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Emerging Market Countries Don't Believe in Fiscal Stimuli: Should We Blame Ricardo?*

Aleš BULÍŘ and Andrew SWISTON – both: IMF Washington
(abulir@imf.org, aswiston@imf.org)

Abstract
Emerging market countries had by early 2009 announced that they will have remained fiscally conservative during the 2008–09 crisis, at least compared with the developed countries, which announced much larger fiscal stimuli. We argue that the difference in the pre-announced fiscal stance between those two groups of countries could be at least partly due to the awareness of Ricardian equivalence, that is, a higher offset between private and public saving in emerging market countries. We find that the offset coefficient is almost twice as high in emerging market countries as in developed countries, implying that additional government spending, that is, public dissaving, would be almost completely offset by private saving.

1. Introduction

The economic crisis that started as a financial crisis in late 2007 had by early 2009 produced much larger announcements of fiscal stimuli in developed countries than in emerging market countries. We argue that the fiscal restraint exercised by the latter countries could be partly explained by their awareness of Ricardian equivalence (see Loayza et al., 2000; Masson et al., 1998; and Edwards, 1996). We find that private saving responds negatively/positively to public saving surpluses/deficits in both developed and emerging market countries, however, the reaction is much stronger in emerging market countries. The awareness of Ricardian equivalence by policymakers could be a possible explanation of why emerging market countries had by early 2009 announced much lower fiscal stimuli than developed countries. Using Group of Twenty nonfinancial fiscal data, the average fiscal stimulus in emerging market countries was about one half of that in developed countries (International Monetary Fund, 2009).

So-called Ricardian equivalence, re-stated by Barro (1974), postulates that public and private savings are substitutes to the extent that changes in public debt have little or no impact on the net worth of debt holders, that is, households. As long as private agents care about future generations, fiscal expansions/contractions resulting in negative/positive changes to public savings ought to generate a corresponding positive/negative increase in private savings in anticipation of higher/lower future taxes to service the higher/lower level of public debt. The existence and magnitude of

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the offset between public and private savings has been debated hotly, however, the consensus has been that although the offset coefficient is generally less than minus one, Ricardian equivalence holds as a useful approximation of private agent behavior (for a survey see Seater, 1993, and for developing country evidence see Khalid, 1996).

This paper examines, in a panel setting, the factors influencing the private saving rate. Section 2 looks at issues of causality between saving and investment and discusses some issues in the measurement of private saving. The cross-country analysis is found in Section 3. Section 4 presents policy implications and Section 5 concludes.

2. Growth, Saving, and Investment in an Emerging Market Economy

The common assumption that higher private saving causes higher investment, in turn raising long-term economic growth, is difficult to reconcile with saving and investment patterns in many emerging market countries. This nexus, implicitly based on the Harrod-Domar growth model, was criticized by Easterly (1999). "Excess saving" in some of these countries and saving shortages in others indicate that the level of private saving may not drive the level of investment on the national level (Bernanke, 2005; International Monetary Fund, 2005; Agrawal, Sahoo, and Dash, 2009). Rather, the causality could be going in the opposite direction, with the level of desired investment – to support the steady-state consumption path – determining the quantity of private saving, conditional on the supply of public and external savings. Reversing the saving-to-investment causality has interesting implications for public policy.

In an economy where the optimal level of investment is chosen first and the components of saving – external, public, and private – are determined subsequently, financial reforms and macroeconomic stability have an ambiguous impact on the level of private saving. First, financial reforms can increase the return to investment and promote higher saving, thus working through the substitution effect. However, if households expect an increase in future income as a result of these reforms or general convergence driven by, say, European Union membership, current saving may decrease through an income effect (see Schmidt-Hebbel and Servén, 2002, for this argument). For example, although bank privatization and other reforms in Mexico in the late 1990s increased returns to financial saving as measured by real interest rates, private saving decreased (Bank of Mexico, 2002). Second, a more stable economic environment, for example, low inflation and stable GDP growth, may result in lower desired private saving, as households would need less investment and a correspondingly smaller capital stock to maintain a smooth consumption pattern (see Arellano et al., 2009, for this argument in the context of a real business cycle model).

