacement of past peak income by past peak consumption does not matter in the case of these three countries. Unfortunately, the original Duesenberry function (2.1.1) does not provide relatively better fit for any country. This on the one hand supports, at least for the ex-post specifications, viz., (2.1.1) and (2.1.6), the hypothesis that consumption is a better index of the standard of living than income. On the other hand, it implies that intermediary relative income positions, contrary to what Duesenberry originally believed, are too significant to be neglected.[11]

We now turn to the estimates of parameters of different functional forms. In almost all cases, the estimates have the desired signs. In most cases, the constant term is significant. In the absence of a significant estimate of any other parameter, as in the case of Davis' specification for U.S., it would be implied that the consumption relationship is one of proportionality. In case of Canada, Honduras, Philippines and the United Kingdom, we find the Y/C^0 ratio also makes a significant contribution towards explaining the variation in C/Y. This indicates the presence of a strong consumption (not income) ratchet effect. On the contrary the income ratchet effect is more important for Sweden.

Except for India, in all other cases where DEF and MD have been chosen as the most suitable forms we find that the estimate of the coefficient of $(C/Y)_{t-1}$ is statistically significant. This not only emphasizes our earlier observation that the intermediary standards of living are quite important, but also lends support to the hypothesis that it is the desired and not the actual C/Y which depends upon the previously experienced highest standard of living relative to that permitted by current income.

Surprisingly enough, in the case of India the standard errors of the various parameters of DEF and MD are large enough to render the estimates not significantly different from zero even though SSR/T-Λ is relatively smaller than that provided by Davis' function. It is conjectured that this may happen because of the multicolinearity between $(C/Y)_{t-1}$—which is almost constant—and the constant term. If so, the introduction of the lagged variable $(C/Y)_{t-1}$ would introduce misspecification in the consumption function. The statistically significant intercept term in the Davis function also corroborates this. In addition the sum $\hat{\alpha}' + \hat{\gamma}'(C/Y)$ does not seem to differ significantly from the estimate of constant term in the Davis function. Since there is not much difference between the variations explained by DEF and by MD and Davis, one may as well choose the Davis function.[12]

The long run marginal propensities to consume (LMPC) as obtained from the analysis are fairly realistic. In most cases, these are close to unity yet in no

[11]It should be noted that DEF (2.1.4) can as well be derived by employing Koycks' distributed lag scheme [see Evans (1969), p. 62]. The estimates of the individual parameters and hence that of LMPC would be the same. However, the interpretation of the disturbance term would be substantially different since (2.1.3) is deterministic while Koyck's scheme is stochastic. As a result, the precision of the estimates may as well be affected.

[12]It is interesting to note that the Davis' function has lesser bias in R^2 than both DEF and MD have. For computation of bias in R^2 see Barten [1962]. Table on pp. 160–163.

case do they exceed it. They are not only consistent with those obtained by others but are also compatible with general observations on these countries.[13] Japan has the smallest LMPC (0.813). This low value of the LMPC for Japan as compared with those of other countries is easily explained by the traditional thrifty nature of the Japanese people, and the peculiar wage system prevalent there. In fact, Japan has the smallest short run marginal propensity to consume (0.146) as well. As expected, the U.K. has larger short run as well as long run propensities to consume than both the U.S. and Canada. The high proportion of old age people coupled with an extremely well developed social security system may easily explain this. India, Honduras and Guatemala all have fairly large marginal propensities to consume. The underdeveloped nature of these economies and the inherent desire in the populace of these countries to emulate the consumption standards of the economically advanced countries ("demonstration effect") may make these countries spend more and more on consumer goods as their incomes rise. Among the developed countries, Finland and Sweden have comparatively low marginal propensities to consume. While these differences may partly be due to the differences in consumption habits, the deliberate attempt on the part of the governments of these countries to achieve increased savings by offering various kinds of incentives[14] and the declining rate of inflation may also have contributed towards lowering these values. This is corroborated by still another observation on Japan. The low value of MPC in Japan is also accompanied by a declining trend of inflation rates.

Finally, we compare the estimates of LMPC with those obtained by Singh and Drost [1970] from PIH. It is found that our estimates are consistent with theirs. In fact, these are more or less identical for as many as six countries, namely, Finland, Guatemala, Honduras, India, Sweden and the U.S. Differences for the remaining countries are only marginal, the largest margin being of the order of 0.045 in the case of the United Kingdom. Thus our contention of the similarity of long run implications of the PIH and RIH is amply supported by our findings.

