LAGGED IMPACTS OF REFORMS OF GOVERNMENT REGULATIONS OF BUSINESS ON NATIONS' GROSS DOMESTIC PRODUCT

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Abstract

This article develops theory and examines relationships among reforms in government regulation of business, competitiveness, and national economic development in term of GDP per capita. The findings shed light on the ongoing debate of supporting versus refuting reducing/eliminating government regulations of business. Applying Campbell's (1968, 1969) seminal contributions in examining the impact of reforms as quasi-experiments and Mill's (1872/1973) method of differences, the study shows that the reforms in reductions and eliminations of government regulations of business help to increase national economic growth the lagged impact (e.g., 2, 3 years after introduction of reforms) should be expected. Also, medium-to-large reductions in the ranking of government regulations of business (increase in competitiveness) associate with increases in GDP per capita in comparison to a large increase in the ranking (decrease in competitiveness). The results also provide insights into the different regulatory environments (i.e., high vs. low government corruption and media-freedom vs. highly ethical behavior and lack of media-freedom) may condition the impact of the reforms.

Keywords: Competitiveness; Doing Business; GDP; Quasi-Experiment; Lag; Reform; Regulation; World Bank

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Introduction: Assessing The World Bank's *Doing Business* Reports

The Economist (2009) offers a glowingly positive assessment of the World Bank's annual *Doing Business (*hereafter "DB"*)* reports which track changes to the reforms in government regulations that affect business. Following the global economic 2008-9 meltdown, *The Economist* offers the following summary of the DB 2009 report, "In the year since June 2008, 131 countries introduced 287 pro-business reforms—20% more than in the previous 12 months and more than in any year since the World Bank started the survey in 2004." In the same article a brief review of academic literature appears, *The Economist* (2009) concludes, "One study shows that, in poor countries, a ten-day reduction in the time it takes to start a business can lead to an increase of 0.4 percentage points in GDP growth. Another shows that people who have a formal title to their property invest as much as 47% more in their businesses."

The DB 2012 report ranks economies on the basis of ten areas of regulation—starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency (formerly closing a business). In addition, data are presented for regulations on employing workers.

Doing Business is limited in scope. It does not attempt to measure all costs and benefits of a particular law or regulation to society as a whole. Nor does it measure all aspects of the business environment that matter to firms and investors or affect the competitiveness of an economy. Its aim is simply to supply business leaders and policy makers with a fact base for informing policy making and to provide open data for research on how business regulations and institutions affect such economic outcomes as productivity, investment, informality, corruption, unemployment and poverty. Through its indicators, Doing Business

has tracked changes to business regulation around the world, recording more than 1,750 improvements since 2004. Against the backdrop of the global financial and economic crisis, policy makers around the world continue to reform business regulation at the level of the firm, in some areas at an even faster pace than before. (World Bank, DB, 2012, p. v)

The study here focuses on presenting theory and evidence of the impact on nations' gross domestic product (GDP) per capita of introductions of government regulatory reforms in reducing/eliminating business operating requirements (as defined by the World Bank DB reports). The principal hypotheses implied by the World Band in their DB studies is that increases in prosperity follows in countries low versus high in government regulations of business. To test the principal hypothesis, lagged levels and changes in GDP per capita for specific nations as well as all nations are the dependent variables in the present study.

The study of micro regulatory issues and the use of other dependent variables are possible (Young, 2001). For example, Capelleras, Mole, Greene, and Storey (2008) test hypotheses regarding start-up size and subsequent growth of new firms in a heavily regulated (HR) economy and a lightly regulated (LR) economy: in an HR economy, there will be fewer new firms, and those that do start will be larger than those in an LR economy, but they will grow more slowly. Using survey datasets collected in 20o3 for HR Spain and in 2001 for LR Britain Capelleras et al. (2008) find that registered new firms in Britain start smaller than in Spain and do grow faster. However, when both registered and unregistered firms are included, these differences disappear.

Annual gross domestic product (GDP) by purchasing power parity (PPP) is available from a number of sources; the data correspond closely among these sources. The present study uses annual data for GDP per capita (PPP) appearing at *CIA World Factbook* (2006-2012). Gross domestic product (GDP) is the market value of all officially recognized final goods and services produced within a country in a given period. Specifically, GDP = private consumption + gross investment + government spending + (exports − imports).

GDP per capita is often considered an indicator of a country's standard of living. Purchasing power parity (PPP) is estimating the amount of adjustment necessary on the exchange rate between countries in order for the exchange to be equivalent to (or on par with) each currency's purchasing power. Different methods of estimating PPP by country result in different values and the different methods have both adherents and opponents; see Wikipedia for a discussion of estimating methods and controversies. However, adjusting GDP by PPP estimates is not controversial and the PPP values from different estimating metrics correlate highly; for example, the correlation is equal to .80 using the price of "Starbucks tall latte index" and *The Economists*' Big Mac Index" for 16 countries (calculated from data appearing at the Wikipedia site for PPP).

Improvements in business operations should impact a nation's GDP per capita as firms increase revenues, reduce costs, hire additional employees, and increase profits following the reduction and elimination of government regulations of business. Possibly, a "tipping point" (Gladwell, 2002) may need to occur whereby government regulations need to decrease for several years before dramatic improvements in GDP per capita occur ; the lag is likely to be one, two, three years, or longer. The study here examines the possibility of such a lagged tipping-point impact on GDP per capita across countries.

The present study is unique and valuable in applying Campbell's (1968, 1969) seminal contributions in examining the impact of reforms as quasi-experiments, that is, inspecting the impact of reforms in time periods before and after the introduction of the reforms for the nation introducing the reform and matched (quasi-controlled) nations not introducing such reforms. Also, the study here provides independent assessment of the hypothesis that the introduction of reforms as measured by the World Bank DB reports increases GDP per capita in purchasing power parity (PPP) U.S. dollars. Though the statistical effect size indicates a small effect on GDP per capita, analyses applying McClelland's (1998) data analysis using algorithms indicates that a positive reforms-on-GDP impact does occur.

Following this introduction, section two briefly reviews theories supporting and refuting the proposition that reducing/eliminating government regulations of business operations is beneficial. Section three applies Campbell's (1968, 1969) contributions in summarizing reforms as quasi-experiments. Section four presents the findings from analyzing the associations of available DB data with relevant GDP per

capita data for 2006-12(n = 175 nations). Section five concludes with limitations, implications for business executives, government legislatures, and scholars, and offers suggestions for future research.