Third, as long as aggregate public and private spending are substitutes, so will be public and private savings. Ricardian equivalence postulates that it is the overall level of saving that matters, not its individual components. In other words, private agents will respond to lower/higher public saving with higher/lower private saving. This is the same as saying that more public investment should result in commensurately lower private investment. Of course, the private-to-public offset need not be unitary, and most empirical estimates in the literature are indeed significantly lower than minus one. The traditional explanation has been that governments finance differ-

Table 1 Saving-Investment Correlation Coefficients, 19900-2007
(Average of country-specific correlations, all variables are in percent of GDP)

	Private saving	Public saving	External saving	Investment
Private saving	1.00	-0.46	-0.26	0.07
Public saving		1.00	-0.09	0.26
External saving			1.00	0.41

Note: See Appendix Table A1 for list of countries.

ent expenditures than those of the private sector, that is, public spending is not a perfect substitute for private spending. The magnitude of the offset is constant neither across countries nor over time and it depends on the absorption capacity of the domestic and foreign debt market, the credibility of future macroeconomic policies, as well as the debt intolerance of the public (Seater, 1993). Thus, the increased financing cost of larger public debt reflects both higher expected future taxes and the market's doubts about the sustainability of such debt.

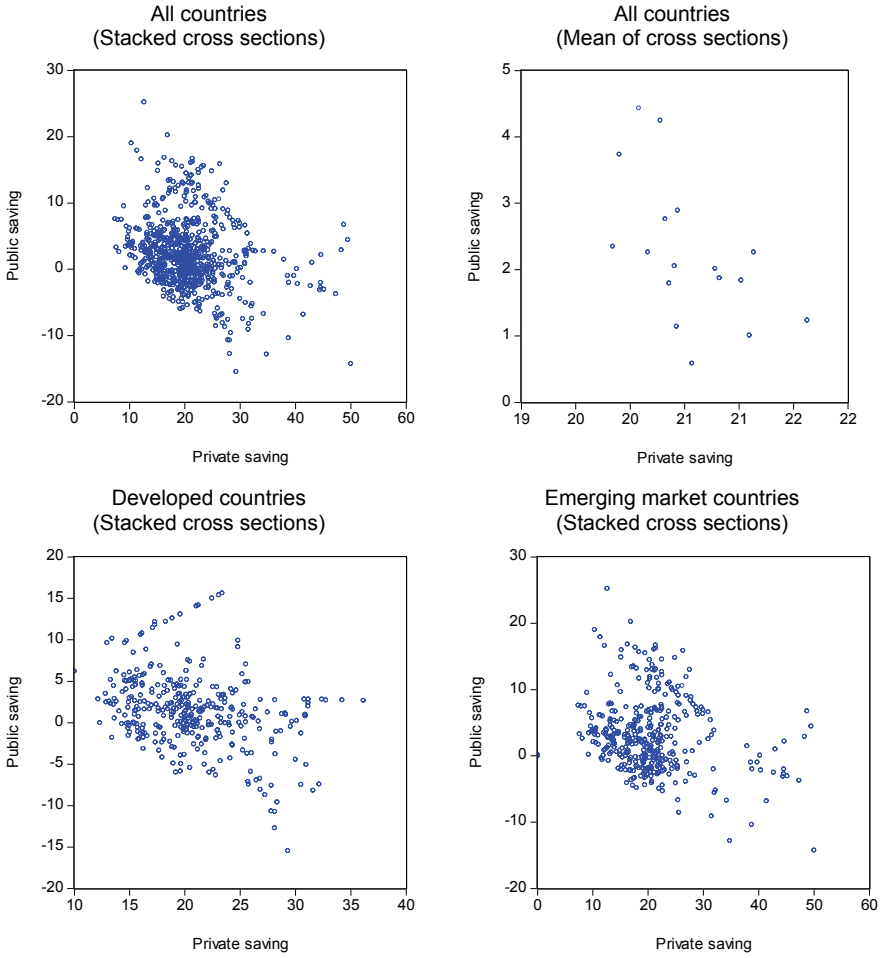
Emerging market countries are more likely to have a higher offset coefficient owing to their constrained access to public debt markets and history of poor macro--economic management. On the former, emerging market authorities are less willing to borrow, given their past experience with sudden losses of market access during the "tequila," "Russian," and other recent capital account crises. On the latter, the public in emerging markets is less likely to trust the ability of domestic fiscal authorities to reverse deficit-financed spending when under pressure. This is a long--standing empirical observation: primary surpluses respond much more strongly to debt in industrial countries than in emerging market countries (International Monetary Fund, 2003). We thus expect to find a different coefficient on the offset coefficient in those two groups of countries and this should be a straightforward Wald test of coefficient restriction.

