Global Economy Journal

Impact of Globalization on Income Distribution Inequality in 60 Countries

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Impact of Globalization on Income Distribution Inequality in 60 Countries[*]

Lei Zhou, Basudeb Biswas, Tyler Bowles, and Peter J. Saunders

Abstract

This paper investigates the impact of globalization on income inequality distribution in 60 developed, transitional, and developing countries. Using Kearney's (2002, 2003 and 2004) data and principal component analysis (PCA), two globalization indices are created. One of these indices is the equally weighted index. The other index is derived from the principal component analysis. The Gini coefficient of a country is regressed on each index, respectively, in all 60 test cases.

The main contribution of this paper is its finding of a negative relationship between both globalization indices and the Gini coefficient for all 60 countries under investigation. Furthermore, test results indicate that this relationship is robust. Therefore, the empirical evidence presented in this paper supports the claim that globalization helps reduce income distribution inequality within countries.

KEYWORDS: globalization, income distribution inequality

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I. Introduction

One of the key economic issues of our time facing both the developed and the developing countries is how globalization impacts their economies. In particular, it is of crucial interest to determine whether globalization promotes or harms economic growth in countries operating in global markets. Closely related to the question of the impact of globalization on economic growth is the issue of globalization's effects on income distribution within all participating countries. In theory, globalization can either alleviate or worsen the income inequality. There is no clear consensus on how globalization affects income inequality. Some economists claim that a recent rise in income inequality in many regions has coincided with liberalized trade and capital flows [Cornia (2004)]. Liberalized trade and free capital flows are the primary parts of a policy regime known as the Washington Consensus. It is conceivable to argue that liberalized trade and capital flows (that are the main components of globalization) may be responsible for increasing within-country income inequality. It appears that some are making this connection, and there is a corresponding backlash against the Washington Consensus.[1] The importance of this issue cannot be overstated. If globalization does indeed cause greater within-country inequality, then the Washington Consensus may be internally inconsistent.[2] The goal of the Washington Consensus is accelerated economic growth in all countries. However, if globalization causes greater income inequality, it will have a negative impact on economic growth as income inequality retards growth.

There is substantial interest in the effect of globalization on income inequality within a country.[3] In this debate, some have concluded that trade is a contributing source of the rising inequality [Borjas and Ramey (1994), Wood (1995), Freeman (1995), and Richardson (1995)]. Others, however, have observed no significant relationship between some concept of openness and income distribution [Fieleke (1994) and Edwards (1997)]. There is also some empirical evidence indicating that greater participation in international trade reduces income inequality significantly [Chakrabarti (2000)]. Clearly, empirical evidence to date on the impact of globalization on income inequality is controversial and inconclusive. Consequently, this issue remains unresolved. Only further empirical research can shed more light on this all-important issue facing countries that

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[1] The failure of the Doha Round can be partially explained by the perception that globalization contributes to greater income inequality.

[2] For much of the 1980s and 1990s, the so-called Washington Consensus on development policy was marked by the free-market approach to economic development, both internally and externally. Internal economic policies emphasized deregulation and privatization. External policies were mainly concerned with trade liberalization, elimination of barriers to direct foreign investment, and financial liberalization.

[3] See Cornia (2004) for a summary of economic research into this topic.

participate in international trade. The objective of this paper is to provide such empirical evidence.

Globalization is a difficult concept to define and measure. Therefore, defining it clearly is the first necessary step in the process of establishing the relationship, or lack thereof, between changes in globalization and income inequality. Consequently, the initial focus of this paper is to outline various definitions and measurements of alternative concepts of globalization and income inequality. Thereafter, an empirical model is developed that tests the impact of globalization on income inequality in the beginning years of the 21st century. Consequently, the early 2000s data are used in the present econometric analysis of the relationship between globalization and income inequality. Rigorous empirical tests of the hypothesis that globalization decreases within-nation income inequality are undertaken and their results outlined. Overall conclusions about the impact of globalization on income inequality are summarized in the final section of this paper.