Theories Supporting Versus Refuting Reducing/Elminating Government Regulations Of Business

Among 183 countries, the 2009 World Bank DB report identifies Rwanda as the country most improving its competitiveness—rising from 143rd to 67th place in "Ease of doing business, fastest reformers." Such data and psychological framing some countries to be "fastest reformers" more than hints that nations need to compete for business by reforming—that is, reducing and eliminating requirements that firms need to meet to establish and operate legally in a country. Recognizing this outcome resulted in an academic firestorm of criticism in France following the release of the first World Bank DB report in 2004:

France, a country steeped in its legal tradition, was rated forty-fourth (behind Jamaica, Botswana, and Tonga) and considered one of the legal systems least conducive to economic growth. At the same time, the merits of common law countries were emphasized strongly in terms of support for the principle of market forces over state intervention. The underlying perception was that codified laws are inferior when compared with common law. Since then, France's rating in the *Doing Business* reports has slowly improved. Nonetheless, even in 2009, France was still in thirty-first place, behind Israel, Latvia, and Lithuania, and just slightly ahead of South Africa and Azerbaijan. (Kerhuel and Fauvarque-Cosson, 2009, pp. 811-812)

Kerhuel and Fauvarque-Cosson (2009, pp. 812-813) conclude that the DB reports play "a crucial role in alerting the French legal community to the fact that law has become an instrument of economic domination, that there exists a real market for law, and that in a number of sectors, we need to reform our law, if only to 'sell' it better."

Such reporting by the World Bank and *The Economist* explicitly implies that the *laissez-faire* business model works best—"the doctrine opposing governmental interference in economic affairs beyond the minimum necessary for the maintenance of peace and property rights" (http://www.merriam-webster.com/dictionary/laissez-faire, 2012). President Ronald Regan expressed the principal tenet of this doctrine in his first inaugural address in 1981, "Government is not the solution to our problem; government is the problem." Subsequently, in the 1980s, "the Reagan administration unleashed an unstoppable surge in deregulation that continued for thirty years. By 1999, the Glass-Steagall Act lay repealed. Banks could commingle with insurance companies at will. Ceilings on interest rates vanished. Banks could open branches anywhere"(Porter, 2011, p. 128).

The "efficient markets" hypothesis (EMH) complements the laissez-faire business model. The EMH asserts "beat the stock market is impossible because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. Consequently, no need exists for government regulation of financial markets since these markets are self-correcting. Professor Eugene Fama (Fama, 1980; Fama and Jensen 1983) at University of Chicago Booth's School of Business is most notable in developing EMH as an academic concept of study. EMH was widely accepted up until the 1990s.

In Support of Government Regulation of Business

Robert Brent Toplin is Professor of History at the University of North Carolina, Wilmington. Toplin (2008) offers evidence supporting the observation of highly effective national, conscious and unconscious incompetency training supporting the attacks on government regulation of business (Woodside, 2012). "As the country's greatest modern champion of deregulation, perhaps Ronald Reagan contributed more to today's unstable business climate than any other American. His long-standing campaign against the role of government in American life, a crusade he often stretched to extremes, produced conditions that ultimately proved bad for business… Recent troubles in the American economy can be attributed to a weakening of business regulation in the public interest, which is, in large part, a consequence of Reagan's anti-government preaching. In the absence of oversight, lending became a wildcat enterprise. Mortgage brokers easily deceived home buyers by promoting subprime loans, and then they passed on bundled documents to unwary investors. Executives at Fannie Mae packaged both conventional and sub-prime

loans, and they too, operated almost free of serious oversight. Fannie's leaders spent lavishly to hire sixty Washington lobbyists who showered congressmen with campaign funds. Executives at Fannie were generous to the politicians because they wanted to ward off regulation. Reagan deserves credit for serving as a vigorous defender of free markets, but he carried the idea to extremes. Ironically, the great champion of business enterprise advocated policies that have seriously hurt business here and abroad" (Toplin, 2008, pp. 1–2).

Toplin's (2008) views complement the findings of U.S. Financial Crisis Inquiry Commission's report in January 2011. The report concludes that "the crisis was avoidable and was caused by widespread failures in financial regulation including the Federal Reserve's failure to stem the tide of toxic mortgages; dramatic breakdowns in corporate governance including too many financial firms acting recklessly and taking on too much risk; an explosive mix of excessive borrowing and risk by households and Wall Street that put the financial system on a collision course with crisis; key policy makers ill prepared for the crisis, lacking a full understanding of the financial system they oversaw; and systemic breaches in accountability and ethics at all levels" (FCIC, 2011).

The 2008-09 global financial-economic meltdown provided a window for increasing government regulation and oversight of business via the passage of the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd–Frank Act); the act included establishing the Consumer Financial Protection Bureau. Thus, massive deregulation coupled with nurturing of incompetent government regulatory commissions lead to an increase in regulation following a near-global financial catastrophe.

Economic orthodoxy of the 1930s is very similar to the prevailing economic literature of the 1990s: government had no rule to play in economic management. "After the stock-market crisis of 1929 Secretary of the Treasury Andrew Mellow argued that government should stay out. According to the memoirs of President Herbert Hoover, Mellon's formula was 'liquidate labor, liquidate stocks, liquidate real estate…. It will purge the rottenness out of the system. Keynes, who proposed vigorous government spending to replace collapsing private demand, had a hard time being heard…. By the end of the decade, however, Keynes's work had become the basis of a new economic orthodoxy that persisted until the 1970s, based on the view that governments had a substantial role to play in economic management" (Porter, 2011, pp. 243).

Reforms As Experiments

Application of Mill's (1872/1973) method of differences is at the heart of accurate causal inference. The method of differences includes contrasting the behavior of a target group to a control group which ideally has the same characteristics apart from the variable of interest (GDP/PPP). The use of a post-test only design with one or more treatment groups and a placebo group with random assignment of participants to all groups is the ideal "true experiment" for achieving statistical equivalence among the groups for the characteristics before administering the different treatment and placebo conditions (Campbell and Stanley, 1963). Such a true experimental design is likely to be impossible to administer among nations for examining the impact of different combinations of reforms as treatments along with a placebo combination of the equivalent of sugar-pill reforms.