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APPENDIX

TABLE A.I

THE ORIGINAL DUESENBERRY CONSUMPTION FUNCTION

$$(C/Y)_t = \alpha + \beta(Y/Y^0)_t$$

Countries	$\hat{\alpha}$	$\hat{\beta}$	R^2	SSR/T-A	DW	ρ	LMPC
(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Canada (1951–1968)	1.3286** (0.1045)	−0.3665** (0.0972)	0.4706	0.00022	0.7798**	0.6281	0.940
2. Finland (1951–1968)	0.9297** (0.0919)	−0.0250 (0.0830)	0.0057	0.00075	0.6109**	0.7137	0.903
3. Guatemala (1951–1968)	1.0400** (0.1369)	−0.0657 (0.1308)	0.0168	0.00040	0.8466**	0.5963	0.971
4. Honduras (1951–1968)	1.0901** (0.1126)	−0.1438 (0.1063)	0.1082	0.00036	1.2595*	0.3867	0.939
5. India (1950–1965)	0.9939** (0.0747)	−0.0558 (0.0710)	0.0394	0.00034	1.1281*	0.5434	0.935
6. Japan (1952–1967)	1.3767** (0.3077)	−0.4722 (0.2705)	0.1791	0.0013	0.2608**	0.8971	0.843
7. Philippines (1951–1968)	1.4211** (0.1598)	−0.4504** (0.1480)	0.3672	0.0013	0.5220**	0.7588	0.935
8. Sweden (1951–1968)	0.8188** (0.1058)	0.0713 (0.0980)	0.0314	0.00018	1.2562**	0.3865	0.895
9. United Kingdom (1951–1968)	0.4414 (0.4892)	0.4844 (0.4595)	0.0614	0.00078	0.4564**	0.7921	0.955
10. United States (1951–1968)	0.9895** (0.1343)	−0.0520 (0.1267)	0.0106	0.00011	1.1211*	0.4550	0.935

*Significant at 5% level.

**Significant at 1% level; DW-Durbin–Watson Statistic; ρ (Serial correlation) has been computed according to Theil–Nagar's formula [1961], p. 804.

TABLE A.II

THE DUESENBERRY–ECKSTEIN–FROMM CONSUMPTION FUNCTION

$$(C/Y)_t = \alpha' + \beta'(Y/Y^0)_t + \gamma'(C/Y)_{t-1}$$

Countries		$\hat{\alpha}'$	$\hat{\beta}'$	$\hat{\gamma}'$	R^2	SSR/T-Λ	DW	ρ	LMPC
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Canada	0.7559**	−0.3900**	0.6396**	0.8477	0.00007	1.5354	0.2648	0.945
	(1951–1968)	(0.1106)	(0.0540)	(0.1049)					
2.	Finland	0.3508*	−0.0758	0.7004**	0.5052	0.00040	2.2579	−0.1037	0.896
	(1951–1968)	(0.1628)	(0.0619)	(0.1797)					
3.	Guatemala	0.4878	−0.1213	0.6272*	0.3205	0.00030	1.6952	0.1862	0.967
	(1951–1968)	(0.2498)	(0.1148)	(0.2502)					
4.	Honduras	0.5417	−0.1045	0.5449	0.2779	0.00031	2.0509	0.0023	0.949
	(1951–1968)	(0.3008)	(0.1010)	(0.2786)					
5.	India	0.3477	0.0210	0.6016	0.2262	0.00029	1.8354	0.1137	0.925
	(1950–1965)	(0.3493)	(0.0775)	(0.3195)					
6.	Japan	0.1455	−0.0325	0.8643**	0.7976	0.00035	1.6746	0.2014	0.803
	(1952–1967)	(0.2515)	(0.1560)	(0.1370)					
7.	Philippines	0.9092**	−0.5298**	0.6416**	0.7611	0.00053	1.6635	0.1987	0.941
	(1951–1968)	(0.1445)	(0.0953)	(0.1289)					
8.	Sweden	0.5115**	−0.2029	0.6709**	0.6178	0.00007	2.5228	−0.2438	0.917
	(1951–1968)	(0.0939)	(0.0856)	(0.1400)					
9.	United Kingdom	0.6326**	−0.5840**	0.9854**	0.9131	0.00007	2.0616	−0.0063	0.931
	(1951–1968)	(0.1549)	(0.1695)	(0.0812)					
10.	United States	0.6211*	−0.1106	0.4576	0.0777	0.00011	1.8180	0.1192	0.930
	(1951–1968)	(0.2445)	(0.1305)	(0.2553)					

*Significant at 5% level.

**Significant at 1% level; DW-Durbin–Watson Statistic; ρ (Serial correlation) has been computed according to Theil–Nagar's formula [1961], p. 804.

