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FINANCIAL CONCENTRATION AND DEVELOPMENT: AN EMPIRICAL ANALYSIS OF THE VENEZUELAN CASE

by

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1. Introduction

Knowledge of whether the gains from development are evenly distributed is central to the theory and practice of development economics. In this regard, a number of investigators have noted that in the process of economic development, inequalities in the distribution of income first grow and then decline, giving rise to what is generally known as the U-hypothesis (or the inverted U).+ This paper tests whether this hypothesis holds for the distribution of financial wealth in Venezuela.

Intuitively, one might expect that inequalities in the distribution of wealth would mirror inequalities in the distribution of income because of income's role in determining asset holdings. Despite its intuitive appeal, this issue has not been addressed in the applied literature, a task that this paper undertakes. In addition, understanding the behavior of financial concentration is relevant to addressing both normative and policy questions. Normative questions arise because oil, a nationally owned resource, has been

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+ Interest in the association between development and distribution has increased since Kuznets' seminal paper (Kuznets 1955). See Robinson for a theoretical analysis; Papanek and Kyn (1986), Ahluwalia (1976a,b) and Adelman and Morris (1973) for empirical analyses; Cline (1975) and Hagen (1980) for surveys of the literature.

the cornerstone of Venezuela's development strategy. In this context, an increase in financial concentration might indicate that the gains from development are not being evenly distributed.

Despite their importance to policy makers in developing countries, the distributional consequences of macropolicies have not received much attention in the empirical literature. For example, the advantages of interest rate liberalization policies are generally stated in terms of aggregate outcomes with little attention to their distributional effects.* Because the uncertainty surrounding these effects has been a deterrent to the implementation of these liberalization policies,+ it is important to investigate their distributional effects.

From the perspective of monetary policy, a substantial concentration of financial assets might produce erratic movements in monetary aggregates as a result of financial decisions by a few individuals. Volatility in these aggregates has, in turn, implications for central bank discount policies as well as reserve-requirement regulations. The degree of financial concentration is also crucial to commercial banks' credit policies: the same aggregate level of deposits might be more conducive to credit generation if it is widely distributed among individuals than if it is highly concentrated. Finally, as Rollins (1955) notes, the concentration of financial assets might affect the functioning of markets for goods and services carrying implications for the allocation of resources and raising normative questions of its own.

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* Lanyi and Saracoglu (1983) recognize the distributional effects of macropolicies. See McKinnon (1973) and Fry (1978) for analyses of interest rate liberalization policies. The interactions between financial concentration and the development process are pointed out by Reynolds and Corredor (1976) and McKinnon (1973).

+ See Lanyi and Saracoglu (1983).

Several investigators have noted that Venezuela has serious distributional inequalities.* Although useful, these analyses have a number of restrictive features that are relaxed in this investigation. First, they rely on short time series that do not facilitate statistical analysis of the association between development and concentration. Second, important recent events post-date previous analyses of Venezuela's distributional patterns. The reductions in oil prices, the serious problems associated with debt servicing, and the decline of the exchange rate have produced the deepest contraction in Venezuela's history, reducing the level of per-capita income in 1984 to the level prevailing in 1966. Changes of this magnitude warrant a re-examination of the Venezuelan case.

This study might also be useful to ongoing empirical research on the U-hypothesis. Despite their contributions to the literature, previous analyses apply ordinary least squares to cross-sectional samples, and assume that the only alternative to the U-hypothesis is for income and concentration to be linearly related.+ To relax these limiting features, this paper relies on Amemiya's estimator for truncated dependent variables and uses data

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* Rollins (1955) examines the distribution of income across productive sectors (primary, secondary, and tertiary) and notes that the development process has been accompanied by inequalities. Musgrove (1981) compares the income distributions in 1966 and 1975 and concludes that faster growth, financed with an increase in oil revenues, did not translate into a reduction in inequalities. Tokman (1976) finds that the employment effects of policy-induced changes in the distribution of income are relatively small. Urdaneta de Ferran (1980) discusses the effect of public expenditures on the income distribution.

\+ Important empirical studies of the U-hypothesis include Papanek and Kyn (1986), Ahluwalia (1976a,b), Adelman and Morris (1973), and Weisskoff (1970). In addition to the influence of income, these studies allow other variables to affect the distribution of income. However, these analyses rely on ordinary least squares, which is not appropriate for measures of concentration that have a truncated range of variation. Furthermore, despite their recognition of the need for time-series data, these studies rely on cross-sectional samples, with their test results being sensitive to the selection of countries used in estimation (see Hagen 1980, Papanek and Kyn 1986).

for 1965-1984. In addition, hypothesis testing is not restricted to linear or quadratic formulations, but more general specifications are considered.

This paper focuses on the association between the concentration of savings deposits, the most widely held financial asset in Venezuela, and development as measured by per capita income. The analysis begins in section 2 with a review of the data on the size distribution of these deposits. Subsequently, it tests whether these deposits are lognormally distributed, a step that facilitates the estimation of their concentration. Section 3 develops a simple theoretical model to study the conditions under which the association between the concentration of savings deposits and per-capita income might be an inverted U. Whether these conditions are met, however, is an empirical question that section 3 also addresses. According to the results, financial concentration and income do exhibit an inverted-U association. The findings also indicate that higher interest rates reduce the degree of financial concentration. Finally, section 4 contains our conclusions.

2. The Size Distribution of Savings Deposits in Venezuela

2.1 The Data

To provide some evidence of the degree of financial concentration in Venezuela, Table 1 shows the size distribution of both savings deposits and savings depositors for the period 1965-1984 in terms of 1965 prices, a sample long enough to provide some insights into the relation between development and distribution.* An examination of the evidence reveals two features.

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* The data refer to savings deposits in all Venezuelan commercial banks. The data appendix discusses the construction of the size distribution of savings deposits, presents the formal derivation of the size distribution in real terms, and shows the sensitivity of this distribution to changes in the underlying assumptions.

First, savings deposits in Venezuela exhibit a relatively high and persistent degree of concentration. For example in 1984, 74 percent of all depositors held less than 4 percent of savings deposits whereas the top 1 percent of savers held over 38 percent of these deposits. Second, the degree of savings concentration has been growing since 1980 with the share of the top 1 percent of depositors increasing from 28.9 percent of deposits in 1980 to 38.2 percent in 1984.

Reliance on the concentration of savings deposits as an indicator of financial concentration is not without problems. For example, changes in individuals' financial portfolios might affect the size distribution of these deposits without affecting the overall degree of financial concentration. Despite this limitation, an analysis of the concentration of savings deposits might still be informative for various reasons. First, savings deposits are likely to be the most significant fraction of Venezuelans' financial portfolio, especially for individuals with low income,* because both the stock market is not well developed and the alternative financial instruments have large denominations.+ Second, given these two features, it would be surprising if the size distribution of alternative financial assets exhibited a lesser degree of concentration than that of savings deposits. Thus the concentration of savings can be viewed as reflecting the general pattern of wealth concentration. Finally, there is information on the size

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* For Venezuela, the proportion of saving depositors in the population of 19 years or older increased from 22 percent in 1965 to 70 percent in 1984.

