

“Deep” Fundamentals in the Finance-Trade-Growth Nexus, 1880-2004

Michael D. Bordo^a and Peter L. Rousseau^b

January 2009

Abstract

We study linkages between financial development and trade and their role in promoting growth and macroeconomic integration using historical data for a group of now-developed “Atlantic” economies over the past 125 years. We find that finance and trade had reinforcing effects prior to 1930, but that these effects vanished after the Second World War. Finance is also closely related “deep” fundamentals such as measures of legal origin and the political environment before 1930, while trade is more closely related to them after 1945. When we allow these deep fundamentals to serve as instruments for financial development and trade, finance is linked strongly to growth throughout our sample period, while trade matters for postwar growth only. We interpret these findings as indicating that finance is somehow “primal” to the processes of growth and macroeconomic integration, and that trade generally follows financial development in exerting an independent influence on growth later in the development process. We also suggest that the rising importance of trade in explaining growth is related to major postwar changes in tariffs and quantity restrictions associated with the GATT and the establishment of the European Common Market.

JEL Codes: E44, F14, F15, F36, N1, N2

Keywords: finance-growth nexus; trade-led growth; legal origin; political environment; globalization, macroeconomic integration

^a Department of Economics, Rutgers University, New Brunswick NJ and NBER.

^b Department of Economics, Vanderbilt University, Box 1819 Station B, Nashville TN 37235, and NBER.

1. Introduction

The relationship between financial development and economic growth is well established in the cross-country regression literature, both with more recent data (King and Levine, 1993) and with historical data (Rousseau and Sylla, 2003). Yet it is also widely believed that openness and the reduction of trade frictions that accompanies openness allow countries to exploit comparative advantages more effectively, thereby promoting long-run growth. Indeed, Rajan and Zingales (2003) contend that openness to international trade may promote a nation's financial development by weakening the power of economic and political incumbencies that block financial liberalization, which can in turn raise growth rates and enhance linkages with the rest of the world. And if developments in the financial and commercial sectors have reinforcing effects on each other, growing a more effective financial sector may also reap considerable rewards in terms of fostering international financial and macroeconomic integration. The first wave of economic globalization that arose between 1870 and the start of the First World War among the world's rapidly-developing economies in Europe and the Americas certainly represents an event during which these linkages might well have been at work (Obstfeld and Taylor, 2000).

Despite these potential cross-connections, the finance-growth and trade-growth literatures have for the most part lived separate lives. King and Levine (1993, Table 8, p. 731), for example, include trade as a percentage of GDP as a control variable in one of their now-famous growth regressions where finance is the variable of interest on the right hand side of the equation, but they interpret a lack of statistical significance for trade and the small affect of its inclusion on the coefficient for financial development as simply

consistent with their main treatise that finance has an independent relation with growth. Such results do not necessarily establish, however, that the role of trade in economic growth is over-emphasized in the development literature, especially if it has direct effects on the financial sector. Further, restricting analysis to recent (i.e., post-1960) data for a wide range of countries is not well-suited for asking whether finance and trade affect each other and growth differently at various stages of the development process.

Another literature led by LaPorta et al. (1997) contends that financial development can be encompassed by a “deeper” fundamental that is really central to the established growth effects, namely a nation’s legal origin, which presumably reflects a nation’s willingness and ability to protect individual property rights (see also La Porta et al., 1998; Beck and Levine 2002, 2004). This research agenda has shown some promise because it is reasonable to believe that public and private financial institutions would have a better chance of succeeding in a climate in which property right are secure, yet skeptics ask whether legal origin does not reflect other unobserved country characteristics unrelated to the protection of property rights.

Still another branch in the literature most recently explored by Bordo and Rousseau (2006) indicates that aspects of the political environment represent important pre-conditions for economic growth (see also Barro 1991; Barro and Lee 1994; Alesina and Perotti 1994; and Alesina et al. 1996, among others). We believe that the political environment represents a particularly interesting deep fundamental because, unlike legal origin, it can evolve over time. Our earlier paper related finance and growth to these deeper fundamentals in a cross-section of 17 “Atlantic” economies covering the past 125 years. The approach allowed us to isolate groups of countries that were similar in the

timing of their development experiences. We found that relationships between a county's legal origin and financial development were not persistent, but that various political indicators reflecting democratic principles were linked to larger financial sectors and higher conditional rates of economic growth.