TABLE A.III

THE ORIGINAL DAVIS CONSUMPTION FUNCTION

$$(C/Y)_t = \alpha + \beta(Y/C^0)_t$$

Countries	$\hat{\alpha}$	$\hat{\beta}$	R^2	SSR/T-Λ	DW	ρ	LMPC
(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. Canada (1951–1968)	1.3997** (0.0532)	−0.4043** (0.0463)	0.8267	0.00007	1.2871*	0.3708	0.948
2. Finland (1951–1968)	1.0425** (0.0899)	−0.1150 (0.0735)	0.1330	0.00066	0.6528**	0.6925	0.904
3. Guatemala (1951–1968)	1.1719** (0.1246)	−0.1868 (0.1159)	0.1489	0.00035	1.0605**	0.4877	0.970
4. Honduras (1951–1968)	1.1200** (0.0908)	−0.1653* (0.0802)	0.2213	0.00031	1.7500	0.1375	0.941
5. India (1950–1965)	1.0055** (0.0631)	−0.0632 (0.0565)	0.0778	0.00033	1.2733*	0.3796	0.915
6. Japan (1952–1967)	1.3212** (0.0917)	−0.3571** (0.0679)	0.6642	0.00054	0.7036**	0.6716	0.842
7. Philippines (1951–1968)	1.5187** (0.0805)	−0.5031** (0.0693)	0.7672	0.00048	1.6650	0.1793	0.941
8. Sweden (1951–1968)	1.1511** (0.1289)	−0.2126* (0.1073)	0.1989	0.00015	0.9091**	0.5625	0.898
9. United Kingdom (1951–1968)	1.9148** (0.0881)	−0.8638** (0.0794)	0.8818	0.00009	1.7731	0.1244	0.989
10. United States (1951–1968)	1.1013** (0.1213)	−0.1470 (0.1097)	0.1047	0.00010	1.5131	0.2563	0.939

*Significant at 5% level.

**Significant at 1% level; DW-Durbin–Watson Statistic; ρ (Serial correlation) has been computed according to Theil–Nagar's formula [1961], p. 804.

TABLE A.IV

THE MODIFIED DAVIS CONSUMPTION FUNCTION

$$(C/Y)_t = \alpha' + \beta'(Y/C^0)_t + \gamma'(C/Y)_{t-1}$$

Countries	$\hat{\alpha}'$	$\hat{\beta}'$	$\hat{\gamma}'$	R^2	SSR/T-Λ	DW	ρ	LMPC
(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Canada	1.1775**	−0.3672**	0.1943	0.8313	0.00070	1.3923	0.3385	0.955
(1951–1968)	(0.1552)	(0.0534)	(0.1246)					
2. Finland	0.4429*	−0.0752	0.6079**	0.5106	0.00040	2.2544	−0.1056	0.896
(1951–1968)	(0.1892)	(0.0582)	(0.1784)					
3. Guatemala	0.6206*	−0.1243	0.4976	0.3260	0.00030	1.7057	0.1808	0.966
(1951–1968)	(0.3060)	(0.1116)	(0.2556)					
4. Honduras	0.6641	−0.1021	0.4219	0.2310	0.00033	1.9194	−0.0703	0.934
(1951–1968)	(0.3781)	(0.0967)	(0.3305)					
5. India	0.3672	0.0105	0.5938	0.2277	0.00029	1.8430	0.1098	0.933
(1950–1965)	(0.3832)	(0.0692)	(0.3515)					
6. Japan	0.1829	−0.0291	0.8259**	0.7944	0.00036	1.6561	0.2110	0.779
(1952–1967)	(0.3958)	(0.1252)	(0.2805)					
7. Philippines	1.5059**	−0.4996**	0.0098	0.7672	0.00051	1.6715	0.1947	0.943
(1951–1968)	(0.2202)	(0.0882)	(0.1546)					
8. Sweden	0.7263**	−0.1828	0.4250**	0.3391	0.00013	1.4590	0.3041	0.880
(1951–1968)	(0.1814)	(0.1011)	(0.1374)					
9. United Kingdom	1.1563**	−0.5156*	0.3828*	0.8832	0.00009	1.5466	0.2590	0.938
(1951–1968)	(0.3681)	(0.1837)	(0.1813)					
10. United States	0.7383	−0.0942	0.3359	—	0.00024	0.8158**	0.6354	0.956
(1951–1968)	(0.4716)	(0.1804)	(0.3895)					

*Significant at 5% level.

**Significant at 1% level; DW-Durbin–Watson Statistic; ρ (Serial correlation) has been computed according to Theil–Nagar's formula [1961], p. 804.