2.1 Some Stylized Facts

The sample correlation coefficients in our sample of 44 countries (see *Table A1* for the list of countries) seem consistent with the above hypotheses of the private saving-to-investment disconnect and Ricardian equivalence (*Table 1*). First, private saving appears to be only loosely correlated with investment. Second, and this will be the focal point of our paper, the pair-wise correlations indicate that countries with high public saving-to-GDP ratios tend to have low private saving-to-GDP ratios, and *vice versa*. The finding of Ricardian equivalence appears to be present in both the panel (stacked cross sections) and cross-section (mean of cross sections) data, see *Figure 1*. Moreover, when divided into developed and emerging market country subsamples, the relationship between private and public saving appears looser in the former sample. The correlation coefficients for the developed and emerging market country samples are 0.12 and 0.23, respectively, and the bivariate regression slopes are 0.41 and 0.63, respectively. Of course, this bivariate analysis may hide more complex relationships, as scatter diagrams fail to give an indication of the relative importance of individual variables in determining private saving.

The bivariate analysis of Ricardian equivalence thus needs to be augmented by variables conditioning for the impact of reforms and policies that may have affected private saving behavior during the reform period of the 1990s and early 2000s.

Figure 1 The Relationship Between Private and Public Saving, 1990–2007



Note: Stacked cross sections contain all 748 country-specific sample observations; the mean of cross sections chart contains 19 annual means of cross-section observations.

These included the move to a more stable macroeconomic environment with low inflation and less volatile output growth; more credible fiscal and monetary policies (Lopez et al., 2000); reform and development of the domestic financial system (see, for example, Caprio et al., 1999; Haber, 2005; and Schmidt-Hebbel and Servén, 2002); and increased access to external saving through capital account liberalization (International Monetary Fund, 2007). While some of these developments might have boosted private saving, others may have reduced the need for private saving. Moreover, the exact reasons for lower/higher saving are difficult to disentangle using cross-country means, because the country-specific explanatory factors may include access to financial assets, expectations of political stability, or simply a preference for higher household saving in some societies (Horioka and Wan, 2006).

3. The Empirical Evidence

The key empirical questions we asked were: what is the magnitude of the private-to-public saving offset and does it differ between developed and emerging market countries? To this end, we performed a more systematic analysis of the cross--country and time-series determinants of private saving using a panel of 44 countries with series from 1990 to 2007 and a set of conventionally used variables. We tested the saving relationship in cross-section (means of time series) regressions first (*Table 2*) and in panel regressions next (*Table 3*). Using private saving as the dependent variable – rather than, for example, external saving – is a matter of modeling choice to the extent that the private and external saving variables are determined simultaneously. Also, regressing national saving on the same set of variables, except public saving, does not change the results either.

In this framework, we found private saving to be negatively related to public saving and the estimated coefficients for developed and emerging market countries were statistically different from each other. Moreover, the offset coefficient for emerging market countries was not statistically different from –1, that is, Ricardian equivalence. In line with earlier research private saving was found to be positively related to real GDP growth (the income effect) and the level of private sector credit (the impact of financial liberalization). Furthermore, private saving was found to be negatively related to external saving (the substitution effect between domestic and external saving) and the dependency ratio (the so-called life cycle hypothesis).

The estimated model – with all variables but the dependence ratio expressed as percentages of GDP and ignoring time and country subscripts – was as follows:

*Private saving = constant + β_1*public saving (developed countries) + β_2* public saving (emerging market countries) + β_3*external saving + β_4*real GDP growth + + β_5*private credit (developed countries) + β_6*private credit (emerging market countries) + β_7*dependence ratio + u*

where u is an error term. We perform two sets of the Wald test, one for the coefficient equality, where the null hypothesis is defined as $H_o : \beta_1 = \beta_2$, and the other testing Ricardian equivalence, where the null hypothesis is defined as $H_o : \beta_2 = -1$.