II. Defining and Measuring Globalization and Income Inequality

Globalization

Globalization is not a well-defined concept. From an economic point of view, globalization implies mainly liberalization of trade in goods and services, and a free movement of direct and portfolio capital. Apart from this generally accepted concept of globalization, there is no uniquely accepted definition of globalization. Scholte (2000) has noted that there exist at least five broad definitions of "globalization" in the economic literature. First, globalization is defined as internationalization, which refers to cross-border relations such as trade and capital flows between countries. Second, globalization is defined as liberalization, or a process of removing government-imposed restrictions on movements between countries in order to create an open and borderless world economy. The third definition of globalization is universalization, which means the process of spreading various objects and experiences (e.g., a specific television program) to every country. The fourth defines globalization as westernization or modernization, which especially refers to the spreading of social structures of modernity (i.e., capitalism, industrialism, rationalism, etc.). The fifth defines globalization as deterritorialization, which means reconfiguration of geography so that social space is no longer wholly mapped in terms of territorial places and territorial borders.

In this paper, the Kearney data [Kearney (2002), (2003) and (2004)] are used to form two measures of globalization: the Kearney Index and the PC

Index.[4] This database contains derivations on all four aspects of globalization: economic integration, personal contact, technological connections, and political engagement. Therefore, this measurement of globalization is close to the fourth or even the fifth definition mentioned above. The process of calculating those two indices is outlined below.

Kearney Database and Measures of Globalization

In 2002, A.T. Kearney, Inc. attempted to set up a comprehensive database and to compute a composite globalization index for many countries or areas. The Kearney Globalization Index (KGI), proposed by Kearney [(2002), (2003) and (2004)], is composed of four major *component* variables: economic integration, personal contact, technological connections, and political engagement. Each of these four *component* variables is a weighed average of several *determinant* variables (columns 3-17 of Table A.1 in the Appendix contain the determinant variables). For example, the KGI in 2004 measures economic integration by combining data on international trade, portfolio capital flows, and income payments and receipts, which include compensation to nonresident employees and income earned and paid on assets held abroad. Personal contact is quantified by measuring the levels of international telephone traffic, international travel and tourism, and cross-border transfers, including remittances. As for technological connections, the KGI counts the number of internet users, internet hosts, and secure servers relative to population. The last component, political engagement, is measured by counting the number of foreign embassies in each country or area, the number of memberships in international organizations, and the contribution to UN peacekeeping missions during a calendar year. Table A.2 provides definitions of the 15 determinant variables organized into the four separate components.

The construction of the KGI is similar to the commonly used human development index (HDI). For each *determinant* variable, the lowest observation is valued at zero and the highest at one, and then the remaining observations in the panel are assigned relative values between zero and one, proportionally. For example, the maximum value of inward and outward trade flows is 340% of GDP (Singapore in 2000), while the minimum observation is 21% of GDP (Japan in 2000). These two observations are valued at one and zero, respectively, with all

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[4] This data base contains observations for 62 countries or areas, inclusive of advanced, emerging, and developing countries and areas. The data represent 85% of the world's population. As mentioned previously, the objective of this paper is to determine the impact of globalization on income inequality in the early 2000s. The selection of this particular time period is partially due to the fact that since the mid 2000s, the Washington Consensus has begun to unravel and change. Globalization has evolved and its nature has changed since then. Examining the impact of these changes on the relation between globalization and income inequality, although beyond the scope of the present paper, could certainly be worthy of further empirical investigation.

other observations falling in between. After the value of each *determinant* variable is calculated for a given *component* variable, the value of that component is calculated as a weighted average of the underlying *determinant* variables. Finally, the KGI is calculated as a weighted average of the four *component* variables.

Two concerns may result from the above-mentioned process. The first comes from the rescaling of the determinant variables. By doing so, the relative magnitude of each nation's observed value for a given determinant variable is lost. For example, in the year 2000, the trade-GDP ratio of Singapore (340%) is about 16 times that of Japan (21%). After rescaling to one and zero, the ratio of the two countries' trade-GDP ratios becomes infinity. The second problem comes from the arbitrary selection of weights. In forming the KGI, equal weights are assigned to each determinant and component variable. Hence, the KGI is a simple average of the determinant variables. Assigning equal weights to determinant variables may not be the most appropriate method to be used in weights selection.

In order to solve the first problem, a small adjustment of the Kearney rescaling method is made. Concerning the determinant variables, the largest observation is still set to one, but the relative magnitude of each nation's observation is maintained. Rather than setting the minimum observation to zero, the number zero is used as the lower bound. The minimum observation may become a very small number after rescaling, but the original proportion between all observations remains the same. The globalization index is then recalculated by applying equal weights to each determinant variable. This equally weighted index is referred to as the *Kearney index* in the present study (see column 20 of Table A.1 in the Appendix).