+ Time deposits in Venezuela require a minimum deposit of 250,000 bolivares. Of the savings depositors shown in table 1, less than one percent seem to have the savings needed to gain access to such deposits. It is, of course, possible to find individuals who choose a portfolio with low savings holdings and large holdings of time deposits. But given the skewness in the distribution of income (Musgrove 1981), it seems reasonable to expect that relatively few individuals would be able to support such a portfolio.

distribution of savings deposits between 1965 and 1984, but such information is not available for other financial instruments.

2.2 Statistical Characterization

Knowledge of the statistical distribution of savings deposits facilitates the estimation of their degree of concentration. This analysis uses the Jarque-Bera statistic (Jarque and Bera 1980) to test whether these deposits are lognormally distributed--that is, whether $\ln S_{it} \sim N[m_t, v_t]$, where S_{it} is real savings deposits of the ith class of individuals.*

Under the null hypothesis that savings deposits are lognormally distributed, the Jarque-Bera statistic is computed as

$$\text{(1)} \qquad JB = M[(\Gamma_3)^2/(6(\Gamma_2)^3) + (1/24)(\Gamma_4/(\Gamma_2)^2 - 3)^2] \sim \chi^2(2),$$

where M is the sample size (M=9 savings categories for each year) and Γ_j is the jth central moment of the distribution of $\ln S_{it}$. The first term in (1) estimates the skewness of the distribution whereas the second term estimates the excess kurtosis. The significance levels associated with (1)--that is, $\Pr(\chi^2(2) < JB)$--are shown in column one of table 2. According to the results, it is not possible to reject the hypothesis that savings deposits are lognormally distributed in each year during the 1965-1984 period.+

* See Aitchison and Brown (1973) for a discussion of the lognormal distribution. In addition to facilitating the measurement of concentration, the lognormal distribution is fully characterized by its first two moments, the estimation of which is computationally straightforward.

+ The fact that the data support the lognormality assumption should not preclude further testing of alternative statistical distributions for savings. Nevertheless, alternative densities are likely to exhibit a degree of concentration similar to the lognormal distribution.

2.3 The Concentration of Savings

To estimate the concentration of savings, the analysis uses the variance of the log of savings, denoted here as v_t. Although alternative measures of concentration are available, they can be expressed as functions of the variance of the lognormal distribution.* This variance is computed as

(2) $$v_t = \Sigma_i [N_{it}/N_t] [\ln S_{it} - m_t]^2,$$

where $m_t = \Sigma_i [N_{it}/N_t] \ln S_{it}$,

N_{it} = number of depositors in the ith savings class,

N_t = total number of depositors.

Column two of Table 2 displays the evolution of v_t for the period 1965-1984. According to the evidence, the concentration of savings is relatively constant for the period 1965-1973, experiences historically large fluctuations during the period 1974-1979, and increases throughout the period 1980-1984.+

For the purpose of comparing movements in savings concentration with the level of development, Table 2 also presents Venezuela's growth in per-capita income for the period 1965-1984. The data indicate that per-capita income increased at an annual average rate of 2.1 percent, with almost no interruptions, until 1977. Beginning in 1978, however, Venezuela entered a recessionary phase in which per-capita income declined at an annual average rate of 3.7 percent and, by 1984, per-capita income had fallen to its 1966 level. During this period, savings concentration experienced a

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* Two other measures of concentration are the Lorenz measure and the Gini coefficient. For the lognormal distribution, the Lorenz measure is $2(\Pr(N(0,1)<\sqrt{(v_t/2)})-1)$ and varies from 0 to 1 as v_t increases from 0 to infinity. The Gini coefficient is a monotonic function of the Lorenz measure. Thus these two measures of concentration can be obtained with knowledge of v_t. Weisskoff (1970) discusses alternative measures of inequality.

+ Table 3 also reports the Lorenz coefficient. As expected, it exhibits similar behavior to the variance of the distribution of savings.

sustained increase which suggests that these two variables are inversely associated. An examination of the evidence for the pre-1977 period, however, provides no clues as to what kind of association (if any) exists between these two variables. To examine this question more closely, section 3 builds and tests a model of development and financial concentration.

3. Financial Concentration and Development

3.1 Theoretical Model

We assume that savings depend on income, Y, and interest rates, R: $\ln S = F(Y,R)$. It is also assumed that there are two groups of individuals earning Y_1 and Y_2 respectively, with $Y_1 < Y_2$. These differences in income produce differences in both the level of savings and the savings' response to changes in income:

(3a) $$F(0,R) = 0,$$

(3b) $$S_{iy} = \partial F(Y_i, R)/\partial Y_i > 0,$$

(3c) $$S_{ir} = \partial F(Y_i, R)/\partial R > 0,$$

(3d) $$S_{iyy} = \partial^2 F(Y_i, R)/\partial Y_i^2 \neq 0$$

for $i=1,2$ and $F_1 = F(Y_1,R) < F_2 = F(Y_2,R)$ for all values of Y.* Equations (3b) and (3c) indicate that an increase in either real income or interest rates raises savings deposits. Equation (3d) states that the income elasticity varies with the level of income.+

The mean and variance of the log-savings distribution are

(4) $$m = \omega_1 F_1 + \omega_2 F_2, \quad v = \omega_1 (F_1 - m)^2 + \omega_2 (F_2 - m)^2,$$

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* In view of the controls on interest rates in Venezuela, it is assumed that all depositors earn the same interest rate on savings deposits.

+ See Reynolds and Corredor (1976). Note that S_{iyy} might be zero if the function F has an inflection point.

where ω_i is the share of the population receiving income Y_i and $\omega_1+\omega_2=1$. Differentiation of v with respect to Y yields*

(5) $$dv/dY = 2\omega_1(1-\omega_1)(F_1-F_2)(S_{1y}-S_{2y})+(F_1-F_2)^2(1-2\omega_1)(\partial\omega_1/\partial Y).$$

Under the assumption that $S_{1y}< S_{2y}$, the first term of (5) indicates that an increase in income raises the concentration of savings, for a given distribution of income. The second term recognizes that a change in income might also change its distribution with an indirect effect on the concentration of savings. For $\partial\omega_1/\partial Y>0$ (the Kuznets effect) this indirect effect lowers the concentration of savings and offsets the direct income effect. Note that if $S_{1y}=S_{2y}$, then higher income reduces the concentration of savings.