Campbell (1969) describes nine threats to internal validity and six threats to external validity that are necessary to consider in evaluating the impact of reforms and other treatment conditions. (1) History: events, other than the experimental treatment, occurring between pretest and posttest and thus providing alternate explanations of effects. (2) Maturation: processes within the respondents or observed social units producing changes as a function of the passage of time per se, such as growth, fatigue, secular trends. (3) Instability: unreliability of measures, fluctuations in sampling persons or components, autonomous instability of repeated or "equivalent" measures. (This is the only threat to which statistical tests of significance are relevant.) (4) Testing: the effect of taking a test upon the scores of a second testing; the effect of publication of a social indicator upon subsequent readings of that indicator. (5) Instrumentation: in which changes in the calibration of a measuring instrument or changes in the observers or scores used may produce changes in the obtained measurements. (6) Regression artifacts: pseudo-shifts occurring when persons or treatment units have been selected upon the basis of their extreme scores. (7) Selection: biases resulting from differential recruitment of comparison groups, producing different mean levels on the measure of effects. (8) Experimental mortality: the differential loss of respondents from comparison

groups. (9) Selection-maturation interaction: selection biases resulting in differential rates of "maturation" or autonomous change.

Campbell (1969) instructs that threats to external validity, which follow, cover the validity problems involved in interpreting experimental results, the threats to valid generalization of the results to other settings, to other versions of the treatment, or to other measures of the effect. (1) Interaction effects of testing: the effect of a pretest in increasing or decreasing the respondent's sensitivity or responsiveness to the experimental variable, thus making the results obtained for a pretested population unrepresentative of the effects of the experimental variable for the unprotested universe from which the experimental respondents were selected. (2) Interaction of selection and experimental treatment: unrepresentative responsiveness of the treated population. (3) Reactive effects of experimental arrangements: "artificiality"; conditions making the experimental setting atypical of conditions of regular application of the treatment: "Hawthorne effects." (4) Multiple-treatment interference: where multiple treatments are jointly applied, effects atypical of the separate application of the treatments. (5) Irrelevant responsiveness of measures: all components that may produce apparent effects. (6) Irrelevant replicability of treatments: treatments are complex, and replications of them may fail to include those components actually responsible for the effects. These threats apply equally to true experiments and quasi-experiments (Campbell, 1969).

The interrupted time-series design is available for those settings in which no control group is possible, in which the total governmental unit has received the experimental treatment, one or more reductions in government regulations in the DB studies. The study here includes reporting findings for lagged effects for nonequivalent treatment and control-group pretest-posttest design. In the general program of quasi-experimental design Campbell (1969) argues for the great advantage of untreated comparison groups even where these cannot be assigned at random.

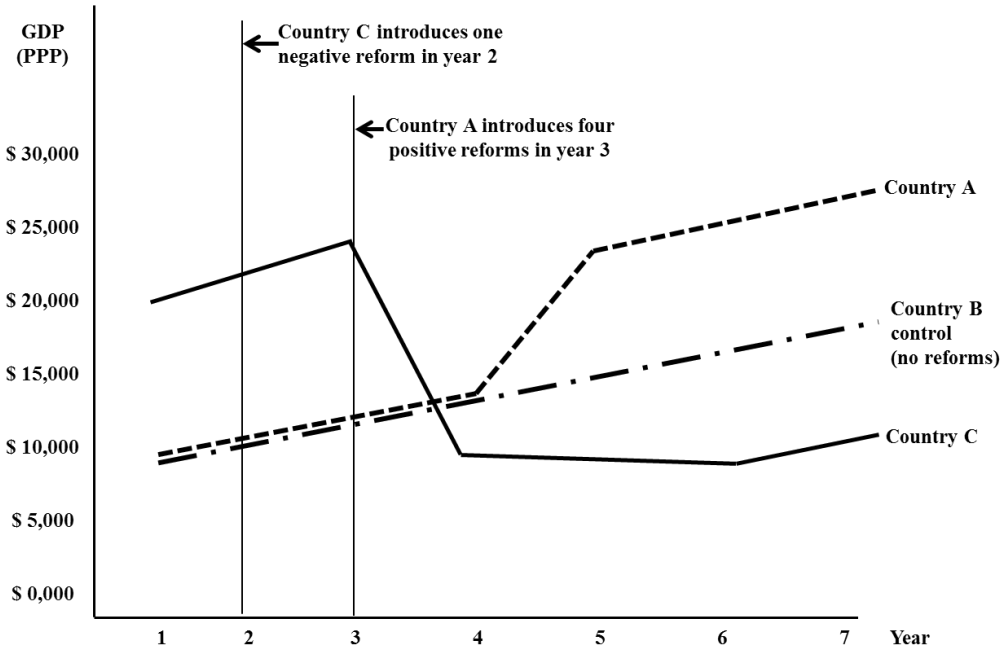
The most common of such designs is the nonequivalent control-group pretest-posttest design, in which for each of two natural groups, one of which receives the treatment, a pretest and posttest measure is taken. In the traditional mistaken practice is avoided of matching on pretest scores (with resultant regression artifacts), this design provides a useful control over those aspects of history, maturation, and test-retest effects shared by both groups. But it does not control for the plausible rival hypothesis of selection-maturation interaction—that is, the hypothesis that the selection differences in the natural aggregations involve not only differences in mean level, but differences in maturation rate. (Campbell, 1969, pp. 420)

Hypotheses

Relevant to lagged effects' perspective for nonequivalent treatment and control-group pretest-posttest design, we propose H1: Positive reforms associate with a lagged increase in GDP per capita versus the average GDP per capita for no reforms and a lagged decrease in GDP per capita for negative reforms.

Figure 1a provides hypothetical findings supporting theoretical propositions that government reforms (as defined in the World Bank DB reports) impact nations' GDP per capita in purchasing power parity (PPP) U.S. dollars. Note in Figure 1a that Country A introduced a substantial number of government business reforms in year 3; a substantial increase in GDP per capita occurs for Country A following year 4 in GDP per capita but not for Country B. Country B is nonequivalent control; a country in the same continental regional area as Country A that has not introduced reforms in year 3 or prior years. Figure 1a shows annual increases in GDP per capita for country B that represents a general upward trend line but not distinct jump in GDP per capita that appears for Country A.

