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THE IMPACT OF RISK AVERSION ON ECONOMIC DEVELOPMENT IN PORTUGAL

Erin Lindsey Burton



Introduction

Risk aversion can be described as an individual's attitude toward taking risks. Highly risk-averse individuals tend to make more conservative decisions than less risk-averse individuals. Risk aversion becomes an important factor when considering life decisions, especially for economic and financial decision making. Variability in the degree of risk aversion occurs because people have different perceptions of risk as a result of various cultural values. Because individuals with similar cultural norms and views are most likely clustered within a country, risk aversion at the national level can be viewed as a cultural trait (Lehnert et al., p. 12).

In this article, I first show that there is a high level of risk aversion in Portugal relative to that in other countries. I attribute this high degree of risk aversion to the country's history of strict societal controls and limited freedom of expression during the Salazar regime, and

I suggest that this highly risk-averse behavior continues in society today as a result of the lingering mindsets instilled by the dictatorship. Next, I argue that Portugal's risk-averse culture induced by the dictatorship hinders economic development in the country today. In order to test this hypothesis, I analyze the effects of risk aversion on economic development for a large sample of countries (including Portugal). I use Hofstede's Uncertainty Avoidance (UA) index and the ratio of research and development (R&D) expenditures to GDP (hereafter, R&D expenditures to GDP) to quantify risk aversion in Portugal and 58 other countries around the world. To measure economic development, I use GDP per capita and stock market capitalization.

Regression analysis using a large sample of countries between 1960 and 2011 shows that risk-averse behavior has a significant negative impact on economic development. For Portugal, the results imply that risk-averse behavior leads to a loss in stock market capitalization of between 3% and 15% as well as a loss in GDP

per capita ranging between 2% and 13%. I consider the implications of these findings in terms of the consequences of risk aversion in Portugal and suggest potential methods to reverse the negative effects of risk aversion in the country.

Background on Risk Aversion in Portugal

During the years 1933–1968, Portugal's government was under the dictatorial control of António Salazar. The Salazar regime sought to avoid modernization and to preserve the traditional aspects of the economy, society, and state. This was accomplished through the establishment of societal norms and regulations in line with Salazar's strictly orthodox beliefs. For example, with the arrival of the New State¹, school curricula changed and textbooks were rewritten to reflect Salazar's Catholicism and nationalistic and authoritarian views (Opello, p. 70). By changing educational tools to reflect his own beliefs, Salazar conditioned society to comply with his ideologies. The presence of the International Police for the Security of State, or secret police, and strict censorship of press, books, and public meetings limited society's freedom of expression and suppressed organized opposition (Bruce, p. 44). By banning opposition to set societal norms and threatening those who disobeyed, Salazar significantly reduced individual initiative and generated a fear of nonconformity in the population. Disabling public involvement in both political and societal reforms gave Salazar complete control over almost every aspect of Portuguese life. These extreme controls contributed to a high degree of risk aversion in Portugal during the time of the regime.

In addition to rigid policy limiting freedom of expression, the social hierarchy enforced during the dictatorship may have also contributed to the decline of individual initiative and the development of risk-averse attitudes. Salazar created a structure in society in which there was no vertical mobility between social classes. Essentially, Portugal was divided into two main social classes, allocating the majority of Portuguese citizens to the bottom

of the pyramid, while priests, monarchists, and soldiers were incorporated into the elite class (Birmingham, p. 161). Given that there was virtually no possibility of climbing the social ladder, there was little motivation for individual development and progression within society. Salazar instilled the mindset that where one is within society is where one will stay, and this mindset defines risk-averse individuals.