3.1 Cross-Section Results

The results for the means of time series are in line with earlier findings (Edwards, 1996; Masson et al., 1998; Loayza et al., 2000; International Monetary Fund, 2005; Holmes, 2006). First, the offset coefficient between public and private saving is around –0.7, or somewhat higher than the usual range of –0.4 to –0.6 found by others. Second, the offset coefficient is lower in developed countries. However, this difference is not statistically significant (see the 1st Wald test in *Table 2*). Nevertheless, the Wald test fails to reject the null hypothesis that the point estimates of public saving in emerging market countries are not statistically different from –1 (the 2nd Wald test in *Table 2*). Third, private and external saving are imperfect substitutes – a current account deficit higher by 1 percentage point lowers private saving by about 0.75 percentage points. Fourth, faster-growing countries save more. Fifth, we failed to detect a statistically significant impact of financial deepening (the private

Table 2 Cross-Section Results

The dependent variable is private saving as a percentage of GDP; all other variables are also in percentages of GDP, with the exception of the dependence ratio, which is defined as dependents to working-age population in percent. The Asia dummy is equal to 1 if the country is in Asia, and 0 otherwise. All variables are period averages. For each variable we report the point estimate and *t*-statistics in parentheses. Statistical significance at the 10, 5, and 1 percent levels is denoted by *, **, and ***, respectively. The 1st Wald test examines whether the offset coefficient is identical for both developed and emerging market countries and the 2nd Wald test examines whether the offset coefficient for the latter countries is different from –1. Regressions are by ordinary least squares (OLS) with White heteroskedasticity-consistent standard errors.

	I	II	III	IV
Public saving	–0.716*** (3.87)	–0.700*** (3.87)		
Public saving (developed countries)			–0.693*** (3.72)	–0.591*** (3.16)
Public saving (emerging market countries)			–0.728*** (3.09)	–0.756*** (3.23)
External saving	–0.743*** (5.90)	–0.749*** (5.23)	–0.742*** (5.63)	–0.741*** (5.12)
Economic growth	1.652*** (2.81)	1.551** (2.57)	1.653*** (2.78)	1.574** (2.67)
Private sector credit	0.015 (1.37)		0.014 (1.38)	
Dependency ratio	–0.001 (0.98)		–0.001 (0.98)	
Asia dummy	3.117** (2.04)	3.291* (1.95)	3.193* (1.66)	3.629* (1.66)
Adjusted R^2	0.63	0.62	0.62	0.62
Standard error of regression	3.31	3.33	3.35	3.36
$F(6,34)$	13.21	18.87	11.02	15.01
Number of observations	44	44	44	44
I. Wald test of coefficient equality ($\chi^2(1)$)	NA	NA	0.02	0.42
II. Wald test of Ricardian equivalence in emerging market countries ($\chi^2(1)$)	NA	NA	2.05	1.09

credit-to-GDP ratio), supporting the ambiguous impact of financial liberalization on private saving in the cross-country setting. Sixth, the impact of the dependency ratio was also insignificant in the cross-section setting. Finally, Asian countries save more than predicted by the model. However, other dummies, such as the dummies for transition or Latin American countries, were insignificant. Overall, the regression estimates reported in *Table 2* are statistically significant, and the regressions are able to explain close to two-thirds of the cross-country variance of the private saving rate.

We next moved to panel estimation of the determinants of private saving (*Table 3*). While gaining additional degrees of freedom through the addition of the time dimension, we had to deal with the usual issues plaguing time series econometrics: simultaneity bias (correlation among explanatory variables biasing the individual coefficient estimates) and complicated dynamics among individual variables, which can be manifested in autocorrelation of residuals and inefficiently estimated, that is, "too small," standard errors. To address the endogeneity of the regressors, we re-estimated the OLS regressions with the generalized method of moments (GMM), with instrumental variables for public and external saving and for economic growth, using

Table 3 Panel Results

The dependent variable is private saving as a percentage of GDP; all other variables are also in percentages of GDP, with the exception of the dependence ratio, which is defined as dependents to working-age population in percent. All variables have annual frequency; the sample is from 1990 to 2007. For each variable we report the point estimate and *t*-statistics in parentheses. Statistical significance at the 10, 5, and 1 percent levels is denoted by *, **, and ***, respectively. The 1st Wald tests examine whether the offset coefficient is identical for both developed and emerging market countries and whether the credit conditions affect developed and emerging market countries equally. The 2nd Wald test examines whether the public saving coefficient is different from –1 in emerging market countries. Regressions are by ordinary least squares (OLS) with White heteroskedasticity-consistent standard errors in levels (equation I and III) and first differences (II), and by the generalized method of moments (GMM) with White period- and heteroskedasticity-consistent standard errors (equation IV and V). The instruments are one-period lags of the explanatory variables.