Figure 1a. Theory (Thought Experiment via Quasi-Experiment) of Effective Reforms' Delayed Impact on GDP (PPP)

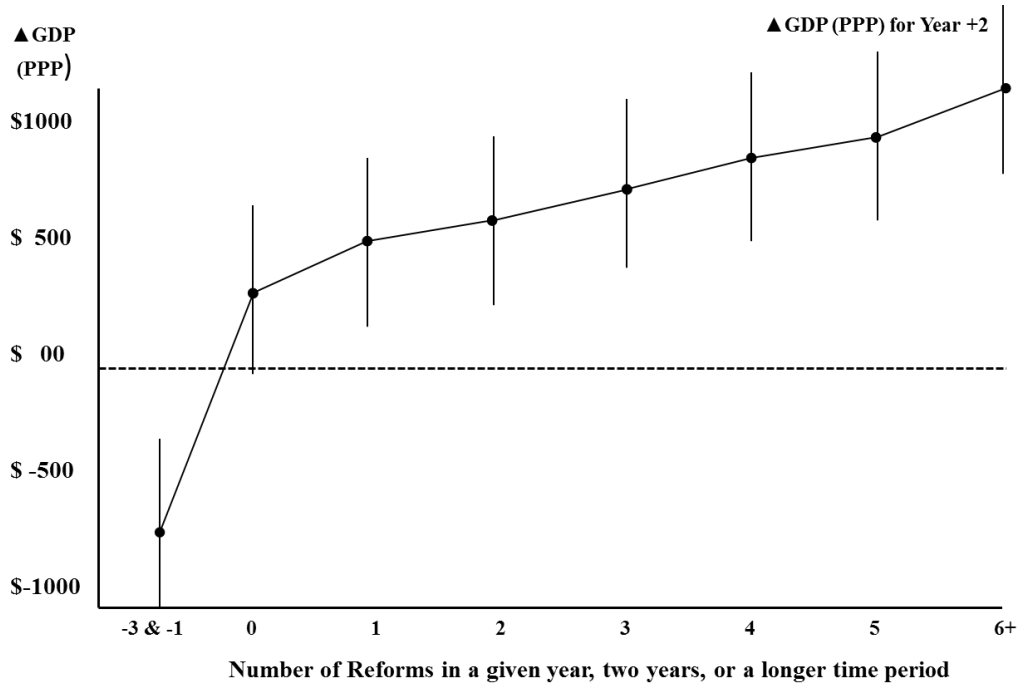


A substantial decrease in GDP per capita appears for Country C following its introduction of negative government regulatory reforms in year 2. A substantial decline in GDP per capita appears only for Country C in Figure 1a; the decline appears as a lagged effect that is likely due to the negative reforms introduced in year 2.

The pattern of findings in Figure 1a supports the H1 that positive reforms result in a positive lagged change in GDP per capita and negative reforms result in a negative lagged change in GDP per capita. The pattern appearing in Figure 1a is not the only one that would support the H1 and does not provide definitive proof that the reforms caused the changes in GDP per capita. However, such multiple findings of increases, decreases, and trend-only that support theoretical proposition aids in reduce the likelihood that the observed effects are due to sources of invalidity—comparing increases in GDP per capita for Country A as expected with no such dramatic increases in Country B where such changes are not expected represents a dramatic step to applying Mill's method of differences. Adding in the findings for Country C—where dramatic decreases in GDP per capita are most likely to happen—represents an additional improvement in the research design.

H2: Increases in GDP per capita (lagged by two years) occur with increases in the number of positive reforms (reductions in government regulations of business). The World Bank DB studies report the number of reforms each country introduces in their annual reports. These DB reports give high praise to the few nations introducing many reforms. For example, Rwanda receives praise in several annual reports similar to the following statements. "The economy has undertaken ambitious land and judicial reforms, often years in the making. Since 2001 it has introduced new corporate, insolvency, civil procedure and secured transactions laws. And it has streamlined and remodeled institutions and processes for starting a business, registering property, trading across borders and enforcing a contract through the courts" (World Bank DB, 2012, p. 12).

Figure1b. Theory (Thought Experiment) of Lagged Impact on Number of Reforms in 2007 & 2008 on GDP (PPP) Change in 2012 versus 2011



Note: Vertical lines indicate 95% confidence intervals of the means

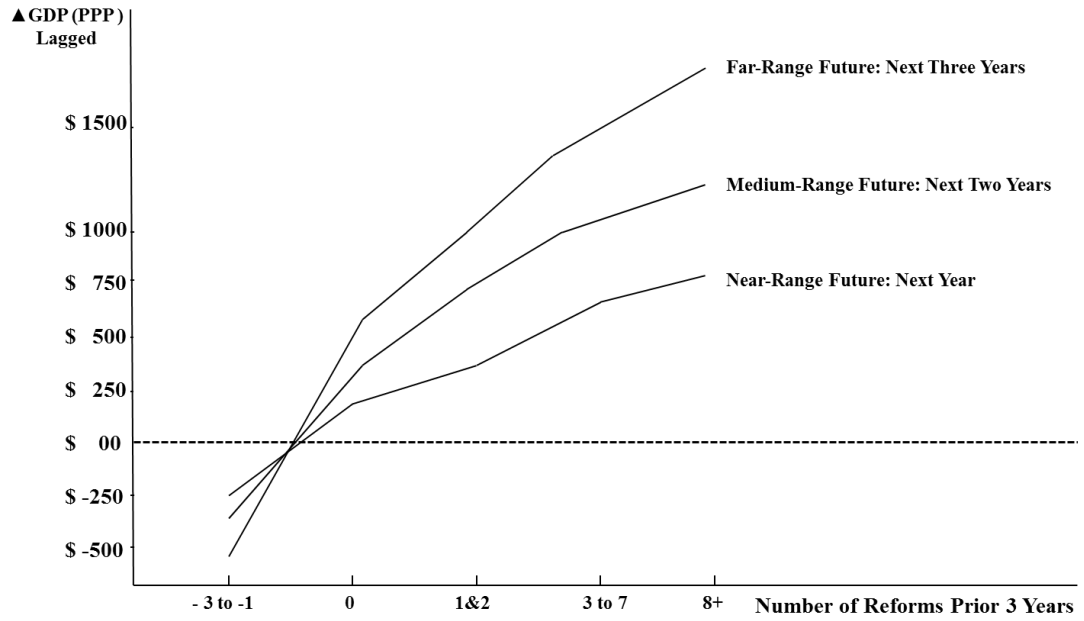
Figure 1b shows hypothetical findings that support the H2 that more reforms results in larger increases in GDP per capita (a lagged effect following two-years from introducing the reforms). The pattern of increases in GDP per capita is consistent with the theory even though no annual increase appears to be significant in Figure 1b except for the increase between the negative reforms versus no reforms.