In this paper we bring international trade into the analysis to take a fresh look at trade, finance, and growth along with their institutional underpinnings. We again focus on a lengthy period in history to explore how these linkages have evolved and continue to evolve over time. Our main results suggest that financial development and trade reinforced each other from 1880 to 1930, which is consistent with the Rajan and Zingales interpretation, but that these linkages broke down after the Second World War, with both finance and trade maintaining independent influences on growth in the postwar period.

We also find that the component of financial development that is directly related to legal origin and the political environment is strongly related to growth throughout our sample period, while the similar component of trade does not share such a strong linkage. This leads us to conclude that financial development, as put in place through good legal systems and favorable political environment, is somehow primal to the processes of growth and macroeconomic integration, and that trade generally follows financial development in exerting an independent influence on growth later in the development process. At the same time, a large part of cross-country growth over the past century can still be explained by the components of financial development and trade that are orthogonal to our deep fundamentals.

2. Data and Methodology

The analysis is limited to seventeen countries for which we have continuous data

since 1880. Most of the macroeconomic data are from the World Bank's *World Development Indicators* for the post-1960 period, and are from worksheets underlying Obstfeld and Taylor (2000), Bordo and Jonung (1987), Rousseau and Wachtel (1998), and Rousseau (1999) for earlier years. We measure financial development as the ratio of broad money (M2) to GDP. This primarily reflects the size of a country's banking system, and as such will record high values for countries with bank-based financial systems such as Germany and Japan. Ideally we would like an additional measure of financial development such as the ratio of stock market capitalization to GDP that would record high values for more market-based systems, but this is not possible given the time dimension of our study. Beck and Levine (2002, p. 40), however, report a correlation coefficient of 0.664 for averages of these market and bank-based measures from 1990 to 1995 in a cross-section of 115 countries, and so we believe broad money divided by GDP should reflect the size of a more broadly-defined capital market reasonably well. We work with the ratio of the sum of exports and imports to GDP as our measure of trade and openness, which has become something of a standard in the empirical growth literature.

We include the annual inflation rate of the consumer price index as a control variable in our regressions with financial development and trade as the dependent variables because a growing literature (e.g., Boyd, Levine, and Smith, 2001; Rousseau and Wachtel 2002) suggests that high inflation, which is usually related to variable inflation, can lead to difficulties in nominal contracting and in turn dampen or even reverse financial development. We also include initial per capita real income on the right-hand side because we suspect that higher incomes are associated with more economic activity and a more than proportionate increase in the demand for financial assets and

services. Here we use data from Maddison (2003) expressed as constant 1990 international Geary-Khamis dollars.

Following La Porta et al. (1997), we treat Australia, Canada, the United Kingdom, and the United States as countries with English legal origin. Those with French legal origin are Argentina, Brazil, France, Italy, the Netherlands, Portugal and Spain. The countries with German legal origin are Germany and Japan, while Denmark, Finland, Norway, and Sweden have Scandinavian legal origin. We represent legal origins in our regression analysis as separate dummy variables for French, German, and Scandinavian systems, and their coefficients can thus be interpreted as relative to English legal origin, which is the omitted category.

The variables reflecting the political environment are those found by Bordo and Rousseau (2006) to be related robustly to either financial development or growth. Starting with a wide variety of political indicators, we found the whether or not the electoral system is based on proportional representation, the number of elections held each year, and the number of revolutions or coups per year had the most explanatory power for finance and growth, and we will limit analysis to these variables here. They are all from the database created by political scientist David LeBlang (2004).

Our regressions cover a selection of time periods from 1880 to 2004. We first consider the full 125-year period, taking ten-year averages of the dependent variable for each of the 12 decades from 1880 to 1999. Our sub-samples use five-year averages of the dependent variable. The first covers the pre-WWI (1880-1914) era, while the second expands this period to the eve of the Great Depression (1880-1929). We work with two post-WWII samples, one commencing immediately in 1945 and running through 2004,

and another starting in 1960 for comparability with earlier empirical growth studies using more modern data such as King and Levine (1993). When used as explanatory variables, GDP per capita, the percentage inflation rate, trade, financial development, and our indicator for proportional representation all enter as initial values from the respective five or ten-year period. The legal origin variables are pre-determined and therefore remain constant throughout. The number of elections and the number of revolutions or coups are measured within each respective five or ten-year period. We also include dummy variables for each five or ten-year period in all of our regressions, though their coefficients are not reported in the tables that follow.