	I (OLS)	II (OLS) Differences	III (OLS)	IV (GMM)	V (GMM)
Public saving	–0.726*** (13.23)	–0.825*** (13.25)			
Public saving (developed countries)			–0.547*** (14.01)	–0.516*** (11.02)	–0.492*** (10.48)
Public saving (emerging market countries)			–0.840*** (9.46)	–0.798*** (6.02)	–0.846*** (5.76)
External saving	–0.502*** (13.64)	–0.543*** (13.39)	–0.507*** (13.95)	–0.520*** (10.16)	–0.517*** (10.17)
Economic growth	0.327*** (4.93)	0.450** (5.99)	0.340*** (5.13)	0.353*** (3.87)	0.357** (3.91)
Private sector credit	0.028*** (6.07)	0.015** (2.38)		0.031*** (5.65)	
Private sector credit (developed countries)			0.023*** (5.38)		0.024*** (5.32)
Private sector credit (emerging market countries)			0.049*** (3.71)		0.055*** (3.31)
Dependency ratio	–0.116*** (2.63)	–0.251 (1.12)	–0.142*** (3.42)	–0.175*** (3.77)	–0.179*** (3.85)
Adjusted R^2	0.85	0.58	0.85	0.86	0.86
Durbin-Watson test	0.46	2.25	0.49	0.52	0.53
Standard error of regression	2.43	1.59	2.39	2.34	2.33
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Period fixed effects	Yes	Yes	Yes	Yes	Yes
Number of observations	748	704	748	704	704
I. Wald test of coeff. equality ($\chi^2(1)$)					
Public saving ($\chi^2(1)$)	NA	NA	8.63***	4.03**	5.18**
Public saving and private credit ($\chi^2(2)$)	NA	NA	9.54***	NA	5.54*
II. Wald test of Ricardian equivalence in emerging market countries ($\chi^2(1)$)	NA	NA	3.21*	2.30	1.09

first-order lags of the variables in question. To address the second issue, we estimated the regression also in first differences and using White period- and heteroskedasticity-consistent standard errors. As expected, the use of the White procedure resulted in larger standard errors (and smaller *t*-statistics), however, it failed to alter the Wald test results.

Table 4 The Relative Contribution to Private Saving of the Explanatory Variables[a]
(In percentage points of GDP, two standard errors in parentheses)

	Contribution	2 standard errors
Public saving (developed countries)	-1.5	0.3
Public saving (emerging market countries)	-3.6	1.2
External saving	-2.6	0.5
Real GDP growth	1.0	0.5
Private sector credit (developed countries)	1.5	0.6
Private sector credit (emerging market countries)	2.0	1.2
Dependency ratio	-1.4	0.7

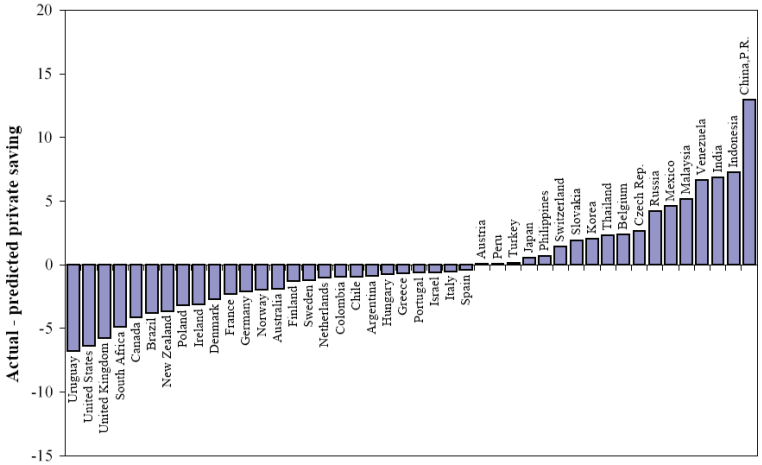
Note: [a] The product of the standard deviation of each variable and its respective point estimate in equation V in *Table 3*.