The rigid social structure created by Salazar demobilized individuals within the social hierarchy by preventing movement between social classes, whereas the prioritization of family also contributed to demobilization by reducing individual incentive to move out of Portugal. The constitution of the New State identified the family as the primary organizational unit of society (Opello, p. 66). A study by Alesina and colleagues suggests that prioritizing family can enhance the strength of family ties and create an environment in which life changes are seen as risky and undesirable (Alesina et al., pp. 37–38). Because of the strong family ties encouraged by the regime, Portuguese society became more demobilized and risk averse over the period of the dictatorship. Along these lines, the research of Alesina and colleagues indicates that countries with strong family ties tend to implement more stringent labor market regulations because individuals within these countries value staying close to family. During the regime, it is likely that people preferred the comfort of certainty and security they found within Portugal as a result of Salazar's highly regulated environment, which exemplifies the risk-averse culture.

In addition to limiting society's freedom of expression, individual initiative, and mobility, Salazar isolated Portugal from the modern world by controlling the level of industrialization and reducing foreign influence as much as possible (Bruneau, pp. 19–20). To regulate industrialization in Portugal, Salazar implemented the Industry Control Act. This law prohibited the construction of new factories, the start of new industries, location changes of factories, and the extension of existing factories without government permission (Deutsch, p. 57). These strict controls over industrialization restricted individual entrepreneurial spirit, thus inhibiting the development of new industries in the country. The entrepreneurial

¹The term "New State" was used to define Portugal during Salazar's dictatorship.

mentality is a characteristic of risk-seeking individuals. Therefore, restricting this mentality fosters risk-averse attitudes. In addition, Salazar reduced foreign influence in Portugal by discouraging foreign investment and shifting to a more inward-oriented corporatist² economy to minimize external dependency (Chilcote, p. 230). Limiting foreign influence caused Portugal to fall out of touch with outside modernizing economies, so the traditional aspects of the country persisted. Because modernization is risky due to the high-paced societal changes involved, countries that avoid modernization, like Portugal, can be described as risk averse. This rejection of modernity during the regime deterred Portugal's development.

Overall, historical evidence suggests that the lives of Portuguese citizens were highly restricted during Salazar's dictatorship. By limiting society's freedom of expression, individual initiative, mobility, and modernization, the regime effectively altered Portuguese risk perception, generating a highly risk-averse society. It is likely that the risk-averse attitudes developed during the dictatorship remain in Portuguese society today. In the following section, I discuss the current attitudes toward risk in Portugal.

Are the Portuguese Highly Risk Averse?

Because of what took place during the Salazar regime, it is highly likely that Portuguese society still fosters risk-averse attitudes. With modernization discouraged and passivity enforced on the population, there was little room for change and innovation during Salazar's dictatorship. The Salazar regime was also a long-lasting dictatorship, surviving for almost four decades. Because the regime ruled over an extensive time period, Portuguese citizens became accustomed to rigid societal structure and limited individual expression in society. Therefore, Salazar's impact on societal structure and behavior lingered in Portugal even after his death in 1968. Because it is likely that society feared change from Salazar's high-

²Corporatism is the socio-political organization of a society into major groups with common interests. Portugal was a corporatist economy during the time of the regime, as demonstrated by Salazar's highly organized social structure.

ly controlled environment, rigid regulations continue to persist in present-day Portugal. For example, current employment protection legislation³ and product market regulations⁴ in Portugal are highly restrictive in comparison to other Organisation for Economic Co-operation and Development (OECD) countries (OECD 2014, pp. 16–23). Additionally, individual expression, nonconformist ideas, and entrepreneurial spirit in Portugal remain hindered. To verify the persistence of risk-averse behavior in present-day Portugal, the level of risk aversion is quantified in later sections.

The Salazar regime had largely influenced Portuguese risk perception. There is strong evidence that the long-lasting dictatorship rendered a risk-averse society, which continues to define Portugal today. In the following section, I consider the impact that this lingering risk-averse behavior has on economic development in the country.

Linking Risk Aversion and Economic Development

Risk aversion has a strong influence over consumer, corporate, and government decision making, which in turn can have a large impact on an economy. In terms of consumer decision making, a consumer's intention to purchase is reduced by perceived risk (Kim et al., p. 556). Research has shown that risk-averse consumers are less likely to purchase new products and unfamiliar products or brands (Bao et al., p. 739). In terms of corporate decision making, studies have indicated that more risk-averse CEOs engage in less takeover activity, because takeovers are a risk to a firm's equity (Lehnert et al., pp. 24–25). In terms of government decision making, more risk-averse countries tend to implement stricter regulatory policies

³Employment protection legislation includes regulations dealing with hiring policies, firing policies, wages, and benefits. Specifically for Portugal, employment protection for permanent workers is higher than the OECD average (OECD 2014, p. 23).