3. Empirical findings

a. Regressions of finance and trade on legal and political variables

Table 1 presents baseline OLS regressions that consider whether trade, legal origin, or our measures of the political environment are related to financial depth. The log of initial per capita GDP enters with the positive sign that we expect and is statistically significant in all but one specification (i.e., 1880-1914). Inflation has the expected negative relationship with financial depth for the post-war period and the full data period. We find that countries with French legal origin do seem to have lower levels of financial development than those with English legal origin in our pre-1930 samples, but have significantly higher levels of financial development in both post-WWII sub-samples. Further, countries with German legal origin outperform both English and French systems with our bank-based measure of financial development in all periods.¹

¹ Beck and Levine (2003) find that countries with German legal origin have the highest average levels of financial development from 1990-1995 with both bank and market-

The regressions also show that countries with Scandinavian legal systems have less financial development in the postwar period, but that the Scandinavian indicators have very large and positive coefficients in the 1880-1914 and 1880-1929 samples. Moreover, this strong relationship in the past continues to affect the results over the full 1880-1999 period. The switch in signs for the indicator variable across the sample segments is difficult to square with the “law and finance” hypothesis, which requires legal origin to affect institutional development consistently whenever measured.

Turning to the political variables, having a proportional representation system (as opposed to a majoritarian system) is associated with significantly higher levels of financial development in the pre-1930 samples and over the full period, but not in the post-war samples, while the number of revolutions and coups, entering here as a measure of political stability, always has the expected negative sign but is statistically significant only over the full period and 1880-1929.

Interestingly, the ratio of trade to GDP has positive and statistically significant coefficients in the 1880-1914 and 1880-1929 periods, both of which include what has been called the “golden age” of globalization. At the same time, trade does not seem to matter for financial development in either post-WWII sub-period. The earlier result is consistent with what economic historians have long considered the central role of the emergence of commerce in the development of financing arrangements. Rajan and Zingales (2003) treat openness to trade as a key element to financial development working through the political economy of incumbency.

Overall, the results in Table 1 suggest that the volume of trade affected the extent

based measures, but that this result is strongest when their bank-based measure is used.

to which financial institutions developed before 1930. Moreover, a good political environment seems to have been conducive to financial sector development in the first fifty years of our data, while Scandinavian legal origin mattered more before 1930 and French origin more after World War II. Countries with German legal origin had larger banking sectors throughout.

The regressions in Table 2 reverse the roles of trade and financial development, with the ratio of trade to GDP now the dependent variable. In contrast with Table 1, we find both French and Scandinavian legal origin strongly associated with trade throughout our 125-year sample, while countries with proportional representation systems seem to have more trade than those with majoritarian systems after 1945. In general, however, the links from the political and legal variables to trade are weaker than they are to finance.

Table 2 also shows that initial levels of finance mattered for the extent of trade in our pre-1930 samples. This is consistent with historians' narratives on the importance of financial markets and institutions in the financing of trade (e.g., Cassis 2007), and also suggests some bi-directional influence between trade and finance prior to World War I.

b. Growth regressions with finance, trade, legal and political variables

In Table 3 we turn attention to average growth rates and the role of the legal origin and political variables. In all time periods, the log of GDP in the initial year of each five or ten-year period has the expected negative sign, suggesting some degree of conditional convergence in growth rates across countries, with the coefficients also statistically significant in the postwar sample and over the full period.² The legal origin

² We exclude inflation from the growth regressions because recent studies (e.g., Bruno and Easterly 1998; Rousseau and Wachtel 2002) show that any negative relationship

variables, however, do not have a consistent and independent effect on growth, while having a proportional representation system is positively associated with growth only in the post-1945 samples. The number of revolutions and coups is also negative and significant only over the full sample period. Overall, the results in Table 3 suggest that the political variables, which can evolve over time, have a stronger independent effect on growth than fixed effects for legal origin.

In Table 4 we add financial depth and trade to the baseline growth regressions. The coefficients for the ratios of both broad money and trade to GDP are positive for all time periods, but turn out to be statistically significant only for the post-war period. We suspect that the inclusion of the legal origin variables may be lowering the coefficient on financial development in the pre-1930 samples, especially since the results in Table 1 showed that legal origin and proportional representation were strongly related to financial depth in the earlier periods. On the other hand, given that the legal and political variables were not strongly related to trade in Table 2, it is less likely that the lack of a link between trade and growth in the pre-1930 time periods can be attributed to collinearity with the included legal and political indicators. We pursue these questions in Section 3c below with an instrumental variables (IV) technique that allows the legal and political variables to operate on growth through financial development and trade.