The key finding of a differential offset coefficient between private and public saving remains robust irrespective of the method. First, when treating all countries identically, the estimate of the offset coefficient is between –0.7 and –0.8, depending on the estimation technique used. Second, when separating the countries into developed and emerging market samples, private saving declined on average by about –0.5 percentage points for every 1 percentage point increase in public saving in the former, but by about –0.8 in the latter. The null hypothesis of these coefficients being different (the 1st Wald test) cannot be rejected at the 1 percent level for the OLS results with inefficiently estimated errors and at the 5 percent level for the GMM regressions with more appropriately estimated errors, which is naturally our preferred technique. Moreover, the 2nd Wald test fails to reject the null hypothesis that the point estimates of public saving in emerging market countries are not statistically different from –1. Third, we also found a statistically significant differential impact of private sector credit on private saving: access to credit increased private saving in emerging market countries by twice as much as in developed countries. Finally, the other control variables – economic growth and the dependency ratio – have the expected signs. Overall, the regressions are able to explain about 85 percent of the cross-country variance of the private saving rate.

How much of the variance in the private saving variable is accounted for by the individual explanatory variables? We calculate the product of the sample standard deviation of each variable and its GMM point estimate (equation V, *Table 3*). The interpretation of these results, presented in *Table 4*, is straightforward. For example, if an emerging market country has a public saving ratio one standard deviation above the sample mean, the model projects that the country's private saving ratio ought to be 3.6 percentage points of GDP lower than the sample mean. Quantitatively, fluctuations in public and external saving, and private credit seem to be the most potent sources of variation in private saving.

Despite the overall good fit, the cross-country variation in private saving unexplained by the model can be quite large (*Figure 2*), and it is taxing to find a clear regional or other explanation for these differences. While many emerging market countries save less than predicted by the model, others save more; and a similarly mixed picture can be observed among the developed countries. Oil-rich countries tend to save more than predicted by the model. However, this does not seem to hold for other commodity exporters. Of the Central European countries, only the Czech Republic and Slovakia save more than predicted by the model.

Figure 2 Actual Minus Predicted Private Saving Rates
(in percent of GDP)



4. Policy Implications

The apparently higher private-to-public saving offset in emerging market countries as compared to developed countries is consistent with our initial hypothesis that these countries are right to be careful about deficit-financed public spending. The results suggest that any deficit-financed fiscal stimulus (dissaving) could be offset by comparable private sector saving and we see multiple channels through which this behavior would propagate. First, there is the Ricardian equivalence argument, which postulates that a change in public debt does not generate an increase in net worth. While the coefficient estimate of this channel could be far from minus unity, the other channels in emerging market countries are likely to push the total impact closer to minus unity or even above it, especially during a period of macroeconomic distress.

Second, the cost of public debt abroad has been correlated with the quality of macroeconomic management measured by credit rating agencies in sovereign credit ratings (see, for example, Sy, 2002, and Gaillard, 2007). More vulnerable countries have lower sovereign ratings and end up paying higher spreads over US treasuries or German bunds than countries that manage their economies more conservatively. Higher debts would be associated with further upward adjustment in the spreads, increasing the servicing cost drastically. The public, that is, domestic taxpayers, has understood these events and adjusted its spending/saving decisions accordingly.

Third, the emerging market fiscal authorities have had limited scope to reverse their deficit-financed spending decisions when under pressure. It has been observed that primary balances respond more strongly to debt developments in developed countries than in emerging market economies (International Monetary Fund, 2003). The underlying reason for this is that the scope for discretionary fiscal policy has been larger in developed economies than in emerging market countries saddled with sizable mandatory, mostly social, spending.

While the above results seem to provide some justification for our hypothesis, we see an additional explanation for the lack of emerging market enthusiasm for fis-

cal stimuli. It could be that emerging market authorities are less willing to borrow to finance the stimuli given their experience with sudden loss of market access during past "capital account" crises (Ghosh et al., 2002). Although many of these countries have public debt levels below those of developed countries, such levels still do not ensure future rollovers of debt.