The second problem (i.e., arbitrarily selected weights) is solved by applying statistical methods to determine the weights from the nature of the data (i.e., Principal Component Analysis). PCA attempts to summarize a large number of variables with a smaller number of hidden principal components. It is a statistical method for grouping large numbers of variables in order to determine those that are characterized by a common underlying factor. PCA helps determine the weights to attach to each *determinant* variable, based on the characteristics of the data. The result is a less arbitrary measurement of globalization.

PCA involves a mathematical procedure that transforms a number of correlated variables into a smaller number of uncorrelated variables called principal components (PCs). The first PC accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. This PC is a linear combination of the original 15 determinant variables where the parameter vector in this linear combination is the eigenvector of the variance-covariance matrix of the 15

determinant variables. Since the first PC accounts for the largest fraction of the variance of the original variables, it has been used as a composite representation of the 15 determinant variables. This globalization index is referred to as the *PC index* (see column 21 of Table A.1 in the Appendix).

Income Inequality

The well-known Gini coefficient is used to measure income inequality in a country. The value of a Gini coefficient ranges from 0 to 1, with 0 for perfect equality and 1 for perfect inequality. The inequality data used in this study come from the UNU/WIDER–UNDP *World Income Inequality Database* (WIID) (UNU/WIDER, (2004)]. This database collects information on income inequality for developed, developing, and transitional countries. The particular version of the database used in the present paper (i.e., WIID2 beta) was released on December 3, 2004. WIID2 beta provides Gini coefficients, and quintile and decile income shares of 152 countries or areas over the period 1950-2001. These countries are comprised of developed economies, transitional economies, and developing economies. In this dataset, a single series generally is used for comparing inequality levels across time. However, cross-sectional analysis would be inappropriate if no corrections are made to the original data as those data are not comparable across countries. The Gini index series for a specific country or area may be derived differently than that for another country. For example, some nations use the household as the reference unit and net income as the income definition, while others use the person as the reference unit and gross income as the income definition. To make the data more consistent and comparable, the User Guide and Data Sources of the WIID (UNU/WIDER, 2004) suggests the following corrections and adjustments:

> For instance, Gini coefficients of gross incomes are roughly 5-10 points higher than Gini coefficients of net (disposable) incomes, and Gini coefficients of (net) earnings may be roughly 5 points higher than Gini coefficients of (net) expenditure. Gini coefficients of disposable incomes may also be roughly 5 points higher than Gini coefficients of expenditure. These differences concern averages of large amount of observations across countries– however, the actual difference depends on the structure of the economy and the specific point in time of the individual country under consideration (p. 8).

By adhering to the above suggestions, the following adjustments are made to the Gini coefficients in WIID2 beta. The Gini coefficients based on net

expenditure are increased by 5.0 points to be comparable to those based on net incomes, and 7.5 is subtracted from the Gini coefficients that are calculated on gross income so they are comparable with those based on net incomes. The adjusted Gini coefficients (multiplied by 100 for convenience) for the 60 countries in this study are listed in the second column of Table A.1 in the Appendix.

Considering the overlapping period of the Kearney database and the WIID database, the data in the year 2000 across the 62 countries or areas in the Kearney database are used. This version of the WIID [UNU/WIDER (2004)] covers 152 countries or areas for the period of 1950-2001. However, the 152 countries or areas are observed nonconsecutively and on an irregular basis. If the Gini coefficient of a country or area is missing, the following most recent Gini coefficient is used as a substitute. Saudi Arabia and Taiwan are excluded from the regression model because their Gini coefficients are not available. Hence, the analysis includes 60 countries.

III. Model Specification and Empirical Test Results

Basic Regression Models

The first model applied to test the effects of globalization on income distribution within a country is specified as follows:

$$(1) \quad Gini_i = \beta_0 + \beta_1 Globalization\ index_i + \beta_2 Education_i + \beta_3 Urbanization_i + \varepsilon_i$$

where $Gini_i$ is the Gini coefficient of country i; $Globalization\ index_i$ represents the globalization index of country i; $Education_i$ is the education level of country i; $Urbanization_i$ is the urbanization level of country i; the β's are regression coefficients; and ε_i is the error term. The $Globalization\ index_i$ is the *Kearney index$_i$* and *PC index$_i$*, in equations (2) and (3) below, respectively. Hence, the two versions of the model are specified as follows:

$$(2) \quad Gini_i = \beta_0 + \beta_1 Kearney\ index_i + \beta_2 Education_i + \beta_3 Urbanization_i + \varepsilon_i$$

$$(3) \quad Gini_i = \beta_0 + \beta_1 PC\ index_i + \beta_2 Education_i + \beta_3 Urbanization_i + \varepsilon_i$$

Education levels are measured by the education index from the *Human Development Report* [UNDP (1999-2003)]. This index measures a country's relative achievement by including both the adult literacy rate and combined primary, secondary, and tertiary gross enrollment. The urbanization level is measured by the ratio of urban population to total population. It is also available in the *Human Development Report* [UNPD (1999-2003)]. Columns 18 and 19 of Table A.1 contain Education and Urbanization variables, respectively.