c. Instrumental variables growth regressions

We are hesitant to interpret the results in Table 4 as indicative of weak roles for finance and trade in growth, especially in light of the simultaneous inclusion of legal and

between inflation and growth in cross-country data sets is driven by extreme observations such as hyper-inflations.

political variables in these specifications. Further, the partial correlations in Tables 1 and 2 indicate that legal and political variables may be operating strongly on finance and, to a lesser extent, on trade. For these reasons, in Tables 5-7 we explore how well the components of finance and trade that are pre-determined by our legal and political indicators can explain growth, and compare this to the more typical IV regression in which the initial values of finance and trade in each data period serve as their own instruments. Finally, we consider the extent to which the components of finance and trade that are orthogonal to the legal and political variables can explain growth.

The regressions in Table 5 employ all three of these methodologies in estimating the relation between financial development and growth. In the upper panel we report results from a standard IV regression in which the initial value of financial development in each five or ten-year period is used as an instrument for its contemporaneous five or ten-year average. In all time periods the coefficient on the log of the initial level of per capita income is negative as expected, and is statistically significant in all but one period (1880-1914). More interestingly, the coefficients on financial development are positive and statistically significant for all time periods. The coefficient of 1.555 from the first column of Table 5 (i.e., 1880-1999), for example, indicates that raising the ratio of broad money to GDP from, say, 0.5 to 1.0 would raise the annual rate of output growth by about 0.75 percent. The sizes of the implied growth effects for most of the sub-periods are even larger.

The center panel of Table 5 runs the same regression, but this time instrumenting the contemporaneous five and ten-year averages of financial development with the legal origin and political variables instead of finance's own initial values. This is equivalent to

running a first stage regression of financial development on initial income, legal origin, and the political variables, and then inserting the fitted value from the first stage into the second-stage growth regression that we report in the table. Overall, the coefficients on financial development are quite similar to those obtained in the standard IV regression, though they are a bit larger in all of the sub-periods and considerably larger for 1880-1999. This suggests that the dummies for legal origin and the political environment are better instruments for financial development than the initial level of finance, which had become a something of a standard instrument.³ Further, the results suggest that the deeper fundamentals, such as the political variables, are able to “cut through” the noise in standard measures of financial development to isolate the portion that matters for growth.

The regressions reported in the lower panel of Table 5 consider how much of growth remains unexplained by the component of financial development that is predetermined by the legal and political indicators. To do this, we insert the residuals from the regressions in the center panel into the standard growth regression. Since these residuals will be correlated with the error term, we instrument them with the initial value of financial development, which is a pre-determined quantity.⁴ The results show that the

³ Hansen tests for each of the over-identified specifications in Tables 5-7 do not reject the validity of the political and legal variables as instruments for financial development and trade at conventional significance levels.

⁴ Our two-stage regressions fall under “Model 4” of Pagan (1984, p. 232), meaning that the standard error of the coefficient on our generated regressor in the second-stage regression is valid for inference because 1) the generated regressor is an unlagged residual, 2) the anticipated component of financial development does not appear as a regressor in the second stage, and 3) the other right-hand side variable in the second stage (i.e., initial GDP) also appears in the first stage. Inference on the importance of the residual in the second stage are the same whether we estimate the second stage by OLS or by using the predetermined initial value of financial development as an instrument for the first-stage residual.

unexplained component of financial development retains a large and statistically significant correlation with subsequent growth. All of this suggests that the protection of property rights and a favorable political environment, though conducive to financial development, may not be necessary for the finance-growth nexus to operate.

Table 6 reports results from a set of growth regressions similar to those in Table 5 except that the ratio of trade to GDP now replaces the ratio of broad money to GDP. As in Table 4 with the full conditioning set, trade is correlated with growth in upper panel of Table 6 for the post-World War II period, but not prior to 1930, though the coefficients are positive throughout. In the center panel, with trade instrumented by the legal and political variables, we find that the predetermined component of trade does explain more of growth for the 1945-2004 period, but otherwise has less explanatory power for growth than trade instrumented by its own initial value. The lower panel of Table 6 shows that the component of trade unexplained by the legal and political variables still accounts for a sizeable portion of post-World War II growth. Overall, trade seems to matter for growth, especially more recently, but as we saw before, represents more of an independent growth influence than one impacted by the deeper fundamentals.