Further differentiation of (5) gives

(6) $$\begin{aligned} d^2v/dY^2 = \; & 2\omega_1(1-\omega_1)[(S_{1y}-S_{2y})^2 + (S_{1yy}-S_{2yy})(F_1-F_2)] \\ & + 2(\partial\omega_1/\partial Y)(S_{1y}-S_{2y})(1-2\omega_1)(F_1-F_2) \\ & + (F_1-F_2)^2[(1-2\omega_1)(\partial^2\omega_1/\partial Y^2) - 2(\partial\omega_1/\partial Y)^2]. \end{aligned}$$

The condition for an inverted-U association between development and financial concentration is $d^2v/dY^2 < 0$ for all Y. Inspection of (6) reveals that whether this condition holds depends on two factors: the degree to which savings propensities are influenced by income (that is, whether $S_{iyy}=0$ for all Y, i=1,2) and the extent to which changes in income affect its distribution ($\partial\omega_1/\partial Y\neq 0$). Without quantitative knowledge of the distribution of savings responses to income, it is not possible to establish a priori whether this condition holds. Whether it does, however, is an empirical proposition that is tested in section 3.2 below.

Savings deposits also depend on interest rates. Thus differentiation of v with respect to R yields

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* To avoid ambiguities, the analysis assumes that $dY_1 = dY_2 = dY$.

$$(7) \qquad dv/dR = 2\omega_1(1-\omega_1)(F_1-F_2)(S_{1r}-S_{2r}) + (1-2\omega_1)(F_1-F_2)^2(\partial\omega_1/\partial Y)(\partial Y/\partial R) \lesseqgtr 0.$$

The first term of (7) reveals that if the sensitivity of savings to changes in interest rates increases with income ($S_{1r} < S_{2r}$), then higher interest rates raise the concentration of savings. However, the second term of (7) indicates that changes in interest rates affect both income and its distribution with a feedback effect on the concentration of savings. Specifically, if (interest-rate) liberalization policies are effective ($\partial Y/\partial R>0$), then this feedback effect lowers the degree of financial concentration. Because these two effects are mutually offsetting, it is not possible to establish a priori the effect of interest rates on the concentration of savings.

3.2 Statistical Model

The above discussion suggests that based on theoretical arguments alone, it is difficult to determine the nature of the association between financial concentration and development. To examine this question, the paper postulates that*

$$(8) \qquad v_t = \Sigma_j\phi_j Y_t^j + \gamma R_t + e_t,\ \text{for } j=1,\ldots,n,$$
$$e_t \sim N(0,\sigma_e),\ E(e_t.e_{t-1})=0,$$

where Y_t is the level of per-capita real income, and R_t is the interest rate on savings deposits.+ According to (8), the association between development and financial concentration is an inverted U if $\phi_1>0$, $\phi_2<0$, and $\phi_j=0$ for $j>2$.

* See Cline (1975); Adelman and Morris (1973) and Ahluwalia (1976a,b) use income shares as the dependent variable.

+ Equation (8) can be expressed as $v_t=\Sigma_j\psi_j(((Y_t^j)^\theta-1)/\theta)+\gamma R_t+e_t$, for $j=1,\ldots,n$, where θ is a Box-Cox parameter. When Box-Cox tests are applied to (8), the statistical results suggest a value of $\theta=1$.

A number of issues arise in both the econometric estimation of (8) and the testing of the U-hypothesis. First, by definition, the dependent variable cannot take on negative values. As a result, the distribution of e_t lacks symmetry and has a positive mean.* To account for this feature, the parameters of (8) are estimated with Amemiya's (1973) maximum-likelihood estimator for truncated normal variables. The associated log-likelihood function is

$$(9) \qquad \ln \ell = \Sigma_t \ln(\text{p.d.f.}(e_t)) - \Sigma_t \left(\ln \int_{-\Sigma_j \phi_j Y_t^j - \gamma R_t}^{\infty} (\text{p.d.f.}(e_t))de.\right.$$

The application of ordinary least squares to (8) excludes the rightmost term of (9), an exclusion that invalidates a test of the U-hypothesis based on a t-test because the distribution of the parameter estimates is not symmetrical.

Second, there are individuals who choose not to save. Exclusion of these individuals from the analysis would affect the measurement of the degree of concentration and therefore the parameter estimates of (8). To account for their influence, the paper recomputes the estimate of v_t allowing for an additional class of savings deposits comprised of non-savers.+ Third, whether a given hypothesis is accepted depends on the alternative hypotheses considered. Previous analyses have assumed that $\phi_j=0$ for $j>2$,

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* The non-negativity of v_t implies that $e_t > -\Sigma_j \phi_j Y_t^j - \gamma R_t$, for $j=1,\ldots,n$. This truncation problem is important because otherwise e_t will be defined for $(-\infty, \infty)$, allowing drawings for e_t so small that $v_t < 0$.

+ The number of non-savers is estimated as the difference between the population over 19 years old and the total number of savings depositors.

which implies that the only alternative to the U-hypothesis is for income and concentration to be linearly related.* To relax this limiting feature, the analysis tests the significance of increasing powers of per-capita income with a likelihood ratio test:

(10) $$-2\ln\lambda = -2(\ln\ell(\Omega_{j+1})-\ln\ell(\Omega_{i+1}))\sim\chi^2(i-j),\ i>j,$$

with $$\Omega_{j+1} = (\phi_1\ldots\phi_j\ \gamma),\ \text{and}$$

$$\Omega_{i+1} = (\phi_1\ldots\phi_i\ \gamma),$$

where Ω_{j+1} is the parameter vector for the null hypothesis, Ω_{i+1} is the parameter vector for the alternative hypothesis, and $\ell(\Omega)$ is the value of the likelihood function given the Ω parameter vector. If additional powers of per-capita income are not important in explaining v_t, then $-2\ln\lambda$ will be close to zero.

Fourth, the assumptions of serial independence and homoskedasticity for the error term are central to the statistical tests performed here. Serial independence is tested with

$$\hat{e}_t = \alpha_1\hat{e}_{t-1} + \alpha_2\hat{e}_{t-2} + \alpha_3\hat{e}_{t-3} + \alpha_4\hat{e}_{t-4}.$$

The null hypothesis of no serial correlation is $H_o=\alpha_1=\ldots=\alpha_4=0$, which is tested with an F-test. To test for homoskedasticity, the analysis relies on the ARCH test (Engel 1982) in which

$$\hat{e}^2_t = \gamma_0 + \gamma_1\hat{e}^2_{t-1}.$$

The null hypothesis of homoskedasticity cannot be rejected if $\gamma_1=0$, which is tested with a t-test.