⁴Product market regulation includes all policies promoting or inhibiting competition between firms or products in the marketplace, such as entry and conduct regulations, administrative burdens, and price controls. Specifically for Portugal, professional services and transport sectors have product market regulations in place that are highly restrictive compared with the OECD average (OECD 2014, p. 16).

(Hofstede, p. 45). Because of the strong influence risk aversion has over consumer, corporate, and government decision making, it is likely that risk aversion has a negative impact on economic development.

When examining the effects of risk aversion on economic development, I consider entrepreneurial risk taking as a significant factor contributing to the prosperity of nations. Entrepreneurial risk taking is considered an important element of economic development because it increases job opportunities, introduces new goods and services to the marketplace, and increases national competitiveness (Zahra, pp. 37–38). Characteristics such as willingness to take risks, motivation, open-mindedness, and ability to innovate are essential to entrepreneurship (Berger, p. 6). Studies have shown that risk-taking attitudes and entrepreneurial spirit are associated with generating economic development and increasing firm productivity through adoption of new technologies (Cullen et al., pp. 1501–02). This research suggests that promoting more risky behavior in Portugal may help stimulate sustainable development in the country.

In addition, strict regulations in society have been shown to limit economic development capabilities. Risk-averse societies usually try to minimize uncertainty through strict laws and a high degree of regulation (Kailani and Kumar, pp. 82–83). One study indicates that stringent regulation of product and labor markets has adverse effects on economic growth (Koedijk et al., pp. 449–51). As described previously, Portugal's highly regulated economy is reflected in the country's strict employment protection legislation and product market regulation.

The hypothesis I test in this article is that risk aversion has a negative impact on economic development. To test my hypothesis, I use common indicators of economic development and risk aversion, and I evaluate the effects of risk aversion on economic development using regression analysis. Data were collected for a sample of 59 countries between 1960 and 2011. All countries with available World Bank data were selected for this study. The 59 countries and respective time periods are listed in Appendix A. Additionally, all risk aversion, economic development, and regression control variables used in this study are defined in Appendix B and are explained in detail in the following section.

Variables Used in Regression Analysis

Risk Aversion

I use two common measures of risk aversion to test my hypothesis: Hofstede's UA index and R&D expenditures to GDP. Hofstede's UA measure is one of six cultural dimensions defined by Hofstede and colleagues (2010). The cultural scales were developed from a measure of attitudes held by 88,000 employees in 66 overseas subsidiaries of IBM (Shane, p. 56). Hofstede's cultural value measures have been subject to more checks of validity than any other cultural value measure, and replication studies performed have confirmed Hofstede's original findings (Shane p. 56). Hofstede's UA measure is closely related to risk aversion; it measures the degree to which members of a society feel uncomfortable with uncertainty and ambiguity. A strong UA score relates to strict regulations in society and intolerance of ideas outside of societal norms, whereas weak scores reflect a more relaxed attitude and less structure (Hofstede, p. 45). Shane (p. 53) argues that people in uncertainty-accepting societies find it easier to be nonconformist and are more willing to take risks. Furthermore, in uncertainty-avoiding societies, people follow organizational norms and procedures (Schneider, p. 10) and find it difficult to take initiative on their own ideas (Hofstede and Bond, p. 11). UA scores range between 0 and 100, with lower values suggesting less risk-averse behavior.

Portugal's UA score of 99 out of 100 is approximately 50% greater than the overall average score of 67, which suggests Portugal is highly risk averse. Descriptive statistics for all risk aversion, economic development, and control variables are summarized below in Table 1. Portugal's high level of UA reflects the stringent economic regulations that define the country. Both employment protection legislation and product market regulation are tightly controlled in Portugal in comparison to the U.K. (Boeri et al., p. 341). With Portugal's score almost triple the U.K.'s score of 35, it follows that a high UA score reflects more rigid laws and regulations and constitutes highly risk-averse behavior in a country.