Regression Results

Gini coefficients were regressed on all determinant variables with and without the education and urbanization variables (see Models A1 and A2 reported in Table 1) before fitting the two models defined by equations (2) and (3) above. In the model estimates, three variables are statistically significant: *trade*, *Int'l travel*, and *Internet user* regardless of whether *Education* and *Urbanization* are included. Next, Gini coefficients are regressed on each of the two globalization indices, Kearney and PC index, again with and without *Education* and *Urbanization*. The odd-numbered models do not include the explanatory variables, education and urbanization; the even-numbered models do (See models A3, A4, A5, and A6). Estimation with the two different indices reveals similar patterns. The coefficient on each globalization index is negative and highly significant in Models A4 and A6. This result provides evidence that increasing levels of globalization decrease income inequality in that country. Models A3 and A5 (i.e., the models without including *Education* and *Urbanization*) suggest the same conclusion. Consequently, the test results of this study indicate that, contrary to the prevailing empirical evidence [Borjas and Ramey (1994), Wood (1995), Freeman (1995), and Richardson (1995)], globalization seems to reduce income inequality in all countries under the present empirical investigation.[5] This result holds across all the models analyzed in the present study.

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[5] Relatively low R^2 values in Models A3 – A6 indicate that factors other than those analyzed in this study also influence income inequality. However, the results of the present study indicate that greater trade liberalization ultimately reduces income inequality.

Table 1
Model Fitting Results: Models A1-A6.

Explanatory Variables	Model A1	Model A2	Model A3	Model A4	Model A5	Model A6
Intercept	32.609**	37.884**	47.052**	57.854**	43.858**	54.299**
trade	23.839*	22.614*				
FDI	9.054	9.061				
Portfolio	-6.840	-5.662				
Compensation	-2.127	-1.128				
Income abroad	0.239	0.515				
Int'l telephone	7.844	6.864				
Int'l travel	-29.590**	-27.803**				
Gov transfer	9.973	8.375				
Other transfer	-2.684	-1.542				
Internet host	19.931	21.582				
Internet server	-1.731	-2.750				
Internet user	-26.802*	-26.864*				
Embassy	-2.629	-2.990				
Int'l organization	11.985	10.257				
Peacekeeping	6.550	7.187				
Education		-11.506		-20.393*		-19.766*
Urbanization		8.620		6.898		8.266
Kearney index			-2.682**	-2.018*		
PC index					-8.503**	-6.834*
R^2	0.50	0.52	0.19	0.26	0.21	0.27
Model F-value	2.88	2.69	13.99	6.64	15.29	6.97
Model P-value	0.0032	0.0046	0.0004	0.0006	0.0002	0.0005

** Indicates significantly different from zero at the <1% level.
* Indicates significantly different from zero at the 1% - 5% level.

IV. Conclusion

Globalization is an important economic force that affects most countries in the 21st century. However, theoretical controversies regarding the impact of globalization on economies of the countries participating in international trade exist. Theoretically, globalization can either promote or harm economic growth in these countries. It can also lead to a greater or lesser within-country income inequality. These all important questions can only be answered by empirical research. Empirical research to date on the effects of globalization on income inequality yields inconclusive results. While some studies support the hypothesis that globalization leads to a greater income inequality, others contradict this conclusion. The present paper provides further empirical evidence on this all-important issue.

When studying the relationship between globalization and within-country income inequality, it is essential to define at the outset an appropriate measure of globalization. This initial step must be made since there is no uniquely accepted definition of globalization. The Kearney (2002, 2003, and 2004) globalization index can be used for this purpose. However, this index suffers from two fundamental flaws. First, the variables upon which the index is based are scaled in such a way that a relative magnitude of these variables across countries is lost. Second, the weights assigned to each underlying variable in forming the index are arbitrary. The first empirical contribution of this paper is to alleviate these flaws by forming two new globalization indices, the Kerney index, and the PCA index. These two comprehensive globalization indices are based on 15 fundamental determinant variables. They are used as a measure of globalization in the present study. These indices are regressed on the Gini coefficient in order to determine the impact of globalization on income inequality in the 60 countries under investigation.