Finally, it is important to test for parameter constancy given the severity of the disturbances to which Venezuela has been exposed since 1978. Failure to exhibit parameter constancy might be indicative of a misspecification which reduces the usefulness of the model for policy

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* See Papanek and Kyn (1986), Ahluwalia (1976a, b) and Adelman and Morris (1973).

applications. To test this hypothesis, the paper uses Chow's (1961) forecast criterion:

(11) $v_t = \Sigma_j \phi_j Y_t^j + \gamma R_t + \Sigma_i \delta_i D_i + e_t$, i=1979,...,1984, j=1,..,n,

where D_i is a dummy variable with a value of 1 in year i and zero otherwise. Intuitively, if the parameters of (8) are constant, then the expected forecast error generated by (8) is zero. In the presence of parameter instability, forecast errors will no longer be expected to be zero and their tendency to deviate from zero will be captured by the coefficients of the dummy variables in (11). In this context, the null hypothesis of parameter stability after 1978 is $H_o:\delta_{1979}=...=\delta_{1984}=0$. Moreover, (11) permits testing for parameter instability developing in any year after 1979. The statistic for this test is the log-likelihood ratio presented in (10) which, in this case, is distributed as $\chi^2(k)$, where k is the number of years after the hypothesized parameter change (k=1,..,6).

3.3 Empirical Results

Table 3 presents the maximum-likelihood estimates for the parameters of (8) with annual data for the period 1965-1984. Column 2 shows the quadratic specification with a positive coefficient on the linear term and a negative coefficient on the quadratic term, both of which are highly significant. The results also show that an increase in interest rates lowers the concentration in savings deposits, suggesting that higher interest rates will lower the degree of market fragmentation.

Although a significantly negative coefficient for the quadratic term is generally taken as evidence in favor of the U-hypothesis, it is not possible to rule out alternative formulations. Based on the likelihood ratio tests reported in table 3, the evidence rejects the linear, the cubic, and polynomials of higher order in favor of the quadratic formulation.* As they stand, these results suggest that the association between the level of development and the concentration of savings deposits is an inverted U.+

Based on the quadratic formulation, table 4 reports the test results for the hypothesis of parameter constancy, allowing for the possibility of parameter instability developing in every year after 1978. The evidence indicates that, regardless of the starting date, it is not possible to reject the hypothesis of parameter constancy for the post-1978 period. Finally, the F- and ARCH-tests in table 3 indicate that the hypotheses of serial independence and homoskedasticity for the residuals for the quadratic specification cannot be rejected.

4. Summary, Policy Implications, and Concluding Remarks

This paper documents the degree of concentration of savings deposits in Venezuela for the period 1965-1984 and studies its relation to income. To facilitate the measurement of concentration, the analysis begins by testing whether these deposits are lognormally distributed. The results suggest that it is not possible to reject this hypothesis for each year during 1965-1984.

The question of whether, in the process of development, concentration of savings first grows and then declines (the U hypothesis) is analyzed both theoretically and empirically. The theoretical analysis provides no a priori reasons to either accept or reject an inverted-U association. As a result, this issue is addressed empirically with Amemiya's

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* Tests not shown here reject polynomials up to the tenth degree.

+ Note that the inclusion of third and fourth powers for income lowers the significance level for all the explanatory variables and produces instability in the coefficient estimates, a result that might stem from the multicollinearity arising from the inclusion of many powers of per-capita income as explanatory variables.

maximum-likelihood estimator for truncated dependent variables. The results indicate that the association between these two variables follows an inverted U and that there exists a negative association between savings concentration and interest rates. The presence of an inverted U means that the oil-based development process in Venezuela does not necessarily produce sustained inequalities in the distribution of wealth. The negative response of savings concentration to higher interest rates means that financial liberalization policies not only might promote investment efficiency, but also might reduce wealth inequalities.

Although the analysis can be improved in a number of ways, none seems more important than improving the data. The paper relies on the concentration of savings as an indicator of financial concentration. Widespread and important as savings deposits might be, they are not the only financial instrument in Venezuela. Time deposits, mortgage bonds, and currency both at home and abroad are alternative assets to savings. Because data on the size distribution for these assets are not available for any year, much less as a time series, the test for a connection between development and financial concentration reported in this paper had to use savings deposit data alone.

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Table 1

SAVING DEPOSITS IN COMMERCIAL BANKS IN VENEZUELA

SIZE DISTRIBUTION OF DEPOSITS IN REAL TERMS

PERCENTAGES

CLASSES	1965	1970	1975	1980	1981	1982	1983	1984
1-1000	5.4	7.1	4.8	6.2	5.2	4.3	4.0	3.8
1001-5000	13.8	13.0	10.5	8.0	7.5	7.3	6.2	5.9
5001-10000	13.5	12.4	10.0	9.0	8.2	7.9	7.0	6.4
10001-20000	16.8	16.4	13.8	12.7	12.0	12.0	9.7	10.1
20001-50000	20.6	22.3	21.6	17.6	18.3	18.6	16.5	16.9
50001-100000	11.7	13.6	15.7	17.7	17.4	17.1	17.5	18.8
100001-500000	12.6	12.5	18.5	21.5	23.3	24.0	25.9	25.5
500001-1000000	2.6	1.5	2.9	4.7	4.8	5.0	6.6	6.8
1000000 +	3.1	1.3	2.1	2.7	3.2	3.8	6.6	5.9

DISTRIBUTION OF DEPOSITORS

PERCENTAGES

CLASSES	1965	1970	1975	1980	1981	1982	1983	1984
1-1000	73.30	73.11	69.08	68.98	68.77	70.48	73.03	74.13
1001-5000	16.04	15.80	17.20	15.35	15.48	15.43	13.55	12.34
5001-10000	4.90	5.02	5.55	5.79	6.41	5.31	4.64	5.01
10001-20000	3.14	3.26	3.96	4.13	4.46	4.04	3.90	3.77
20001-50000	1.88	2.09	2.80	3.12	2.93	2.85	2.87	2.70
50001-100000	0.54	0.52	0.92	1.89	1.20	1.16	1.16	1.20
100001-500000	0.19	0.20	0.46	0.70	0.69	0.69	0.77	0.76
500001-1000000	0.01	0.01	0.01	0.04	0.04	0.04	0.05	0.06
1000000 +	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02

note: ranges are in 1965 bolivars

Table 2
Size Distribution of Savings Deposits (1965 Prices)
Selected Characteristics for the Lognormal Distribution
Venezuela 1965-1984

Year	Normality test[a] (1)	Variance[b] (2)	Lorenz measure[c] (3)	Growth in Per capita income[d] (%) (4)
1965	0.765	2.218	70.666	2.27
1966	0.767	1.869	66.636	-1.14
1967	0.764	1.963	67.821	0.69
1968	0.766	2.034	68.672	1.51
1969	0.767	1.962	67.805	1.10
1970	0.767	1.879	66.755	5.16
1971	0.766	1.933	67.439	-0.18
1972	0.765	2.087	69.298	0.14
1973	0.765	2.054	68.917	2.89
1974	0.766	1.644	63.544	2.92
1975	0.765	2.243	71.036	2.74
1976	0.766	2.014	68.441	5.16
1977	0.766	2.066	69.050	3.64
1978	0.763	2.285	71.486	-0.86
1979	0.764	1.915	67.218	-1.70
1980	0.765	1.955	67.714	-4.75
1981	0.764	2.053	68.898	-3.09
1982	0.762	2.285	71.485	-2.04
1983	0.761	2.341	72.069	-8.51
1984	0.761	2.407	72.742	-4.03

[a] Entries in this column are computed as $Pr(\chi^2(2) \leq JB)$, where JB is the Jarque-Bera statistic defined in (1).