In addition to the UA index, I use R&D expenditures to GDP to measure risk aversion.

Table 1
Descriptive Statistics for Portugal and the Overall Sample for 1960–2011

Variable	Portugal			Overall		
	N	Mean	SD	N	Mean	SD
Hofstede's UA Index	52	99.00	0.00	3,068	66.93	22.35
R&D expenditures to GDP (%)	16	0.96	0.39	736	1.24	0.90
Stock market capitalization to GDP (%)	23	30.49	14.24	1,167	50.78	49.31
GDP per capita (current U.S. \$)	52	7,410.82	7,215.65	2,641	9,597.80	13,749.03
Natural logarithm of GDP (current U.S. \$)	52	24.34	1.38	2,654	24.87	1.90
Bank deposits to GDP (%)	51	80.07	17.08	2,234	51.44	42.40
Exports to GDP (%)	52	24.26	5.44	2,612	34.73	29.84

Source: World Bank; Hofstede et al. (2010) (see Appendix B).

R&D expenditures are higher-risk investments compared to capital expenditures on property, plant, and equipment (Coles et al., p. 436). Companies investing more in R&D are considered less risk averse. Portuguese R&D investment is low in comparison to the sample averages. The calculations presented are based on 736 observations collected for R&D expenditure data between 1960 and 2011. Portugal's R&D expenditures to GDP averaged 0.96% compared with 1.24% for the overall sample, making the overall sample average 30% greater than Portugal's average. To put this into context, the U.K.'s average R&D expenditure is 1.76% of GDP, which is almost double that of Portugal. This relatively low value for Portugal's R&D expenditure suggests the presence of risk-averse behavior in the country.

Economic Development

The ratio of stock market capitalization to GDP (hereafter, stock market capitalization to GDP) and GDP per capita in current U.S. dollars are commonly used indicators of economic development, and, therefore, serve as economic development indicators in this study. Stock market capitalization to GDP has been shown to have a positive impact on economic growth and development (Demirgüç-Kunt and Levine, pp. 225–31), and GDP per capita dis-

plays a similar relationship (Demirgüç-Kunt and Maksimovic, p. 2122).

Economic development data for Portugal reveal a relatively weak economy compared with the overall means for both stock market capitalization and GDP per capita. Stock market capitalization for Portugal averaged approximately 30% of GDP compared with the overall sample average of 50%. In addition, GDP per capita for Portugal averaged \$7,400, whereas the overall sample average is approximately \$9,600.

Controls

I also include a number of control variables in the analysis. These control variables reduce the possibility that factors other than risk aversion may explain why risk-averse countries may be less developed. My control variables include the natural logarithm of GDP, the ratio of bank deposits to GDP (hereafter, bank deposits to GDP), and the ratio of exports of goods and services to GDP (hereafter, exports to GDP). The natural logarithm of GDP has been used in previous studies to control for the size of the country (Demirgüç-Kunt et al., p. 257). Bank deposits to GDP controls for the overall size of the banking sector (Demirgüç-Kunt and Huizinga, p. 6). Finally, I use exports to GDP to control for the degree of capital and current

account openness, which has been shown to have a positive effect on financial development (Demirgüç-Kunt et al., p. 257).

Summary of Regression Results

I estimate four regressions to measure the relationship between economic development and risk aversion (Table 2). More specifically, I analyze the effects of Hofstede's UA on stock market capitalization and the effects of R&D expenditures on stock market capitalization (Model 1 and Model 2, respectively). In addition, I evaluate the effects of Hofstede's UA on GDP per capita and the effects of R&D expenditures on GDP per capita (Model 3 and Model 4, respectively). As discussed previously, all models include controls for size of the country, size of the banking sector, and openness of the economy using the natural logarithm of GDP, bank deposits to GDP, and exports to GDP, respectively.