H3: Increases in competitiveness increases GDP per capita and decreases in competitiveness decreases GDP per capita. The top three countries in competitiveness in the DB 2012 are Singapore (1), Hong Kong (2), and New Zealand (3). The bottom three countries are the Republic of Congo (181), the Central Africa Republic (182), and Chad (183). Morocco has biggest increase in competitiveness as measured by the most improved ranking—from 115 in 2011 to 94 in 2012—followed by Moldova—from a rank of 99 in 2011 to 81 in 2012.

If the general trend is to introduce one-to-five reforms annually, a country failing to do so becomes less competitive compared to the countries doing so, and consequently the country's GDP per capita decreases. Figure 1c shows this theoretical proposition. The evidence in the present study (reported below in detail) generally supports this theoretical proposition.

H4: The Increases in GDP per capita caused by the positive reforms is greater for three versus two versus one year following the introduction of the reforms. Because several months and a few years are likely necessary for improvements to occur in business operations, the theory includes the perspective that nations need to be patient and wait to experience the positive impact of reforms. Increases in GDP per capita following the introduction of reforms take time to show up. Figure 1d shows this hypothetical relationship. The findings reported below support this theoretical proposition.

Figure 1d. Reforms Lagged Impact on GDP (in PPP USD)

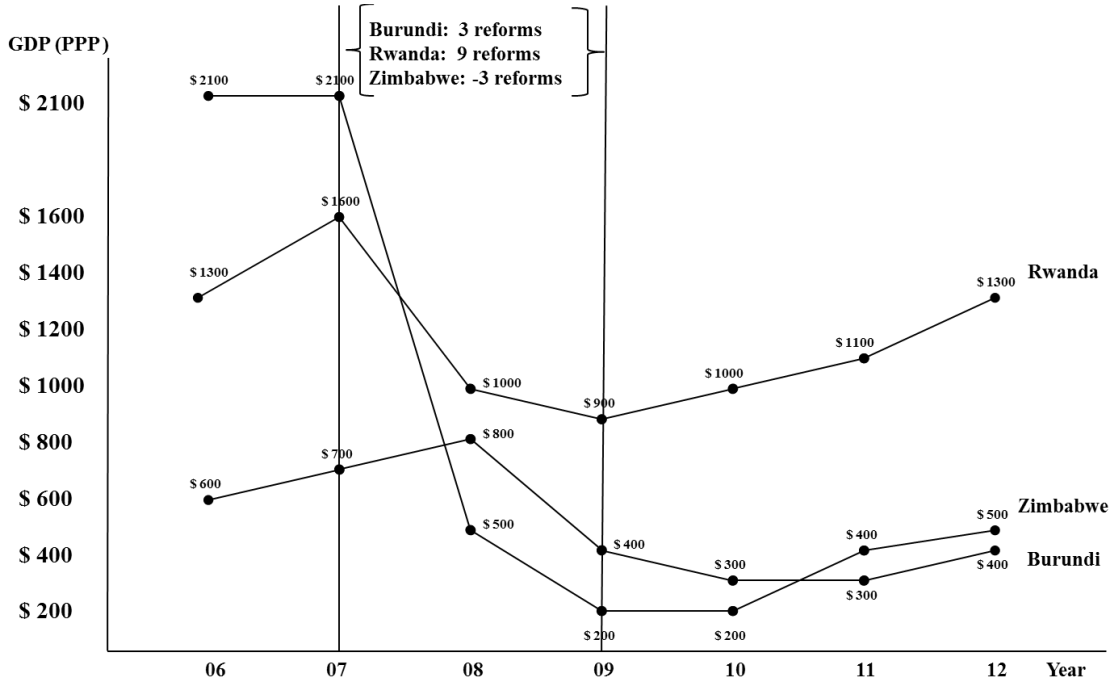


Findings

Findings for an Interrupted Time Series Design

To illustrate findings using an interrupted time series design for nonequivalent groups, the findings in Figure 2 include annual GDP per capita (PPP) for three African countries for seven years (2006-2012)—before and after Rwanda introduced 9 reforms while Burundi introduced only 3 reforms during 2007-09 according to the DB reports. Years 2009 to 2012 show a 44% increase for Rwanda versus no change in GDP per capita (PPP) for Burundi.

Figure 2. Empirical Evidences of Effective Reforms' Delayed Impact on GDP (PPP)