[b] The data for v_t are derived from table 1.

[c] The Lorenz concentration measure is $2(Pr(N(0,1)<\surd(v_t/2))-1)$.

[d] The data for both real GDP growth rates and for population are obtained from the IMF Yearbook (1984, 1985).

Table 3
Concentration of Savings Deposits and Development
Venezuela 1965-1984*
Parameter Estimates
(t-statistics)

$$v_t = \Sigma_j \phi_j Y_t^j + \gamma R_t + e_t, \text{ for } j=1,\ldots,n,$$

Explanatory Variable	Degree of polynomial (n) 1	2	3	4	Mean
Per capita Y	4.501 (30.87)	6.097 (13.13)	0.988 (0.16)	-94.970 (-0.91)	1.106
Per capita Y^2		-1.406 (-3.35)	7.747 (0.69)	108.671 (0.94)	1.231
Per capita Y^3			-4.059 (-0.82)	-233.12 (-0.94)	1.381
Per capita Y^4				67.701 (0.92)	1.561
Interest rate	-0.054 (-1.75)	-0.058 (-2.40)	-0.061 (-2.54)	0.057 (-2.39)	4.950
log likelihood	0.218	5.096	5.426	5.838	
Test of Autocorrelation[a]	0.99	0.88	0.90	0.87	
Test of Homoskedasticity[b]	0.82	-0.47	-0.35	-0.79	
$-2(\ln\ell(\Omega_j)-\ln\ell(\Omega_i))=-2\ln\lambda$[c]		9.757 (0.99)	0.660 (0.58)	0.824 (0.64)	

*Data for v_t are obtained from table 2; data for Y_t are obtained by using the growth rates for per-capita income shown in table 2.

[a]Significance level associated with F-test for serial correlation in the residuals. The F-statistic is distributed as F(K,(T-K)-K), where T is the number of observations (20) and K is the number of restrictions (4).

[b]T-statistic for homoskedasticity.

[c]Value of the likelihood ratio test statistic where Ω_j is the parameter vector for H_o and Ω_i is the parameter vector for H_1. Numbers in parentheses are significance levels for $-2\ln\lambda$: $Pr(-2\ln\lambda<\chi^2(i-j))$.

Table 4
Tests for Parameter Stability
Venezuela 1965-1984
(quadratic specification)

Structural Change After	Likelihood	$-2\ln\lambda$[a]	Significance level[b]	Degrees of Freedom (k)
1978	10.86	11.53	0.93	6
1979	9.92	9.66	0.91	5
1980	8.29	6.40	0.83	4
1981	6.40	2.60	0.54	3
1982	6.11	2.03	0.64	2
1983	5.66	1.13	0.71	1

[a]The value of the likelihood ratio test statistic is computed as $2\ln\lambda = -2(\ln\ell(\Omega_{2+1}) - \ln\ell(\Omega_{2+k+1})) \sim \chi^2((k)$ where Ω_{2+1} is the parameter vector under the null hypothesis, Ω_{2+k+1} parameter vector under the alternative hypothesis, and k is the number of years after the hypothesized structural change.

[b]Significance levels associated with $-2\ln\lambda$: $Pr(-2\ln\lambda < \chi^2(k))$.

Data Appendix

To construct the size distribution for a given year, the Central Bank of Venezuela classifies savings deposits according to their size into nine intervals. For each savings interval, the data include both the total number of depositors and the aggregate level of savings deposits associated with these depositors. This information permits estimation of the mean savings in each interval but precludes estimation of the variance of each interval's mean because there is no published information on savings deposits at the individual level.

Table A1 shows the size distribution of both savings deposits and savings depositors for the period 1965-1984. An inspection of the evidence reveals that Venezuela exhibits a relatively high concentration of savings deposits. For example, in 1984, 70 percent of all depositors held only 3 percent of all deposits whereas the top one percent of savers held over 42 percent of these deposits. Moreover, the degree of concentration displays a tendency to increase with the share of the top one percent of depositors increasing from 35 percent of all deposits in 1980 to 42 percent by 1984.

One feature of the published data is that both the upper and lower limits of the savings categories have remained constant over time. As a result, the observed distribution might exhibit a shift of depositors from the lower classes to the upper classes due to the "bracket creep" effects of inflation on nominal savings deposits. This shift in frequencies would affect the moments of the distribution and thus distort the estimated measure of concentration.[1]

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1. Whether the inflation rate ultimately produces a distortion in savings concentration depends on several factors. First, the initial levels of savings and the inflation rate might be so small that bracket creep in savings deposits would not materialize. Second, the functional distribution (Footnote continues on next page)

The derivation of the size distribution of savings in real terms requires two steps: recomputing the frequencies of depositors correcting for bracket creep and expressing savings in real terms. To recompute the size distribution in real terms, this paper assumes that the distribution of savings deposits in the interval $[S_{i-1}, S_i]$ is given by f_i. Denoting f as the size distribution of nominal savings, f_r as the size distribution in real terms, and P as the price level, the paper computes the frequencies associated with the real distribution as

(A1) $$\omega_1 = \int_{S_0}^{S_1} f_r \, dS = \int_{S_0}^{S_1} f \, dS + \int_{S_1/P}^{S_1} f_2 \, dS,$$

(A2) $$\omega_i = \int_{S_{i-1}}^{S_i} f_r \, dS = \int_{S_{i-1}}^{S_i} f \, dS + \int_{S_i/P}^{S_i} f_{i+1} \, dS - \int_{S_{i-1}/p}^{S_i} f_i dS \quad , \text{ for } i=2,8,$$

(A3) $$\omega_9 = \int_{S_8}^{\infty} f_r \, dS = \int_{S_8}^{\infty} f \, dS - \int_{S_8/P}^{\infty} f_9 \, dS,$$

where time subscripts have been dropped for notational convenience. Because data on individuals' savings deposits are not available, the f_i's cannot be parametrized empirically. As a result, the paper assumes that

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(Footnote continued from previous page)
of income might affect the concentration of savings, especially if individuals' wages are not indexed. In that event, an increase in the inflation rate lowers real wages which produces an increase in the concentration of savers in the lower savings categories as workers use their savings to finance consumption. At the same time, profit recipients would see their income increase with inflation, an increase that would enable them to increase their savings deposits. As a result, inflation would tend to increase the dispersion of savings deposits.

$$\text{(A4)} \qquad \int_{S_i/P}^{S_i} f_{i+1}\, dS \simeq (1+\psi)\,\Pi \int_{S_i}^{S_{i+1}} f\, dS,$$

where ψ is a constant and Π is the inflation rate. The assumption behind equation (A4) is that the number of depositors shifting from a given interval to a lower interval is proportional to the inflation rate.