Overall, the results from the regression analysis indicate that risk aversion significantly hurts economic development. Results suggest that higher levels of risk aversion in a country correspond to lower economic development. The results from the regression analysis are summarized in Table 2.

The results from the regression analysis for stock market capitalization as a percentage of GDP and Hofstede's UA measure indicate an inverse relationship between stock market capitalization and UA (Model 1). Because a greater UA value indicates highly risk-averse behavior, results demonstrate that a high level of risk aversion is associated with lower market capitalization. Similarly, I find a positive relationship between stock market capitalization and R&D spending (Model 2). Because low values of R&D spending are associated with risk-averse behavior, these results again suggest that a high level of risk aversion is associated with lower market capitalization.

The results from the regression analysis for GDP per capita and Hofstede's UA measure indicate a significant negative relationship between GDP per capita and UA (Model 3). Thus, high UA values are associated with low GDP per capita. Similarly, the results from the regression analysis for GDP per capita and R&D spending as a percent of GDP suggest a positive

relationship between GDP per capita and R&D spending (Model 4). Thus, highly risk-averse behavior is associated with low GDP per capita.

Using these results, I determine how much stock market capitalization and GDP per capita would change if UA fell by 10% (i.e., a 10% change from the mean value for Portugal) and if R&D expenditures increase by 10% (again, a 10% change from the mean value for Portugal). Using values from the regression output, I estimate that a 10% decline in UA would result in a 15% increase in average stock market capitalization and a 2% increase in average GDP per capita in Portugal.⁵ Similarly, an increase in Portugal's average R&D expenditure of 10% would lead to a 3% increase in stock market capitalization and a 13% increase in GDP per capita.⁶ Overall, these results suggest that a reduction of risk-averse behavior in Portugal would likely stimulate economic development in the country.

Prospects for Portugal

As demonstrated in my cross-country analysis, risk aversion has a significant negative impact on economic development. Furthermore, because Portugal shows a very high level of risk aversion, my data indicate that reducing the level of risk aversion in Portugal would likely improve Portugal's economic development.

Recommending that the Portuguese people should become less risk averse is impractical. Individuals vary in their degree of risk aversion; some choose to be highly risk averse and conservative in their actions whereas

⁵Using the regression coefficient of -0.47 , the 10% decrease in UA, which is a 9.9 unit decrease, constitutes a 4.65 percentage point increase in stock market capitalization. This yields a 15% increase from my data average stock market capitalization of 30.49%. Using the regression coefficient of -18.20 , the 10% decrease in UA constitutes a \$180.18 increase in GDP per capita. This yields a 2% increase from my data average GDP per capita of \$7,410.82.

⁶Using the regression coefficient of 10.27, the 10% increase in R&D expenditure, which is a 0.096 percentage point increase, constitutes a 0.99 percentage point increase in stock market capitalization. This yields a 3% increase from my data average stock market capitalization of 30.49%. Using the regression coefficient of 10,108.25, the 10% increase in R&D expenditure constitutes a \$970.39 increase in GDP per capita. This yields a 13% increase from my data average GDP per capita of \$7,410.82.

Table 2
Regression Results on the Effects of Risk Aversion on Economic Development

Variable	Stock Market Capitalization to GDP (%)		GDP Per Capita (Current U.S. \$)	
	Model 1	Model 2	Model 1	Model 2
Hofstede's UA Index	-0.47** (-8.82)		-18.20* (-1.92)	
R&D expenditures to GDP (%)		10.27** (5.87)		10,108.25** (19.07)
Natural logarithm of GDP (current U.S. \$)	8.69** (11.66)	8.95** (9.32)	2,772.27** (23.69)	326.00 (1.13)
Bank deposits to GDP (%)	0.37** (14.38)	0.18** (5.84)	151.98** (26.42)	145.05** (15.79)
Exports to GDP (%)	0.41** (9.56)	0.54** (12.19)	85.72** (10.33)	57.12** (4.25)
Observations	1,107	688	2,175	695
R-squared	0.504	0.507	0.558	0.703

* Significance at $\alpha = 0.05$.