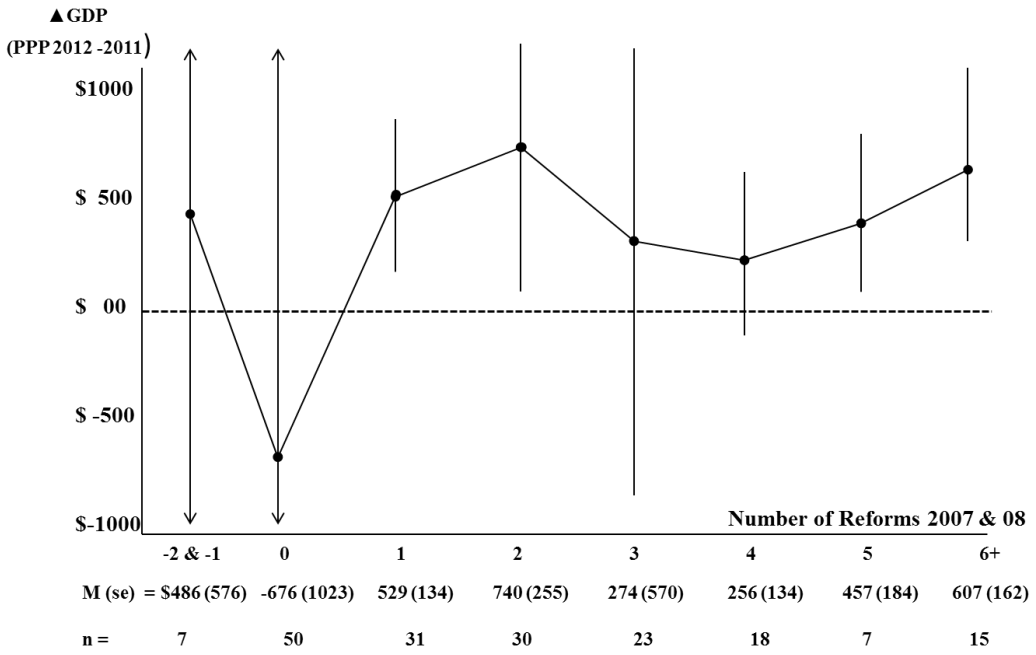
Findings for Zimbabwe appear in Figure 2. Zimbabwe experienced a 150 percent increase in GDP per capita (PPP) during 2009 to 2012 following the introduction of three negative reforms during 2007-09. However, rather than concluding that this evidence fails to support the theory, examining GDP in 2006 and 2007 for Zimbabwe indicates some natural or man-made disasters must have occurred in the country—GDP per capita decreased 90 percent from 2007 to 2008 for Zimbabwe.

Checking BBC News (2012) results in the following information. "Until the 2008 parliamentary elections, Zimbabwe was effectively a one-party state, ruled over by Mr. Mugabe's Zanu-PF. A power-sharing deal has raised hopes that Mr. Mugabe might be prepared to relinquish some of his powers, but in the meantime he presides over a nation whose economy is in tatters, where poverty and unemployment are endemic and political strife and repression commonplace. The forced seizure of almost all white-owned commercial farms, with the stated aim of benefiting landless black Zimbabweans, led to sharp falls in production and precipitated the collapse of the agriculture-based economy. The country has endured rampant inflation and critical food and fuel shortages."

Consequently, the negative reforms are unlikely to be the principal cause in the collapse of GDP per capita in Zimbabwe. Thus, one of the sources of invalidity, history, appears to be the primal causal agent in the decrease in GDP per capita rather than the introduction of negative reforms. The possibility of history and additional threats to validity of observed relationships in quasi-experiments gives impetus to the use of multiple control groups in such studies as well as reliance on multiple tools for data analyses.

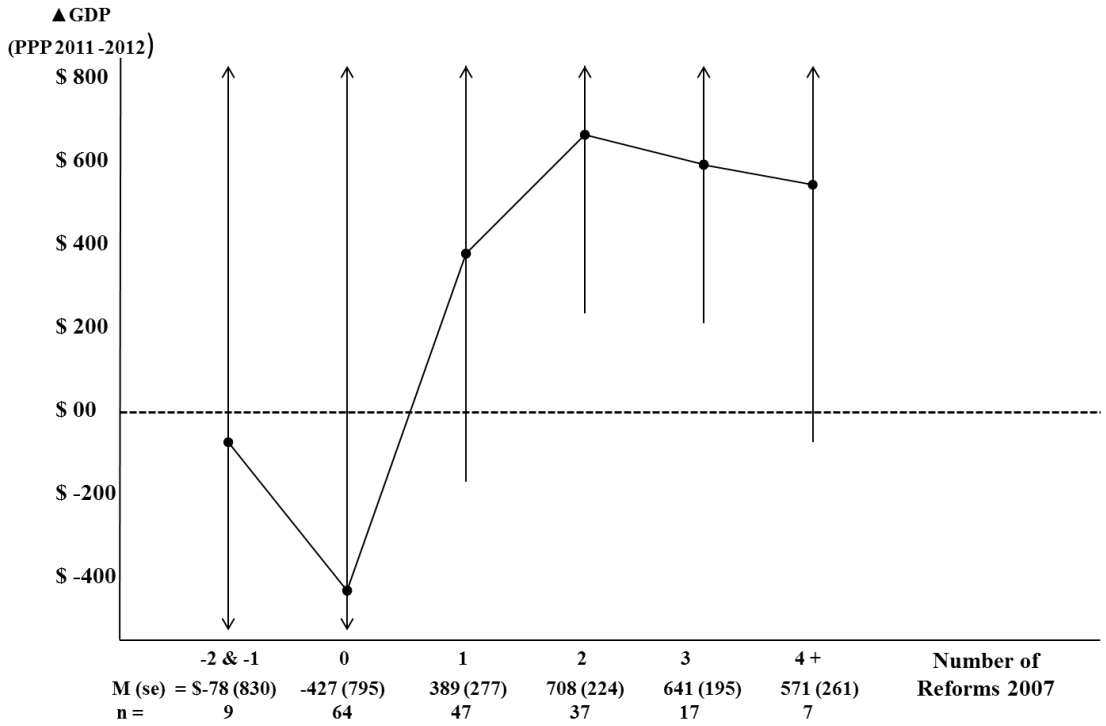
The findings in Figure 3 support H1 that reforms associate with a lagged increase in GDP per capita versus the average GDP per capita for no reforms and decreases in GDP per capita for negative reforms. The findings in Figure 3a report changes in GDP PPP per capita for 2012 versus 2011 for all nations segmented into eight levels of regulation reforms during 2007-08; the pattern for average changes in GDP include statistically significant levels above zero for nations with 1, 2, 5, and 6+ reforms during 2007-08—and means above zero for negative reforms and all positive reform levels. The findings in Figure 3b are changes in GDP PPP per capita for six groups of nations—grouped by number of reforms introduced only 2007. While differences are observable, the main conclusion is that the patterns for the averages are similar for Figures 3a and 3b. The findings in Figure 3a and 3b do not support the H2 that more reforms increase GDP per capita more so than one or two reforms.