In Table 7 we combine the information in Tables 5 and 6 by including both financial development and trade together in the growth regressions. The striking feature of Table 7 is how little the coefficients on finance and trade differ from those obtained when they entered Tables 5 and 6 separately. These results add further support to our view that finance and trade act independently in influencing growth in more mature economies, though their relationship could well be complementary in early phases of the growth process.

4. Conclusion

We study linkages between financial development and trade and their role in promoting growth and macroeconomic integration. Probing this new research direction using historical data for a group of now-developed “Atlantic” economies over the past 125 years, we find evidence that finance and trade had reinforcing effects in data covering the 1880-1914 and 1880-1929 periods, but that these links vanished after the Second World War. We also find that financial development is more closely related “deep” fundamentals such as measures of “democracy” before 1930 than later, while trade is more closely related to such deep fundamentals after World War II. We also find that democracy is strongly related to growth in the post-war period. At the same time, when we allow indicators for legal origin and the political environment to serve as instruments for financial development, we find that both the explained and unexplained components of finance matter strongly for growth throughout our sample period, while when we instrument similarly for trade we find that its components are statistically significant only in the postwar period.

One explanation for the growing importance of trade for growth after 1945 involves the signing of the General Agreement on Tariffs and Trade by 23 countries in 1947 and its expansion in later rounds leading up to the establishment of the World Trade Organization in 1995. With the GATT came rapid relaxations of tariffs and quantity restrictions on a wide range of traded commodities that began to re-establish international linkages that had been severed by the First World War and the high tariff barriers that followed it. Another factor has been the growth and expansion of the European Economic Community (i.e., the “common market”) from its beginning in 1957. With the EEC has

come a new, second era of enhanced integration among the member nations, and this has continued with the establishment of the European Union.

Despite our finding that indicators corresponding with legal origin and the political environment explain much of the cross-sectional variation in financial development, and to a lesser extent in trade, we were surprised that there remain substantial components of financial development and trade that are correlated with growth and yet not related to these measures of deeper fundamentals. This suggests that having a deep and well-developed financial sector and trading arrangements can have benefits for long-term growth even in the absence of strong institutional underpinnings that ostensibly protect property rights. This is not to say, however, that sound institutions are not an important ingredient in ideally growth-enhancing financial and commercial sectors. Indeed, the absence of the sound and deep fundamentals (as measured here) may influence the sustainability of finance and trade-driven growth, i.e., such countries may be more subject to serious financial crises. Rather, we suggest that research designs that take an integrated approach to finance and trade that pursues traditional channels such as capital accumulation and the overcoming of indivisibilities in investment along with institutional origins will in the end help us to more fully understand how and why finance and trade matter for growth.

References

- Alesina, Alberto, and Roberto Perotti. 1994. The political economy of economic growth: A critical survey of the recent literature. *World Bank Economic Review* 8 (3): 351-71.
- Alesina, Alberto, Sule Ozer, Nouriel Roubini, and Phillip Swagel. 1996. Political instability and economic growth. *Journal of Economic Growth* 1 (2): 189-211.
- Barro, Robert J. 1991. Economic growth in a cross section of countries. *Quarterly Journal of Economics* 56: 407-43.