** Significance at $\alpha = 0.01$.

The t-statistic is presented below the coefficient in parentheses.

Source: World Bank; Hofstede et al. (2010) (see Appendix B).

others engage in riskier behavior. Varying attitudes toward taking risks develop from differences in lifestyle and cultural values. National culture cannot change in the blink of an eye. Instead, national culture evolves with the introduction of new ideas and perspectives, technological discoveries and inventions, and integration of traditions through immigration. In the case of Portugal, every aspect of life was dictated over an extensive period of time through harsh repression during Salazar's regime. Throughout the long-lasting regime with little change and innovation, Portugal's cultural mindset fixated on a traditional life, as prescribed by Salazar. Even after the dictatorship, cultural values have remained largely unchanged. However, changing this risk-averse culture in Portugal can occur slowly over time by implementing new policies that help promote risk-taking behavior in the country, as I describe below.

In recent years, Portugal has undertaken a number of reforms to improve the economy

and stimulate long-term growth. Although unintentional in design, several of these reforms have encouraged risk-taking behavior in society. For example, the System of Tax Incentives for Company Investment in R&D now grants companies tax incentives if they engage in R&D activities. The policy was implemented to help improve productivity and competitiveness in the country (European Commission, p. 227). By making R&D a more attractive investment, companies are more willing to make risky investments.

In addition, Portugal has set out to reduce labor and product market regulations. As stated previously, strict market regulations are typical in risk-averse countries. The labor market reforms include encouraging more flexible working time arrangements, reducing overtime work pay, and eliminating four public holidays (OECD 2014, p. 21). As for product markets, reforms to lower barriers to firm entry and competition include streamlining administrative procedures for start-ups and phasing

out practices that discourage foreign suppliers. These reforms were especially prevalent in the electricity, gas, and retail trade sectors (OECD 2014, p. 13). Overall, labor and product market reforms undertaken since 2008 to reduce restrictiveness have raised productivity and GDP levels in Portugal, and it is expected that these reforms will lead to a 3.5% increase in productivity and potential GDP levels by 2020 (OECD 2014, p. 13).

Despite the recent economic progress in Portugal, there is still room for improvement. Although R&D expenditures have increased, Portugal is still below the EU average in terms of public-private cooperation, knowledge transfer, and employment in knowledge-intensive activities (European Commission, p. 227). In addition, Portugal's above-average employment protection levels and unemployment rate reflect a need for more labor market reforms in the country. The OECD has suggested that policies aimed at further reducing market regulations and promoting more entrepreneurship in Portugal will help improve the country's economy (OECD 2014, pp. 14–15).

According to the OECD's ease of entrepreneurship index,⁷ Portugal is above the OECD average (OECD 2014, pp. 32–33), which is encouraging because entrepreneurship promotes risk-taking behavior. However, administrative burdens⁸ on start-ups for corporations and sole proprietor firms are still very high in Portugal. According to the World Bank, obtaining construction permits in Portugal is difficult and gaining access to credit has worsened between 2012 and 2013 (World Bank Group). By easing access to credit, policymakers could assist the process of firm creation and thus promote more entrepreneurial activity.

Additionally, Portugal might consider reforms to its bankruptcy procedures to help promote risk-taking behavior. Bankruptcy proceedings in Portugal's court systems remain highly inefficient due to the long and costly process they entail. Studies have shown that designing bankruptcy laws supportive of en-

trepreneurs by lowering entry and exit barriers helps increase entrepreneurship and economic development (Lee et al., p. 506). Moreover, the development of new firms in Portugal resulting from entrepreneurial incentives will generate jobs. As of March 2014, Portugal's unemployment rate was 15.2%, well above the OECD average of 7.6% (OECD 2014, p. 20).