Figure 3a. Lagged Impact on Change Doing Business 2011 to 2012 of total Number of Reforms on GDP during 2007 and 2008 (in PPP USD)



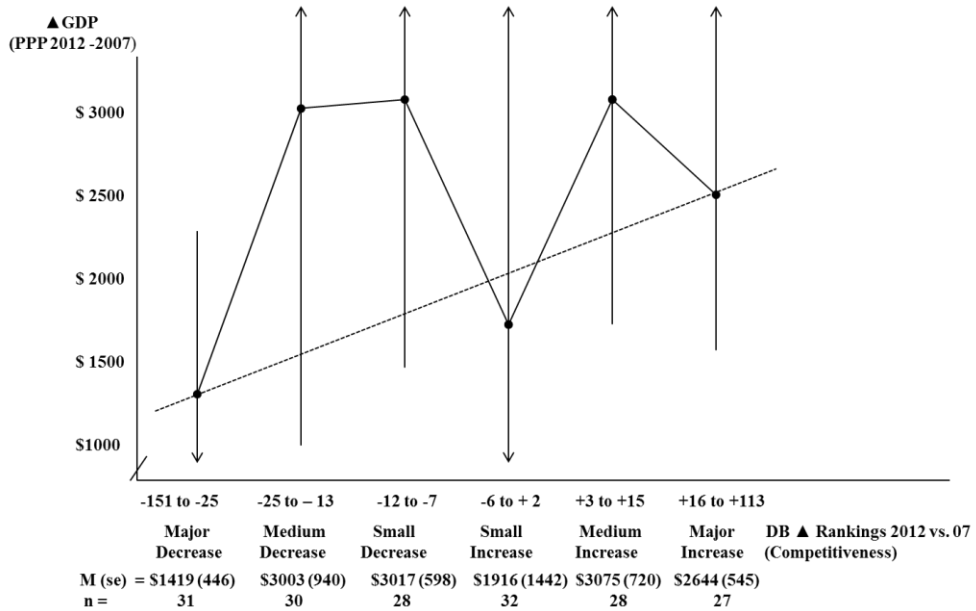
Note: Vertical indicate 95% confidence intervals for means; M = mean; se = standard error; significant positive lagged impact occurres for when number of reforms are equal to 1, 2, 5, and 6 for n = number of countries (N = 181).

Figure 3b. Lagged Impact on Change in Doing Business 2011 to 2012 of Total Number of Reforms on GDP in during 2007 (in PPP USD)



To test the H3 that increases in changes in competitiveness (measured by the change in DB country rankings of the number of government regulations), five country groups are created with near equal sample sizes from large decreases to large increases in competitiveness. This analysis applies McClelland's (1998) wisdom that data are noisy and that informative variation in a dependent variable may occur only for extreme segments for an independent variable or as Fitzsimons (2008) recommends, "death to dichotomizing" in data analysis.

Figure 4. Impact on Change in Doing Business 2007 to 2012 of Rankings on GDP during 2007 and 2012 (in PPP USD)



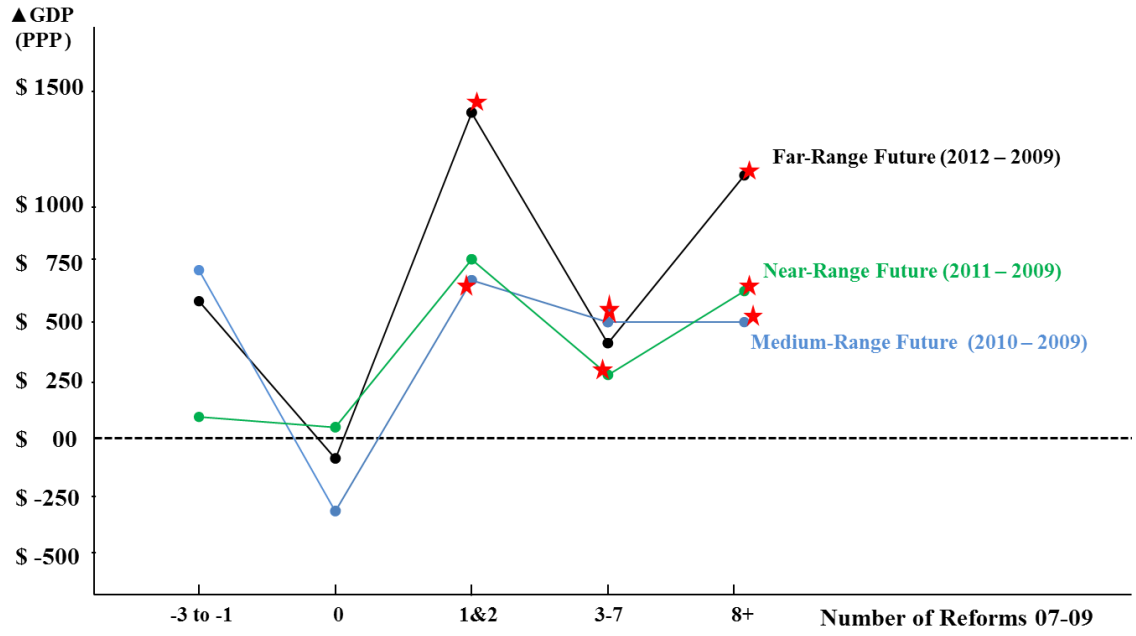
Note: Vertical lines indicate 95% confidence intervals for means; M = mean; se = standard error.

The findings confirm that a medium-to-large reductions in the ranking of government regulations of business (increase in competitiveness) associate with increases in GDP per capita in comparison to a large increase in the ranking (decrease in competitiveness). Figure 4 shows that medium to large increases in competitiveness associate with greater growth in GDP per capita in comparison to large decreases in competitiveness. However, the findings in Figure 4 also support the conclusion that small decreases in competitiveness results in increases in GDP per capita in comparison to large decreases in competitiveness and that the changes in GDP per capita do vary significantly for the segments of countries with small decreases and medium to large increases in competitiveness.

Given the time span covers six years, Figure 4 does not include a test for a lagged relationship. However, the findings for change in GDP per capita (2012-2010) and the change in competitiveness for 2009-2007 indicate the same Bactrian (two-humped) relationship.

The pattern of findings support the H4 that substantial increases in GDP per capita occur after a few years following the introduction of reforms versus the years immediately following their introduction—for a few to many reforms. However, the differences among the three lagged effects are not significant statistically. Figure 5 provides details.