Test results reported in this paper provide new empirical evidence on the impact of globalization on income inequality. Contrary to most empirical research reported to date, the present study finds no evidence in support of the view that globalization contributes to income inequality. On the contrary, test results indicate that globalization decreases income inequality. This conclusion is robust in the sense that it is consistent across globalization indices, and that it does not depend on the inclusion of variables that account for a country's average level of educational attainment and urbanization. Therefore, this paper provides empirical support for the assertion that the Washington consensus (i.e., policies designed to liberalize trade and capital flows) promote greater income equality. Since reducing income distribution inequality typically leads to greater economic growth, the present empirical research provides new evidence in the ongoing debate about the overall costs and benefits of globalization.

Appendix: Data and Indices

Table A.1
Data and Indices

1	2	3	4	5	6	7	8	9	10	11
Country	Gini	Trade	FDI	Port-folio	Com-pen-sation	Income abroad	Int'l telep-hone	Int'l travel	Gov Transfer	Other transfer
Argentina	49.35	0.07	0.12	0.09	0.00	0.15	0.03	0.05	0.01	0.02
Australia	31.00	0.13	0.13	0.15	0.04	0.17	0.35	0.11	0.04	0.07
Austria	30.35	0.25	0.08	0.21	0.08	0.23	0.39	0.49	0.19	0.11
Bangladesh	38.60	0.08	0.00	0.01	0.00	0.02	0.00	0.00	0.06	0.32
Botswana	53.70	0.22	0.05	0.02	0.22	0.54	0.06	0.14	1.00	0.12
Brazil	52.43	0.08	0.18	0.01	0.01	0.12	0.02	0.01	0.00	0.03
Canada	32.45	0.24	0.57	0.15	0.00	0.23	0.68	0.30	0.05	0.04
Chile	53.90	0.17	0.37	0.02	0.00	0.18	0.05	0.06	0.05	0.06
China	40.30	0.11	0.18	0.01	0.00	0.07	0.01	0.01	0.00	0.04
Colombia	50.27	0.11	0.12	0.07	0.01	0.13	0.04	0.01	0.03	0.18
Croatia	33.45	0.25	0.28	0.06	0.06	0.09	0.11	0.21	0.12	0.39
Czech	19.50	0.40	0.36	0.11	0.22	0.20	0.12	1.00	0.07	0.16
Denmark	33.70	0.19	0.07	0.11	0.08	1.00	0.35	0.33	0.00	0.00
Egypt	42.80	0.11	0.05	0.01	0.00	0.07	0.02	0.03	0.07	0.26
Finland	26.89	0.22	1.00	0.61	0.06	0.30	0.28	0.40	0.13	0.13
France	32.70	0.13	0.12	0.08	0.09	0.14	0.16	0.33	0.20	0.09
Germany	29.04	0.19	0.54	0.25	0.05	0.24	0.30	0.27	0.18	0.06
Greece	32.70	0.09	0.03	0.08	0.00	0.08	0.16	0.25	0.00	0.00
Hungary	31.10	0.42	0.21	0.07	0.08	0.16	0.09	0.64	0.03	0.13
India	36.70	0.08	0.02	0.01	0.00	0.04	0.00	0.00	0.01	0.22
Indonesia	35.80	0.20	0.07	0.03	0.00	0.22	0.01	0.01	0.05	0.06
Iran	47.90	0.15	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.04
Ireland	35.62	0.39	0.17	0.03	0.06	0.61	0.59	0.53	0.15	1.00
Israel	43.01	0.20	0.09	0.04	0.36	0.17	0.22	0.20	0.32	0.24
Italy	35.87	0.15	0.09	0.26	0.04	0.18	0.24	0.26	0.17	0.10
Japan	22.81	0.06	0.02	0.06	0.00	0.21	0.04	0.04	0.01	0.03
Kenya	49.50	0.20	0.01	0.00	0.04	0.07	0.01	0.01	0.04	0.36
Korea	36.60	0.18	0.05	0.11	0.02	0.04	0.05	0.04	0.01	0.23
Malaysia	44.30	0.62	0.25	0.03	0.08	0.25	0.09	0.36	0.02	0.31
Mexico	53.71	0.18	0.10	0.01	0.02	0.10	0.12	0.08	0.00	0.09
Morocco	44.50	0.18	0.00	0.00	0.00	0.09	0.04	0.05	0.02	0.49
Netherlands	30.77	0.34	0.90	1.00	0.05	0.47	0.43	0.36	0.23	0.08
New Zealand	28.65	0.16	0.15	0.06	0.00	0.20	0.36	0.17	0.10	0.05
Nigeria	55.60	0.23	0.17	0.00	0.00	0.24	0.00	0.00	0.00	0.37
Norway	27.54	0.21	0.31	0.43	0.07	0.19	0.33	0.23	0.06	0.15
Pakistan	35.58	0.11	0.04	0.00	0.00	0.09	0.01	0.00	0.06	0.31