Substitution of (A4) into (A1-A3) yields

$$\text{(A5)} \qquad \omega_1 \simeq [1+(1+\psi)\Pi] \int_{S_0}^{S_1} f\, dS = [1+(1+\psi)\Pi](N_1/N),$$

$$\text{(A6)} \qquad \omega_i \simeq [1-(1+\psi)\Pi] \int_{S_{i-1}}^{S_i} f\, dS + (1+\psi)\Pi \int_{S_i}^{S_{i+1}} f\, dS$$

$$\simeq [1-(1+\psi)\Pi](N_i/N) + (1+\psi)\Pi(N_{i+1}/N), \quad i=2,8$$

$$\text{(A7)} \qquad \omega_9 \simeq [1-(1+\psi)\Pi] \int_{S_9}^{\infty} f\, dS = [1-(1+\psi)\Pi](N_9/N).$$

Equations (A5)-(A7) give the frequency of depositors for the savings distribution after adjusting for inflation. These expressions have two noteworthy features. First, if there is no inflation, then the frequencies for both nominal and real savings are equal to each other. Second, the sum of frequencies equals one--that is

$$\int_{S_0}^{\infty} f_r\, dS = 1.$$

Once the frequencies of depositors are adjusted for inflation, the concentration of savings for the distribution in real terms at time t can be expressed as

$$v_t = \sum_i \omega_{it}(S_{it} - m_t)^2,$$

where $m_t = \sum_i \omega_{it} S_{it}$, and

S_i = ln(mean nominal savings/price level).

For simplicity, the empirical analysis assumes $\psi = 0$, which implies that the shift of depositors from one interval to the next is strictly proportional to the inflation rate. Table A2 presents the size distribution for real savings and depositors. A comparison of the distribution for nominal and real savings reveals that inflation has a tendency to produce bracket creep, but this tendency has been mild at best.

To examine the robustness of the results to changes in the assumption that $\psi = 0$, table A3 presents the data for alternative values of ψ, ranging from -100 to 100 percent. The evidence shows that the pattern and the values of v_t are relatively unchanged, a phenomenon already noted by Adelman (1975) in the context of the Korean income distribution.

Table A1

SAVINO DEPOSITS IN VENEZUELA 1965-1984

SIZE DISTRIBUTION OF DEPOSITS

CLASSES	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
CLASS 1	5.4	6.8	6.3	5.6	6.4	6.6	6.0	5.3	4.7	5.1	4.9	5.1	4.7	3.8	4.2	4.5	4.3	3.8	3.5	2.9
CLASS 2	13.8	14.5	13.1	12.3	12.4	13.0	12.1	11.5	11.3	11.7	10.5	9.8	9.0	7.0	8.4	7.9	7.5	7.2	6.2	5.9
CLASS 3	13.5	13.5	12.6	11.9	12.1	12.2	11.5	10.9	10.7	11.2	10.1	9.5	8.8	8.4	8.7	8.4	7.8	7.7	6.8	5.9
CLASS 4	16.8	15.8	16.5	16.6	16.2	16.2	15.7	15.2	14.6	15.1	13.8	12.8	11.9	12.7	11.3	11.2	11.1	11.5	9.2	9.0
CLASS 5	20.6	20.6	21.7	22.4	22.3	22.6	23.1	23.2	22.5	22.4	21.5	20.1	19.3	18.9	19.0	18.1	18.6	18.8	16.5	16.8
CLASS 6	11.7	11.2	12.1	13.0	13.2	13.6	14.3	15.0	15.3	14.9	15.8	16.0	15.9	19.4	15.1	15.4	16.2	16.5	16.7	17.1
CLASS 7	12.6	11.2	12.5	13.4	12.8	12.9	14.0	15.4	16.8	16,0	18.4	20.6	23.3	21.6	24.3	26.0	25.8	25.4	27.4	28.7
CLASS 8	2.6	2.5	1.9	2.4	2.1	1.5	2.0	2.0	2.1	2.1	2.9	3.1	3.9	4.5	4.9	5.1	5.0	5.0	6.6	6.8
CLASS 9	3.1	3.9	3.3	2.5	2.5	1.3	1.3	1.6	2.0	1.6	2.1	2.9	3.2	3.6	4.0	3.4	3.7	4.1	7.1	6.8

DISTRIBUTION OF DEPOSITORS

CLASSES	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
CLASS 1	73.25	73.52	79.62	71.97	71.42	72.53	72.95	74.11	73.45	70.24	69.21	68.49	67.49	71.09	66.74	65.18	66.70	69.39	72.07	72.17
CLASS 2	16.08	16.32	12.02	15.93	16.03	16.19	15.64	15.04	15.29	16.75	17.12	17.18	16.96	15.67	19.09	17.83	16.72	16.15	14.20	13.55
CLASS 3	4.91	4.87	3.92	5.55	6.19	5.08	5.07	4.63	4.77	5.42	5.54	6.01	6.30	5.50	5.67	6.18	6.66	5.40	4.69	5.20
CLASS 4	3.14	2.90	2.44	3.67	3.36	3.30	3.27	3.15	3.20	3.69	3.95	3.96	4.26	3.51	3.91	4.34	4.65	4.11	3.97	3.91
CLASS 5	1.88	1.77	1.48	2.22	2.31	2.14	2.24	2.19	2.30	2.64	2.79	2.92	3.15	2.58	2.79	3.38	3.17	2.97	2.99	2.95
CLASS 6	0.54	0.44	0.36	0.61	0.64	0.54	0.60	0.62	0.66	0.88	0.92	0.94	1.15	1.01	1.10	2.17	1.26	1.19	1.18	1.25
CLASS 7	0.19	0.17	0.15	0.04	0.04	0.21	0.23	0.25	0.30	0.37	0.46	0.48	0.66	0.61	0.67	0.88	0.78	0.74	0.82	0.88
CLASS 8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.04	0.05	0.04	0.06	0.07
CLASS 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03

note: ranges are in bolivars
class 1 : 1-1000
class 2 : 1001-5000
class 3 : 5001-10000
class 4 : 10001-20000
class 5 : 20001-50000
class 6 : 50001-100000
class 7 : 100001-500000
class 8 : 500001-1000000
class 9 : 1000000 +