5. Conclusions

This paper examines the determinants of private saving among a sample of emerging markets and industrial countries. Private saving is driven by a country's public and external saving, economic growth, access to private credit, and the demographic profile of the population, in line with the findings of previous studies. We find a statistically significant difference between the private-to-public-saving offset (Ricardian equivalence) in developed and emerging market countries. While in the former the coefficient estimate is about –0.5, in the latter it is around –0.8, that is, statistically indifferent from –1. These results make us question the wisdom of pro-active fiscal policies in emerging market countries, as higher/lower public saving is likely to result in a correspondingly large, but with an opposite sign, movement in private saving, keeping the level of national saving (and consumption) unchanged. We conclude that fear of Ricardian equivalence could be one factor underlying the limited size of fiscal stimuli in emerging market countries.

APPENDIX

The Measurement of Private Saving

Table A1 Countries Included in Cross-Section Analysis

Argentina	Hungary	Poland
Australia	India	Portugal
Austria	Indonesia	Russia
Belgium	Ireland	Slovak Republic
Brazil	Israel	South Africa
Canada	Italy	Spain
Chile	Japan	Sweden
China	Korea	Switzerland
Colombia	Malaysia	Thailand
Czech Republic	Mexico	Turkey
Denmark	Netherlands	United Kingdom
Finland	New Zealand	United States
France	Norway	Uruguay
Germany	Peru	Venezuela
Greece	Philippines	

Measurement problems associated with saving are significant. The quality of data differs widely, and many countries in our sample do not publish official data on the composition of saving. Instead, private saving must be calculated as the "residual of a residual," in two steps: (i) National Saving = Gross Investment – External Saving; and (ii) Private Saving = National Saving – Public Saving. In addition, the coverage of fiscal data in Latin American countries tends to include public enterprises, a practice uncommon in other regions. To the extent that public saving in the national accounts is defined using fiscal data, this measurement difference could account for

Table A2 Variables Used in the Regressions

Series	Source
Private saving (As a percentage of GDP)	*WEO*
Public saving (As a percentage of GDP)	*WEO*
External saving (Current account deficit as a percentage of GDP)	*WEO*
Investment (Gross fixed capital formation as a percentage of GDP)	*WEO*
Dependency ratio (Dependents as a percentage of working-age population)	*Haver*
Rate of economic growth (Gross domestic product in purchasing power parity terms)	*WDI, OECD*
Private sector credit (As a percentage of GDP)	*IFS*

Note: The following abbreviations are used: *WEO* is the IMF's *World Economic Outlook* database*; IFS* stands for the IMF's *International Financial Statistics* database; *WDI* is the World Bank's *World Development Indicators* database; *Haver* stands for the databases in Haver Analytics; *OECD* is the OECD's *National Accounts of OECD Countries: Volume I* database.

some of the negative correlation between public and private saving that we find in the cross-section data; however, it would not contaminate the analogous correlation we find in the time-series data across countries. Gross investment could also be prone to substantial measurement error owing to difficulties in measuring inventories. Our data sources and definitions are summarized in *Table A2*.

REFERENCES

Agrawal P, Sahoo P, Dash RK (2009): Savings Behaviour in South Asia. *Journal of Policy Modeling*, 31(March-April):208–224.

Arellano C, Bulíř A, Lane T, Lipschitz L (2009): The Dynamic Implications of Foreign Aid and its Variability. *Journal of Development Economics*, 88 (January):87–102.

Bank of Mexico (2002): *Implications of Financial Liberalization for the Promotion and Allocation of Domestic Saving: The Case of Mexico.* Paper prepared for the APEC Policy Dialogue on Improving the Allocation of Domestic Saving for Economic Development, September 3–6, 2002, Los Cabos, Mexico. Available at http://www.banxico.org.mx/sitebanxicoingles/gpublicaciones/Seminarios/ing/dgie/apec/Mexico.pdf

Barro, RJ (1974): Are Government Bonds Net Wealth? *Journal of Political Economy*, 82(November/December):1095–1117.