Table A.1 continued

Country	12 Internet host	13 Internet server	14 Internet user	15 Emb-assy	16 Int'l orga-niza-tion	17 Peace-keeping	18 Educa-tion	19 Urba-niza-tion	20 Kea-rney index	21 PC index
Argentina	0.01	0.00	0.02	0.41	0.79	0.03	0.91	0.89	1.79	0.30
Australia	0.30	0.65	0.75	0.44	0.77	0.50	0.99	0.92	4.60	1.26
Austria	0.05	0.02	0.21	0.51	0.79	0.24	0.95	0.64	3.84	0.74
Bangladesh	0.00	0.00	0.00	0.24	0.61	0.00	0.38	0.19	1.35	0.10
Botswana	0.00	0.00	0.00	0.08	0.49	0.01	0.73	0.66	2.95	0.22
Brazil	0.03	0.03	0.10	0.51	0.81	0.15	0.90	0.82	2.09	0.40
Canada	0.27	0.58	0.92	0.67	0.90	0.49	0.98	0.80	6.09	1.72
Chile	0.02	0.03	0.36	0.36	0.71	0.05	0.90	0.87	2.50	0.61
China	0.00	0.00	0.00	0.69	0.54	0.06	0.79	0.33	1.72	0.28
Colombia	0.00	0.01	0.05	0.29	0.77	0.04	0.84	0.76	1.84	0.28
Croatia	0.01	0.02	0.10	0.14	0.47	0.02	0.88	0.57	2.33	0.36
Czech	0.05	0.09	0.21	0.44	0.69	0.27	0.92	0.74	4.39	0.88
Denmark	0.07	0.00	0.12	0.35	0.81	0.00	0.96	0.85	3.50	0.63
Egypt	0.00	0.00	0.01	0.68	0.79	0.02	0.62	0.42	2.12	0.24
Finland	0.36	0.33	0.81	0.28	0.89	0.58	0.99	0.61	6.37	1.75
France	0.01	0.00	0.06	0.86	1.00	0.02	0.97	0.75	3.30	0.52
Germany	0.09	0.22	0.66	0.87	0.96	0.68	0.95	0.88	5.55	1.38
Greece	0.01	0.00	0.03	0.36	0.76	0.00	0.91	0.60	1.84	0.34
Hungary	0.06	0.07	0.32	0.38	0.89	0.11	0.93	0.89	3.65	0.75
India	0.00	0.00	0.01	0.59	0.71	0.02	0.59	0.28	1.72	0.20
Indonesia	0.00	0.00	0.01	0.39	0.64	0.02	0.79	0.40	1.71	0.24
Iran	0.00	0.00	0.00	0.53	0.60	0.02	0.73	0.60	1.40	0.18
Ireland	0.03	0.01	0.05	0.20	0.60	0.01	0.95	0.58	4.43	0.54
Israel	0.03	0.01	0.05	0.37	0.50	0.12	0.90	0.91	2.94	0.36
Italy	0.06	0.07	0.50	0.73	0.94	0.65	0.93	0.67	4.45	0.99
Japan	0.03	0.01	0.20	0.68	0.80	0.00	0.94	0.78	2.19	0.41
Kenya	0.00	0.00	0.00	0.39	0.59	0.11	0.69	0.30	1.81	0.16
Korea	0.01	0.00	0.04	0.47	0.57	0.00	0.95	0.84	1.82	0.24
Malaysia	0.01	0.01	0.27	0.27	0.61	0.00	0.80	0.57	3.17	0.56
Mexico	0.02	0.01	0.06	0.42	0.80	0.04	0.85	0.75	2.06	0.34
Morocco	0.00	0.00	0.00	0.34	0.60	0.00	0.49	0.55	1.81	0.14
Netherlands	0.21	0.09	0.86	0.42	0.87	0.03	0.99	0.89	6.35	1.67
New Zealand	0.16	0.07	0.33	0.19	0.63	0.01	0.98	0.86	2.64	0.63
Nigeria	0.00	0.00	0.00	0.42	0.64	1.00	0.58	0.41	3.08	0.50
Norway	0.36	0.30	0.95	0.30	0.81	0.47	0.99	0.78	5.18	1.42
Pakistan	0.00	0.00	0.00	0.41	0.70	0.00	0.41	0.35	1.73	0.17