Figure 5. Reforms' Lagged Impact of GDP (in PPP USD)



Note: Far-range Future: 2009-12, Medium-Range Future: 2011-2009, Near-Range Future: 2010-2009
Red five-star: lower 95% confidence boundary > 0, p < .01

Figure 5 indicates significant increases in the levels in GDP per capita versus zero change for 7 of the 9 ranges of reforms for the three lagged time-periods following the introductions of reforms (2007 to 2009). Nations with negative reforms on average did not experience increases in GDP per capita for and of the three lagged periods in comparison to zero increases—the standard errors of the means for GDP per capita were much larger for nations implementing negative versus positive reforms.

Conclusions With Limitations, Implications, And Directions For Future Research

The main conclusion is that increases in "positive reforms" in government regulation of business as defined and measured in the World Bank DB studies do have a positive impact on nations' GDP per capita. While the average increase in GDP per capita may appear not to be dramatic, the positive impact does support the perspective that reductions and eliminations of government regulations helps to increase the national economic growth.

The findings meet the expectation of a lagged impact of reforms on GDI. The lagged increases in GDP per capita are greater than zero for a large number of reforms for the near, medium, and future (Figure 5). The present study offers support for the conventional wisdom about lagged relationship between government reforms of business regulations and economic growth; an October article appearing in a 2012 *Wall Street Journal* report expresses the conventional wisdom:

After imposing economic sanctions against Myanmar in the late 1990s, the U.S. lifted nearly all of them in recognition of its 18-month long reforms last Wednesday. Business leaders believe it will take a long time for Myanmar garments or tangible exports to reach the U.S. until the beginning or the middle of next year because the country lacks key infrastructure, legal certainty, skilled labor and markets. Many international investors and businesses are rushing to Myanmar because it is a resource-rich country and a large consumer market with a population of 60 million. Coca-Cola, PepsiCo and General Electric have already made their presence in Myanmar. Other foreign companies are watching the pace and depth of political and economic reforms taking place. Pro-business politicians including President Thein Sein are calling for faster economic reforms, while some lawmakers and local business leaders are against it because an overly aggressive pace of change would give foreign companies a large share in the local market at the cost of domestic companies. (Holmes and Fernandez, 2012, p. 1).

Evidence supports the first but not the implication in the second-half of the second conventional wisdom in the news story about Myanmar (Holmes and Fernandez, 2012). An aggressive reduction in government regulations may increase the market share of foreign companies in local markets at the cost of domestic companies. However, the increase is not necessarily at the cost of domestic companies other than size of domestic held market share—the link between share, revenue, and profits is tenuous and misleading (Armstrong and Collopy, 1996; Spanier, Woodside, and Marshall, 2012).

For example, consider when 90 is less than 70. A domestic share of $9,000 of a $10,000 GDP per capita is smaller than a domestic share of $14,000 of 20,000 GDP per capita. The key point here is nontrivial. Gigerenzer (2002) and Gigerenzer, Hofffrage, and Kleinbölting, (1991) review a series of experiments indicating that humans process percentages and probabilities with great difficulty leading to incorrect interpretations and conclusions but they handle information in the form of frequencies much better. The principal reason for the human difficulty in working with shares and probabilities mentally may be genetic coding; Homo sapiens have been working with frequencies for more 30,000 years but with probabilities less than 400 years (Gigerenzer, Swijtink, Porter, Daston, Beatty, and Krüger, 1989). Framing problems and opportunities based on share information is a form incompetency training (Woodside, 2012) and can lead to decisions of profound stupidity such as the U.S. Smoot-Hawley Tariff Act of 1930.

Limitations and Implications for Future Research

The present study does not test the view that foreign companies receive a large share of business in the local market at the cost of domestic firms. The study here does not examine the perspective that domestic loss of market share is costly in terms of revenues and provides. Such views are testable hypotheses that future research should address.

The present study does not consider alternative causal recipes of reforms among the possible government reforms that result in increases in GDP per capita. Most likely, the reform of any one area of government regulations of business will not result in a substantial increase in GDP per capita; the findings by Capelleras (2008) support this view. A configuration ("causal recipe") of two to six reforms is likely to be necessary (see Ragin, 2008, for a discussion on the study of causal recipes). More than one causal recipe will likely to be sufficient but none alone will be necessary to cause increases in GDP per capita—a few causal recipes will work well and many will not work at all. Researchers need to develop and test a theory of configurations of reforms that results in increases in GDP per capita.

Implications for Government Policy-Making

Government regulations of business by Singapore, Hong Kong, and New Zealand—the top three countries in competitiveness in the World Bank DB reports—may be useful templates for reducing and eliminating government regulations of business by governments of other countries. Doing the work necessary to adopt the regulations in place in some countries may range from difficult to impossible for

countries such as Nigeria, Moldova, Russia, Zimbabwe, and additional countries where high government corruption and lack of media-freedom exists.

Increases in GDP per capita due to reductions in government regulations of business may occur only among nations high in ethical behavior and low in corruption (Nicoara, 2010). This perspective is a testable hypothesis.

The findings in the present study should not be viewed as a general platform supporting the reduction of government regulations of business. History (Toplin, 2008), the U.S. Financial Crisis Inquiry Commission findings on the 2008-09 economic meltdown (FCIC, 2011), incompetency training by economists and others (Woodside, 2012), and relevant documentaries (*Inside Job*, 2010; *Hot Coffee*, 2011) support the warning that reducing and eliminating government regulations of business can contribute to increases in business corruption, violence, housing foreclosures, and unemployment. Possibly, nations should adopt the characteristics of "high reliability organizations (HRO)" and explicitly attempt to avoid the use of framing issues in ways the promote incompetency (e.g., the use of expressions such as "tort reform", "reforms" and the use of share data) as they continue to attempt to regulate business.

An HRO is an organization that focuses on avoiding catastrophes in an environment where normal accidents can be expected due to risk factors and complexity (Weick and Sutcliffe, 2007; Weick, Sutcliffe, & Obstfeld, 1999). Characteristics of HROs include nurturing processes of collective mindfulness which are indicated by a preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise (Weick, Sutcliffe, & Obstfeld, 1999). Government, business, and civic leaders of some nations high in government regulations of business (e.g., Cambodia, Suriname, Tajikistan, and Ukraine) are likely to benefit from embracing these HRO characteristics explicitly while avoiding adopting the economic and political philosophy of efficient markets and that "government is the problem" (Reagan, 1981) while configuratively and selectively reducing government regulations of business operations.

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