Bernanke BS (2005): *The Global Saving Glut and the U.S. Current Account Deficit*. Remarks at the Sandridge Lecture, Virginia Association of Economics, March 10, 2005, Richmond, Virginia. Available at: http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/default.htm.

Caprio G, Bandiera O, Honohan P, Schiantarelli F (1999): Does Financial Reform Increase or Reduce Savings? *World Bank Policy Research Working Paper*, no. 2062. Available at: http://ssrn.com/abstract=620664.

Easterly W (1999): The Ghost of Financing Gap: Testing the Growth Model Used in the International Financial Institutions. *Journal of Development Economics*, 60(December):423–438.

Edwards S (1996): Why Are Latin America's Savings Rates So Low? An International Comparative Analysis. *Journal of Development Economics*, 51(January):5–44.

Gaillard N (2007): *Fitch, Moody's and S&P's Sovereign Ratings and EMBI Global Spreads: Lessons from 1993–2007.* Paper presented at the 2007 G.R.E.T.A. Credit Ratings Conference, Venice, September 27, 2007. Available at: http://www.financesinternationales.sciences-po.fr/fichiers_articles_doctorants/ /gaillard_sovereign_ratings_and_embi.pdf.

Ghosh A, Lane T, Schulze-Ghattas M, Bulíř A, Hamann J, Mourmouras A (2002): IMF-Supported Programs in Capital Account Crises. *IMF Occasional Paper*, no. 210.

Haber S (2005): Mexico's Experiments with Bank Privatization and Liberalization, 1991–2003. *Journal of Banking and Finance*, 29:2325–2353.

Holmes MJ (2006): To What Extent Are Public Savings Offset by Private Savings in the OECD? *Journal of Economics and Finance*, 30(Fall):285–296.

Horioka CY, Wan J (2006): The Determinants of Household Saving in China: A Dynamic Panel Analysis of Provincial Data. *NBER Working Paper*, no. W12723. Available at: http://ssrn.com/abstract=948185.

International Monetary Fund (2003): Public Debt in Emerging Markets: Is It Too High? *World Economic Outlook*. Available at: http://www.imf.org/external/pubs/ft/weo/2003/02/pdf/chapter3.pdf.

International Monetary Fund (2005): Global Imbalances: A Saving and Investment Perspective. *World Economic Outlook*. Available at: http://www.imf.org/external/pubs/ft/weo/2005/02/pdf/chapter2.pdf.

International Monetary Fund (2007): Managing Large Capital Inflows. *World Economic Outlook*. Available at: http://www.imf.org/external/pubs/ft/weo/2007/02/pdf/text.pdf.

International Monetary Fund (2009): *Companion Paper – The State of Public Finances: Outlook and Medium-Term Policies After the 2008 Crisis*. Available at: http://www.imf.org/external/np/g20/pdf/020509.pdf.

Khalid AM (1996): Ricardian Equivalence: Empirical Evidence from Developing Economies. *Journal of Development Economics*, 51(December):413–432.

Loayza N, Schmidt-Hebbel K, Servén L (2000): What Drives Private Saving Across the World? *Review of Economics and Statistics*, 82(May):165–181.

Lopez JH, Schmidt-Hebbel K, Servén L (2000): How Effective Is Fiscal Policy in Raising National Saving? *Review of Economics and Statistics*, 82(May):226–238.

Masson PR, Bayoumi T, Samiei H (1998): International Evidence of the Determinants of Private Saving. The *World Bank Economic Review*, 12(3):483–501.

Schmidt-Hebbel K, Servén L (2002): *What Do We Know about the Effects of Financial Liberalization on Saving, Investment, and Growth?* Paper prepared for the APEC Policy Dialogue on Improving the Allocation of Domestic Saving for Economic Development, September 3–6, 2002, Los Cabos, Mexico. Available at: http://www.banxico.org.mx/sitebanxicoingles/gpublicaciones/Seminarios/ing/dgie/apec/Chile.pdf

Seater JJ (1993): Ricardian Equivalence, *Journal of Economic Literature*, 31(March):142–190.

Sy ANR (2002): Emerging Market Bond Spreads and Sovereign Credit Ratings: Reconciling Market Views with Economic Fundamentals. *Emerging Markets Review*, 3(December):380–408.