Table A.1 continued

1	2	3	4	5	6	7	8	9	10	11
Country	Gini	Trade	FDI	Port-folio	Com-pen-sation	Income abroad	Int'l telep-hone	Int'l travel	Gov transfer	Other transfer
Panama	49.55	0.38	0.44	0.03	0.00	0.72	0.09	0.06	0.05	0.11
Peru	49.33	0.10	0.07	0.02	0.00	0.12	0.03	0.01	0.01	0.14
Philippines	40.68	0.31	0.07	0.05	1.00	0.16	0.04	0.01	0.02	0.05
Poland	34.50	0.18	0.21	0.04	0.03	0.08	0.08	0.46	0.02	0.15
Portugal	35.60	0.19	0.09	0.15	0.03	0.20	0.14	0.31	0.27	0.31
Romania	31.00	0.20	0.10	0.01	0.03	0.05	0.05	0.10	0.03	0.24
Russia	45.64	0.19	0.08	0.10	0.03	0.14	0.03	0.07	0.01	0.04
Senegal	46.30	0.18	0.01	0.01	0.16	0.12	0.01	0.01	0.29	0.29
Singapore	40.60	1.00	0.74	0.30	0.00	0.00	1.00	0.68	0.03	0.10
Slovak	26.40	0.41	0.39	0.13	0.02	0.10	0.09	0.06	0.00	0.22
Slovenia	24.60	0.33	0.04	0.03	0.14	0.08	0.20	0.37	0.06	0.17
South Africa	47.02	0.14	0.15	0.22	0.05	0.09	0.03	0.05	0.05	0.00
Spain	28.47	0.13	0.07	0.02	0.01	0.13	0.10	0.24	0.14	0.16
Sri Lanka	49.15	0.25	0.04	0.01	0.02	0.08	0.02	0.01	0.01	0.61
Sweden	27.32	0.24	0.95	0.19	0.04	0.40	0.40	0.36	0.14	0.14
Switzerland	35.96	0.22	0.25	0.25	0.31	0.41	0.73	0.75	0.21	0.23
Thailand	52.20	0.35	0.10	0.01	0.17	0.15	0.02	0.05	0.01	0.08
Tunisia	45.20	0.24	0.04	0.01	0.00	0.13	0.04	0.14	0.03	0.31
Turkey	49.00	0.15	0.02	0.04	0.00	0.08	0.03	0.05	0.02	0.21
Uganda	46.13	0.10	0.09	0.00	0.09	0.06	0.00	0.00	0.58	0.66
Ukraine	36.30	0.34	0.07	0.01	0.01	0.09	0.02	0.06	0.11	0.14
UK	37.06	0.15	0.73	0.31	0.02	0.50	0.38	0.32	0.10	0.20
US	40.19	0.07	0.18	0.11	0.01	0.15	0.23	0.09	0.02	0.04
Venezuela	36.68	0.13	0.15	0.06	0.00	0.13	0.04	0.01	0.01	0.04