Table A2

SAVING DEPOSITS IN VENEZUELA 1965-1984

SIZE DISTRIBUTION OF DEPOSITS

CLASSES	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
CLASS 1	5.4	7.1	6.5	5.9	6.2	7.1	6.7	5.8	6.0	9.4	4.8	5.6	5.4	4.3	5.9	6.2	5.2	4.3	4.0	3.8
CLASS 2	13.8	14.5	13.1	12.3	12.4	13.0	12.1	11.5	11.2	11.5	10.5	9.8	9.0	7.1	8.5	8.0	7.5	7.3	6.2	5.9
CLASS 3	13.5	13.6	12.7	12.0	12.1	12.4	11.8	11.1	11.1	12.6	10.0	9.7	9.0	8.6	9.2	9.0	8.2	7.9	7.0	6.4
CLASS 4	16.8	15.9	16.5	16.7	16.1	16.4	16.2	15.5	15.5	17.8	13.8	13.2	12.5	13.1	12.9	12.7	12.0	12.0	9.7	10.1
CLASS 5	20.6	20.4	21.5	22.2	22.5	22.3	22.6	22.8	21.7	19.6	21.6	19.9	19.1	19.0	18.2	17.6	18.3	18.6	16.5	16.9
CLASS 6	11.7	11.2	12.1	13.0	13.2	13.6	14.3	15.0	15.5	15.3	15.7	16.3	16.5	19.6	17.0	17.7	17.4	17.1	17.5	18.8
CLASS 7	12.6	11.0	12.4	13.1	12.9	12.5	13.2	14.8	15.1	10.9	18.5	19.7	21.8	20.6	20.4	21.5	23.3	24.0	25.9	25.5
CLASS 8	2.6	2.6	1.9	2.4	2.1	1.5	1.9	1.9	2.1	2.0	2.9	3.1	3.8	4.5	4.8	4.7	4.8	5.0	6.6	6.8
CLASS 9	3.1	3.8	3.3	2.4	2.5	1.3	1.2	1.6	1.8	1.0	2.1	2.8	2.9	3.4	3.2	2.7	3.2	3.8	6.6	5.9

DISTRIBUTION OF DEPOSITORS

CLASSES	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
CLASS 1	73.25	73.79	79.80	72.45	71.23	73.11	73.94	74.74	75.19	76.38	69.08	69.41	68.76	72.03	70.56	68.98	68.77	70.48	73.03	74.13
CLASS 2	16.08	16.13	11.91	15.62	16.15	15.80	14.97	14.60	14.09	12.60	17.20	16.58	16.15	15.06	16.40	15.35	15.48	15.43	13.55	12.34
CLASS 3	4.91	4.84	3.90	5.49	6.23	5.02	4.96	4.57	4.59	4.78	5.55	5.90	6.14	5.38	5.32	5.79	6.41	5.31	4.64	5.01
CLASS 4	3.14	2.88	2.42	3.63	3.37	3.26	3.21	3.11	3.10	3.31	3.96	3.90	4.18	3.45	3.68	4.13	4.46	4.04	3.90	3.77
CLASS 5	1.88	1.74	1.46	2.17	2.33	2.09	2.14	2.13	2.12	2.00	2.80	2.81	3.00	2.48	2.45	3.12	2.93	2.85	2.87	2.70
CLASS 6	0.54	0.43	0.36	0.60	0.64	0.52	0.58	0.61	0.62	0.69	0.92	0.92	1.11	0.99	1.01	1.89	1.20	1.16	1.16	1.20
CLASS 7	0.19	0.17	0.14	0.04	0.04	0.20	0.21	0.24	0.27	0.24	0.46	0.46	0.61	0.57	0.54	0.70	0.69	0.69	0.77	0.76
CLASS 8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.06
CLASS 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02

note: ranges are in 1965 bolivars
class 1 : 1-1000
class 2 : 1001-5000
class 3 : 5001-10000
class 4 : 10001-20000
class 5 : 20001-50000
class 6 : 50001-100000
class 7 : 100001-500000
class 8 : 500001-1000000
class 9 : 1000000 +

Table A3

Sensitivity of Savings Concentration to the Inflation Rate[a]

Year	ψ=-100	ψ=0	ψ=10	ψ=20	ψ=50	ψ=100
1965	2.218	2.218	2.218	2.218	2.218	2.218
1966	1.906	1.869	1.866	1.862	1.852	1.835
1967	1.996	1.963	1.960	1.957	1.948	1.932
1968	2.103	2.034	2.027	2.020	2.001	1.970
1969	1.937	1.962	1.965	1.967	1.975	1.988
1970	1.948	1.879	1.872	1.866	1.846	1.816
1971	2.060	1.933	1.921	1.909	1.876	1.824
1972	2.182	2.087	2.078	2.069	2.044	2.003
1973	2.326	2.054	2.032	2.010	1.947	1.854
1974	2.250	1.644	1.605	1.569	1.470	1.331
1975	2.225	2.243	2.244	2.246	2.252	2.261
1976	2.113	2.014	2.005	1.996	1.970	1.929
1977	2.201	2.066	2.054	2.042	2.007	1.953
1978	2.391	2.285	2.275	2.265	2.237	2.193
1979	2.224	1.915	1.891	1.869	1.805	1.713
1980	2.229	1.955	1.933	1.912	1.854	1.768
1981	2.235	2.053	2.037	2.022	1.978	1.911
1982	2.409	2.285	2.273	2.262	2.230	2.179
1983	2.458	2.341	2.330	2.320	2.289	2.240
1984	2.689	2.407	2.384	2.361	2.296	2.199

[a]The value of ψ is expressed in percent terms.

Mathematical Appendix

The mean of the distribution is

(B1) $m = \omega_1(F_1-F_2)+F_2.$

Substitution of (B1) into the definition of v yields

(B2) $v = \omega_1[F_1-\omega_1(F_1-F_2)-F_2]^2 = (1-\omega_1)[-\omega_1(F_1-F_2)]^2$

$= \omega_1(F_1-F_2)^2(1-\omega_1)^2 + (1-\omega_1)\omega_1^2(F_1-F_2)^2$

$= (F_1-F_2)^2(\omega_1-2\omega_1^2+\omega_1^3+\omega_1^2-\omega_1^3)$

$= (F_1-F_2)^2\omega_1(1-\omega_1).$

Differentiation of v with respect to Y gives

(B3) $dv/dY = 2\omega_1(1-\omega_1)(F_1-F_2)(S_{1y}-S_{2y}) + (F_1-F_2)^2(1-2\omega_1)(\partial\omega_1/\partial Y),$

which is the expression for equation (5) in the paper. Further differentiation of v with respect to Y yields