To further encourage entrepreneurship, Portugal might consider creating more science and technology parks. Science and technology parks stimulate the growth of employment in the technological field and encourage technology and knowledge transfer between research organization and companies (OECD 2011, p. 195). Research has indicated that science and technology parks help create a more innovative environment and encourage entrepreneurial activity (Marques et al., p. 535). One of Portugal's major science and technology parks is Taguspark, which runs an "Incubator of Ideas" to promote and support the spirit of entrepreneurship (NewVentureTools.net). More parks like Taguspark in Portugal will help stimulate economic development.

Conclusion

Overall, Portugal has made significant progress toward increasing economic development by implementing policies that boost productivity and encourage more risk-taking behavior. Extensive reforms have already been made to increase R&D expenditures in companies and to reduce labor and product market regulations. Despite the progress in these areas, there are several reforms that Portugal should consider to improve its economy even more. I have presented evidence that further reducing employment protection regulations, limiting administrative burdens, improving the efficiency of bankruptcy courts, and increasing investment in science and technology will increase Portugal's current level of economic development. The strategies all focus on encouraging a greater degree of risk-taking behavior in the country. However, implementing these policies will not immediately change the current risk-averse culture in Portugal. Such a change is likely to take a long period of time.

⁷The ease of entrepreneurship index evaluates the complexity of regulatory procedures, administrative burdens on start-ups, and regulatory protection of incumbents.

⁸Administrative burdens are costs incurred by businesses to meet legal regulations.

Appendix A

Countries and Time Periods Studied

Country	Years	Country	Years
Argentina	1962–2011	Malaysia	1960–2011
Australia	1960–2011	Malta	1970–2011
Austria	1960–2011	Mexico	1960–2011
Bangladesh	1960–2011	Morocco	1960–2011
Belgium	1960–2011	Netherlands	1960–2011
Brazil	1960–2011	New Zealand	1960–2011
Bulgaria	1980–2011	Norway	1960–2011
Canada	1960–2011	Pakistan	1960–2011
Chile	1960–2011	Peru	1960–2011
China	1960–2011	Philippines	1960–2011
Colombia	1960–2011	Poland	1985–2011
Croatia	1990–2011	Portugal	1960–2011
Czech Republic	1990–2011	Romania	1987–2011
Denmark	1960–2011	Russian Federation	1989–2011
El Salvador	1965–2011	Serbia	1997–2011
Estonia	1995–2011	Singapore	1960–2011
Finland	1960–2011	Slovak Republic	1982–2011
France	1960–2011	Slovenia	1990–2011
Germany	1970–2011	Spain	1960–2011
Greece	1960–2011	Sweden	1960–2011
Hungary	1968–2011	Switzerland	1960–2011
India	1960–2011	Thailand	1960–2011
Indonesia	1967–2011	Trinidad and Tobago	1960–2011
Iran, Islamic Rep.	1965–2011	Turkey	1960–2011
Ireland	1960–2011	United Kingdom	1960–2011
Italy	1960–2011	United States	1960–2011
Japan	1960–2011	Uruguay	1960–2011
Latvia	1987–2011	Venezuela, RB	1960–2011
Lithuania	1990–2011	Vietnam	1985–2011
Luxembourg	1960–2011		

Appendix B Variable Definitions

Variable	Definition	Source
Hofstede's UA index	The degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. Scale of 0–100.	Hofstede et al. (2010)
R&D expenditures to GDP (%)	Current and capital expenditures, both public and private, on basic research, applied research, and experimental development.	World Development Indicators, World Bank
Stock market capitalization to GDP (%)	The value of listed shares as a percentage of GDP.	Global Financial Development, World Bank
GDP per capita (current U.S. \$)	GDP divided by midyear population. Data are in current U.S. dollars.	World Development Indicators, World Bank
Natural logarithm of GDP (current U.S. \$)	Natural logarithm of GDP in current U.S. dollars.	World Development Indicators, World Bank
Bank deposits to GDP (%)	Demand, time, and saving deposits in deposit money banks as a share of GDP.	Global Financial Development, World Bank
Exports to GDP (%)	The value of all goods and services provided to the rest of the world.	World Development Indicators, World Bank

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