Table A.1 continued

	12	13	14	15	16	17	18	19	20	21
Country	Internet host	Internet server	Internet user	Emb-assy	Int'l orga-niza-tion	Peace-keeping	Educa-tion	Urba-niza-tion	Kea-rney index	PC index
Panama	0.02	0.04	0.07	0.20	0.61	0.03	0.86	0.57	2.84	0.51
Peru	0.00	0.00	0.07	0.31	0.73	0.05	0.86	0.74	1.67	0.26
Philippines	0.00	0.00	0.04	0.33	0.64	0.03	0.89	0.60	2.76	0.25
Poland	0.03	0.03	0.16	0.40	0.73	0.03	0.96	0.62	2.63	0.51
Portugal	0.01	0.00	0.05	0.35	0.77	0.09	0.91	0.37	2.95	0.41
Romania	0.01	0.01	0.08	0.41	0.69	0.04	0.88	0.55	2.04	0.30
Russia	0.01	0.01	0.04	0.81	0.69	0.67	0.95	0.73	2.92	0.53
Senegal	0.00	0.00	0.00	0.30	0.66	0.01	0.35	0.45	2.04	0.15
Singapore	0.15	0.47	0.71	0.26	0.53	0.02	0.91	1.00	6.00	1.63
Slovak	0.02	0.05	0.21	0.16	0.63	0.05	0.91	0.57	2.54	0.53
Slovenia	0.04	0.18	0.33	0.12	0.53	0.05	0.96	0.51	2.66	0.55
SouthAfrica	0.01	0.01	0.04	0.38	0.49	0.15	0.87	0.50	1.84	0.35
Spain	0.01	0.00	0.03	0.53	0.83	0.24	0.95	0.77	2.65	0.41
Sri Lanka	0.00	0.00	0.01	0.20	0.66	0.02	0.83	0.21	1.93	0.13
Sweden	0.24	0.41	1.00	0.54	0.89	0.58	0.99	0.83	6.51	1.81
Switzerland	0.07	0.01	0.10	0.42	0.79	0.00	0.92	0.62	4.75	0.85
Thailand	0.00	0.01	0.08	0.33	0.66	0.04	0.86	0.32	2.05	0.30
Tunisia	0.00	0.00	0.00	0.31	0.66	0.02	0.68	0.63	1.92	0.21
Turkey	0.00	0.00	0.00	0.44	0.71	0.02	0.76	0.72	1.76	0.21
Uganda	0.00	0.00	0.00	0.13	0.61	0.00	0.59	0.14	2.33	0.09
Ukraine	0.00	0.00	0.02	0.34	0.56	0.17	0.94	0.67	1.93	0.26
UK	0.11	0.16	0.47	0.83	0.91	0.21	0.99	0.89	5.41	1.26
US	1.00	1.00	0.95	1.00	0.90	0.41	0.97	0.80	6.18	1.67
Venezuela	0.00	0.01	0.07	0.40	0.77	0.03	0.86	0.87	1.85	0.33

Table A.2
Determinant Variable of Major Components and Data Sources

Component	Determinant Variable	Notation	Measurement	Data Source
Economic Integration	Trade	*Trade*	(Goods imports + Goods exports + Services credits + Services debits) / GDP	IMF International Financial Statistics (IFS)
	Foreign direct investment	*FDI*	(FDI inflows + FDI outflows) / GDP	IMF International Financial Statistics (IFS)
	Portfolio capital flows	*Portfolio*	(Portfolio inflows + Portfolio outflows) / GDP	IMF International Financial Statistics (IFS)
	Compensation to non-resident employees	*Compensation*	(Credit + Debit) / GDP	IMF Balance of Payments Statistics (BOPS)
	Income earned and paid on assets held abroad	*Income abroad*	(Income payments + Income receipts) / GDP	IMF Balance of Payments Statistics (BOPS)
Personal Contact	International telephone traffic	*Int'l telephone*	(Incoming telephone traffic + Outgoing telephone traffic) / Population	International Telecommunications Union, Yearbook of Statistics
	International travel and tourism	*Int'l travel*	(Tourist arrivals + Tourist departures) / Population	2002 Compendium of Tourism Statistics, World Tourism Organization; 2002 World Development Indicators, World Bank
	Government transfer	*Gov transfer*	(Transfer payments + Transfer receipts) / GDP	IMF Balance of Payments Statistics (BOPS)
	Other transfers	*Other transfer*	(Transfer payments + Transfer receipts) / GDP	IMF Balance of Payments Statistics (BOPS)
Technological Connection	Internet users	*Internet user*	Internet Users / Population	International Telecommunications Union, Yearbook of Statistics
	Internet hosts	*Internet host*	Internet Hosts / Population	International Telecommunications Union, Yearbook of Statistics
	Secure servers	*Internet server*	Secure Servers / Population	Netcraft.com Secure Server Survey

Table A.2 continued

Component	Determinant Variable	Notation	Measurement	Data Source
Political Engagement	Number of embassies in the country	*Embassy*	Number of foreign embassies in the country	Europa World Factbook
	Number of membership in international organizations	*Int'l organization*	Number of membership in international organizations	2002 CIA World Factbook
	Peacekeeping financial contribution	*Peacekeeping*	Peacekeeping financial contribution / GDP	United Nations Department of Public Information (UNDPI)

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