(B4) $d^2v/dY^2 = \{\partial^2v/\partial Y^2\} + \{(d^2v/dY^2;\ S_{1y}=S_{2y})\},$

which can be expressed as

(B5) $d^2v/dY^2 = \{2\omega_1(1-\omega_1)(S_{1y}-S_{2y})(S_{1y}-S_{2y}) +$

$+ 2\omega_1(1-\omega_1)(S_{1yy}-S_{2yy})(F_1-F_2) +$

$+ 2\omega_1(-\partial\omega_1/\partial Y)(S_{1y}-S_{2y})(F_1-F_2) +$

$+ 2(\partial\omega_1/\partial Y)(1-\omega_1)(S_{1y}-S_{2y})(F_1-F_2)\} +$

$+ \{(F_1-F_2)^2[1-2\omega_1)(\partial^2\omega_1/\partial Y^2) - 2(\partial\omega_1/\partial Y)^2]\}.$

Rearranging terms gives

(B6) $d^2v/dY^2 = \{2\omega_1(1-\omega_1)[(S_{1y}-S_{2y})^2 + (S_{1yy}-S_{2yy})(F_1-F_2)\} +$

$+ 2(S_{1y}-S_{2y})(F_1-F_2)(\partial\omega_1/\partial y)(1-2\omega_1)\} +$

$+ \{(F_1-F_2)^2[1-2\omega_1)(\partial^2\omega_1/\partial Y^2) - 2(\partial\omega_1/\partial Y)^2]\},$

which is the expression for equation (6) in the paper.

SAV_C1 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 1 (1-1000 BS)

65	116.	145.	159.	157.
69	185.	204.	206.	209.
73	216.	275.	352.	475.
77	550.	521.	616.	766.
81	802.	729.	889.	781.

SAV_C2 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 2 (1001-5000 BS)

65	297.	307.	329.	348.
69	362.	401.	419.	452.
73	518.	625.	751.	913.
77	1053.	948.	1237.	1332.
81	1398.	1378.	1554.	1552.

SAV_C3 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 3 (5001-10000 BS)

65	290.	287.	317.	336.
69	353.	377.	397.	429.
73	491.	598.	718.	886.
77	1029.	1135.	1271.	1424.
81	1465.	1458.	1710.	1574.

SAV_C4 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 4 (10001-20000 BS)

65	361.	335.	414.	468.
69	471.	500.	544.	598.
73	670.	809.	987.	1187.
77	1391.	1721.	1664.	1891.
81	2071.	2190.	2298.	2389.

SAV_C5 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 5 (20001-50000 BS)

65	445.	436.	545.	634.
69	651.	698.	800.	911.
73	1033.	1199.	1538.	1870.
77	2257.	2567.	2784.	3072.
81	3480.	3570.	4151.	4461.

SAV_C6 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 6 (50001-100000 BS)

65	252.	237.	304.	366.
69	385.	419.	496.	590.
73	702.	797.	1126.	1489.
77	1858.	2638.	2218.	2611.
81	3032.	3134.	4202.	4533.

SAV_C7 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 7 (100001-500000 BS)

65	272.	237.	315.	380.
69	373.	399.	483.	604.
73	771.	856.	1314.	1914.
77	2717.	2931.	3565.	4400.
81	4832.	4838.	6867.	7599.

SAV_C8 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 8 (500001-1000000 BS)

65	56.	54.	48.	67.
69	61.	47.	69.	77.
73	96.	115.	204.	289.
77	450.	617.	724.	858.
81	929.	958.	1649.	1789.

SAV_C9 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

SAVINGS DEPOSITS IN COMMERCIAL BANKS IN VZLA, MILL OF BS
IN CLASS 9 (1000000+ BS)

65	66.	83.	83.	70.
69	72.	41.	44.	64.
73	92.	87.	152.	271.
77	371.	486.	592.	573.
81	689.	776.	1783.	1813.

DEP_C1 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 1 (1-1000 BS)
DEP_C1 = DEP_C1*1000

65	622600.	653200.	1.032400E+06	763100.
69	808700.	880100.	961000.	1.060300E+06
73	1.170899E+06	1.250800E+06	1.445600E+06	1.709199E+06
77	1.881699E+06	2.214000E+06	2.357500E+06	2.543100E+06
81	2.880300E+06	2.954899E+06	3.522100E+06	3.753386E+06

DEP_C2 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 2 (1001-5000 BS)
DEP_C2 = DEP_C2*1000

65	136700.	145000.	155900.	168900.
69	181500.	196500.	206000.	215100.
73	243800.	298300.	357500.	428800.
77	472800.	488000.	674200.	695700.
81	722100.	687900.	693900.	704455.

DEP_C3 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 3 (5001-10000 BS)
DEP_C3 = DEP_C3*1000

65	41700.	43300.	50800.	58800.
69	70100.	61700.	66800.	66199.9
73	76100.	96500.	115700.	149900.
77	175600.	171300.	200300.	241100.
81	287400.	229800.	229200.	270295.

DEP_C4 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 4 (10001-20000 BS)
DEP_C4 = DEP_C4*1000

65	26700.	25800.	31600.	38900.
69	38000.	40000.	43100.	45000.
73	51000.	65699.9	82600.	98800.
77	118900.	109200.	138000.	169200.
81	200700.	175200.	194000.	203350.

DEP_C5 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 5 (20001-50000 BS)
DEP_C5 = DEP_C5*1000

65	16000.	15700.	19200.	23500.
69	26200.	26000.	29500.	31400.
73	36700.	47100.	58200.	72899.9
77	87800.	80199.9	98600.	131700.
81	136900.	126600.	146000.	153259.

DEP_C6 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 6 (50001-100000 BS)
DEP_C6 = DEP_C6*1000

65	4600.	3900.	4700.	6500.
69	7200.	6500.	7900.	8900.
73	10600.	15600.	19200.	23500.
77	32000.	31600.	38900.	84500.
81	54500.	50500.	57800.	65106.

DEP_C7 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 7 (100001-500000 BS)
DEP_C7 = DEP_C7*1000

65	1600.	1500.	1900.	400.
69	400.	2500.	3000.	3600.
73	4800.	6500.	9600.	12100.
77	18400.	18900.	23600.	34200.
81	33800.	31400.	40200.	45761.

DEP_C8 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 8 (500001-1000000 BS)
DEP_C8 = DEP_C8*1000

65	90.	80.	80.	100.
69	100.	70.	100.	100.
73	200.	200.	300.	400.
77	900.	900.	1200.	1700.
81	2000.	1700.	2800.	3444.

DEP_C9 - DATE REVISED: 10/04/86
ANNUAL DATA FROM 65 TO 84

NUMBER OF DEPOSITORS IN SAVINGS CLASS 9 (1000000+ BS)
DEP_C9 = DEP_C9*1000

65	30.	30.	40.	30.
69	40.	30.	30.	40.
73	50.	40.	80.	100.
77	200.	300.	300.	400.
81	400.	500.	1100.	1417.

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