- Barro, Robert J., and Jong-Wha Lee. 1994. Sources of economic growth. *Carnegie-Rochester Conference Series on Public Policy* 40: 1-46.
- Beck, Thorsten, and Ross Levine. 2002. Law and finance: Why does legal origin matter? Working Paper No. 9379, National Bureau of Economic Research.
- Beck, Thorsten, and Ross Levine. 2004. Legal institutions and financial development. Working Paper No. 10417, National Bureau of Economic Research.
- Bordo, Michael D., and Lars Jonung. 1987. *The long-run behavior of the velocity of circulation*. New York: Cambridge University Press.
- Bordo, Michael D., and Peter L. Rousseau. 2006. Legal-political factors and the historical evolution of the finance-growth link. *European Review of Economic History* 10: 421-444.
- Boyd, J. H., Levine, R., Smith, B. D., 2001. The impact of inflation on financial sector performance. *Journal of Monetary Economics* 47, 221-48.
- Bruno, M., Easterly, W., 1998. Inflation crises and long-run growth. *Journal of Monetary Economics* 41, 3-26.
- Cassis, Youssef (2007). *Capitals of Capital*. New York: Cambridge University Press.
- King, Robert G., and Ross Levine. 1993. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* 108: 717-37.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1997. Legal determinants of external finance. *Journal of Finance* 52(3), Papers and Proceedings: 1131-1150.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. Law and finance. *Journal of Political Economy* 106(6): 1113-1155.
- Leblang, David. 2004. Is democracy incompatible with international economic stability? In *The future of the international monetary system*, ed. Marc Uzan. London: Edward Elgar Publishing.
- Maddison, Angus. 2003. *The World Economy: Historical Statistics*. Paris: Organization for Economic Cooperation and Development.
- Obstfeld, Maurice, and Alan M. Taylor. 2000. *Global Capital Markets: Integration, Crises, and Growth*. Japan-U.S. Center Sanwa Monographs on International Financial Markets. Cambridge: Cambridge University Press.
- Pagan, Adrian. 1984. Econometric issues in the estimation of regressions with generated regressors. *International Economic Review* 25 (1): 221-247.
- Rajan, Raghuram and Luigi Zingales 2003. *Saving Capitalism from the Capitalists*. New York: Random House.
- Rousseau, Peter L. 1999. Finance, investment, and growth in Meiji-era Japan. *Japan and the World Economy* 11(2): 185-198.
- Rousseau, Peter L., and Richard Sylla. 2003. Financial systems, economic growth, and globalization. In *Globalization in Historical Perspective*, ed. Michael D. Bordo, Alan M. Taylor, and Jeffrey G. Williamson. Chicago: University of Chicago Press, pp. 373-413.
- Rousseau, Peter L., and Paul Wachtel. 2002. Inflation thresholds in the finance-growth nexus. *Journal of International Money and Finance* 21: 777-93.
- World Bank, 2007. *World Development Indicators*. World Bank, Washington, DC.

Table 1

OLS regressions of the ratio of broad money to GDP on trade, legal origin and political variables

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	0.102** (0.046)	0.039 (0.026)	0.066** (0.026)	0.263** (0.061)	0.310** (0.085)
Initial inflation rate (%)	-0.0008* (0.0005)	0.001** (0.0004)	0.0008* (0.005)	-0.001** (0.0004)	-0.001* (0.0005)
Initial ratio trade to GDP	0.041 (0.044)	0.104** (0.018)	0.096** (0.020)	-0.028 (0.105)	0.026 (0.123)
French legal origin	0.036 (0.053)	-0.055* (0.033)	-0.060** (0.032)	0.180** (0.062)	0.253** (0.077)
German legal origin	0.211** (0.066)	0.087** (0.039)	0.105** (0.041)	0.383** (0.079)	0.545** (0.092)
Scandinavian legal origin	0.112** (0.052)	0.294** (0.033)	0.301** (0.033)	-0.036 (0.059)	-0.003 (0.072)
Proportional representation electoral system	0.065* (0.040)	0.113** (0.025)	0.061** (0.024)	0.071 (0.054)	0.001 (0.068)
Number of elections	0.018 (0.013)	-0.013 (0.012)	0.000 (0.012)	-0.001 (0.026)	0.014 (0.031)
Number of revolutions or coups	-0.067* (0.036)	-0.054 (0.043)	-0.084** (0.041)	-0.104 (0.072)	-0.110 (0.099)
R ²	.347	.781	.721	.375	.427
(No. observations)	(195)	(118)	(164)	(190)	(144)

Notes: Standard errors are in parentheses. The dependent variable is averaged over each decade for 1880-1999 and every five years for 1880-1914, 1880-1929, 1945-2004, and 1960-2004. Initial values of real per capita GDP and the inflation rate are from the first year of each period. Fixed effects for each five- or ten-year period are included in the regressions but not reported. * and ** denote statistical significance at the 10 percent and 5 percent levels respectively.

Table 2

OLS regressions of the ratio of trade to GDP on broad money, legal origin and political variables

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	0.231** (0.068)	0.358** (0.117)	0.286** (0.092)	0.145** (0.040)	0.179** (0.055)
Initial inflation rate (%)	-0.001* (0.0006)	-0.006** (0.002)	-0.004** (0.002)	-0.0006** (0.0003)	-0.0005* (0.0003)
Initial ratio broad money to GDP)	0.148 (0.121)	2.336** (0.388)	1.442** (0.278)	-0.027 (0.043)	-0.037 (0.056)
French legal origin	0.235** (0.077)	0.550** (0.144)	0.465** (0.111)	0.088** (0.042)	0.112** (0.051)
German legal origin	-0.018 (0.100)	-0.057 (0.185)	-0.039 (0.148)	-0.147** (0.052)	-0.127** (0.064)
Scandinavian legal origin	0.197** (0.077)	-0.334* (0.190)	-0.101 (0.141)	0.124** (0.038)	0.165** (0.45)
Proportional representation electoral system	0.002 (0.061)	-0.431** (0.121)	-0.210** (0.086)	0.192** (0.033)	0.165** (0.041)
Number of elections	-0.007 (0.020)	0.021 (0.054)	-0.009 (0.043)	-0.007 (0.017)	-0.021 (0.020)
Number of revolutions or coups	-0.034 (0.055)	0.161 (0.201)	0.137 (0.149)	-0.040 (0.047)	-0.081 (0.062)
R ²	.230	.439	.317	.537	.549
(No. observations)	(195)	(118)	(164)	(192)	(144)

See note to Table 1.

Table 3
 OLS regressions of growth on legal origin and political variables

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	-0.970** (0.351)	-0.012 (0.502)	-0.352 (0.554)	-2.339** (0.528)	-1.797** (0.447)
French legal origin	-0.306 (0.407)	-0.397 (0.611)	0.254 (0.673)	-0.064 (0.569)	-0.582 (0.421)
German legal origin	0.934* (0.524)	0.277 (0.784)	0.664 (0.892)	0.801 (0.709)	0.412 (0.507)
Scandinavian legal origin	0.254 (0.506)	0.308 (0.632)	1.154* (0.706)	-0.163 (0.543)	-0.092 (0.398)
Proportional representation electoral system	0.303 (0.319)	0.174 (0.511)	0.669 (0.522)	1.767** (0.453)	1.028** (0.355)
Number of elections	-0.076 (0.107)	0.239 (0.239)	-0.225 (0.267)	0.370 (0.240)	-0.092 (0.398)
Number of revolutions or coups	-0.565* (0.293)	0.099 (0.899)	0.396 (0.917)	-0.154 (0.665)	-0.122 (0.548)
R ² (No. observations)	.362 (197)	.126 (118)	.127 (165)	.397 (199)	.445 (150)

See note to Table 1.

Table 4
 OLS regressions of growth on broad money, trade, legal origin and political variables

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	-1.272** (0.367)	-0.246 (0.546)	-0.739 (0.578)	-1.990** (0.429)	-2.475** (0.495)
Initial ratio broad money to GDP	0.817 (0.633)	0.821 (1.950)	1.955 (1.805)	0.376 (0.503)	1.165** (0.489)
Initial ratio trade to GDP	0.520 (0.351)	0.304 (0.428)	0.299 (0.473)	0.658 (0.693)	1.539** (0.682)
French legal origin	-0.533 (0.412)	-0.574 (0.677)	0.013 (0.705)	-0.365 (0.427)	-0.974** (0.447)
German legal origin	0.744 (0.529)	0.174 (0.793)	0.381 (0.875)	1.010* (0.554)	0.061 (0.571)
Scandinavian legal origin	0.056 (0.413)	-0.051 (0.794)	0.479 (0.824)	0.048 (0.392)	-0.291 (0.401)
Proportional representation electoral system	0.170 (0.319)	0.165 (0.548)	0.440 (0.528)	0.884** (0.362)	0.688* (0.375)
Number of elections	-0.097 (0.107)	0.250 (0.241)	-0.172 (0.260)	0.001 (0.174)	-0.086 (0.174)
Number of revolutions or coups	-0.503* (0.291)	0.123 (0.905)	0.650 (0.909)	-0.311 (0.477)	0.147 (0.547)
R ²	.383	.137	.131	.442	.484
(No. observations)	(195)	(118)	(164)	(190)	(144)

See note to Table 1.

Table 5

Instrumental variables growth regressions with broad money

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	-1.013** (0.275)	-0.097 (0.388)	-0.803* (0.415)	-2.411** (0.423)	-1.249** (0.337)
Ratio broad money to GDP (instrumented by initial value)	1.555** (0.578)	1.810* (1.067)	2.797** (1.061)	3.787** (0.690)	1.264** (0.432)
R ² (No. observations)	.348 (194)	.088 (117)	.119 (170)	.314 (193)	.400 (144)
Log of initial real per capita GDP	-1.354** (0.331)	-0.114 (0.395)	-0.770* (0.436)	-2.464** (0.467)	-1.254** (0.362)
Ratio broad money to GDP (instrumented by legal and political indicators)	4.619** (1.373)	1.991 (1.312)	2.779** (1.360)	4.093** (1.300)	1.286* (0.748)
R ² (No. observations)	.247 (196)	.087 (117)	.119 (165)	.303 (193)	.400 (144)
Log of initial real per capita GDP	-0.931** (0.275)	0.077 (0.386)	-0.529 (0.418)	-1.759** (0.432)	-0.975** (0.329)
Residuals from first stage regression	1.896** (0.721)	4.732* (2.875)	7.035** (2.776)	5.009** (0.970)	1.862** (0.647)
R ² (No. observations)	.317 (194)	.032 (117)	.046 (164)	.224 (193)	.381 (144)

Estimation is by two-stage least squares, with standard errors are in parentheses. The dependent variable is averaged over each decade for 1880-1999 and every five years for 1880-1914, 1880-1929, 1945-2004, and 1960-2004. The initial values of real per capita GDP are taken from the first year of each period. Dummy variables for each five- or ten-year period are included in the regressions but not reported. * and ** denote statistical significance at the 10 percent and 5 percent levels respectively.

Table 6
Instrumental variables growth regressions with trade

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	-0.890** (0.281)	0.030 (0.388)	-0.621 (0.420)	-1.495** (0.316)	-1.338** (0.352)
Ratio trade to GDP (instrumented by initial value)	0.512 (0.413)	0.188 (0.345)	0.454 (0.439)	1.143* (0.659)	1.644** (0.648)
R ² (No. observations)	.305 (196)	.067 (117)	.081 (164)	.351 (196)	.393 (150)
Log of initial real per capita GDP	-0.702** (0.353)	0.281 (0.443)	-0.547 (0.097)	-2.357** (0.480)	-1.291** (0.385)
Ratio trade to GDP (instrumented by legal and political indicators)	-0.488 (1.239)	-0.818 (0.847)	0.245 (1.265)	3.256** (1.401)	1.437 (0.942)
R ² (No. observations)	.282 (197)	.009 (117)	.092 (1654)	.310 (199)	.394 (150)
Log of initial real per capita GDP	-0.846** (0.273)	0.077 (0.378)	-0.526 (0.410)	-1.291** (0.295)	-0.966** (0.326)
Residuals from first stage regression	0.547 (0.440)	0.227 (0.414)	0.517 (0.500)	1.780* (1.041)	2.696** (1.080)
R ² (No. observations)	.308 (196)	.072 (119)	.082 (164)	.332 (196)	.373 (150)

See note to Table 5.

Table 7

Instrumental variables growth regressions with financial development and trade

	1880- 1999	1880- 1914	1880- 1929	1945- 2004	1960- 2004
Log of initial real per capita GDP	-1.075** (0.282)	-0.109 (0.395)	-0.843** (0.422)	-1.734** (0.329)	-1.703** (0.363)
Ratio broad money to GDP (instrumented by initial value)	1.474** (0.583)	1.754* (1.096)	2.658** (1.086)	1.148** (0.470)	1.371** (0.422)
Ratio trade to GDP (instrumented by initial value)	0.412 (0.405)	0.070 (0.350)	0.258 (0.441)	1.282* (0.677)	1.923** (0.660)
R ² (No. observations)	.349 (194)	.087 (117)	.120 (164)	.369 (190)	.437 (144)
Log of initial real per capita GDP	-1.154** (0.401)	0.071 (0.460)	-0.847* (0.513)	-3.150** (0.546)	-1.768** (0.433)
Ratio broad money to GDP (instrumented by legal and political indicators)	4.880** (1.460)	1.878 (1.346)	2.796** (1.367)	4.259** (1.306)	1.617** (0.747)
Ratio trade to GDP (instrumented by legal and political indicators)	-1.321 (1.341)	-0.702 (0.835)	0.361 (1.252)	3.563** (0.350)	1.977** (0.969)
R ² (No. observations)	.182 (196)	.057 (117)	.117 (165)	.302 (193)	.435 (144)
Log of initial real per capita GDP	-0.960** (0.276)	0.077 (0.390)	-0.529 (0.420)	-1.299** (0.304)	-0.968** (0.328)
Residuals from first stage M2/GDP regression	1.806** (0.728)	5.392 (3.606)	7.315** (3.192)	1.572** (0.656)	1.939** (0.644)
Residuals from first stage Trade/GDP regression	0.406 (0.444)	-0.291 (0.572)	-0.191 (0.616)	1.981* (1.110)	2.910** (1.139)
R ² (No. observations)	.322 (194)	.020 (117)	.042 (164)	.310 (190)	.389 (144)

See note to Table 5.