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REGULATION AND THE INTERNATIONAL  
COMPETITIVENESS OF THE U.S. ECONOMY

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Steven Globerman and George Georgopoulos



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## ABSTRACT

AN INCREASING NUMBER of observers have expressed concern that government regulation in the United States is becoming increasingly burdensome and that the growing burden is harming the international competitiveness of the U.S. economy. Our report provides a preliminary assessment of this concern. Specifically, it discusses alternative measures of international competitiveness and government regulation and positions the United States relative to other developed countries in terms of those measures. Using evidence drawn primarily from surveys reported by organizations such as the World Economic Forum, as well as data reported by the Organisation for Economic Co-operation and Development (OECD), we find that the regulatory environment in the United States has become less favorable to private-sector activity in recent years compared to other countries. Furthermore, a number of measures of economic performance show a notable deterioration in the position of the United States relative to other developed economies. While productivity measures of U.S. economic performance still exceed those of other OECD countries, the outperformance has diminished recently, and many corporate executives expect further deterioration of U.S. productivity growth relative to other countries. A declining productivity performance is a plausible consequence of an increasingly complex and uncertain U.S. regulatory environment.

*JEL* codes: Economics of Regulation L51, Economywide Country Studies O57

## 1 INTRODUCTION

The prolonged recent recession in the United States and the relatively slow economic growth rate characterizing the recovery has economists and policymakers discussing policy initiatives that will restore the U.S. economy to a path of strong, long-run economic growth. Some economists and private-sector managers have highlighted the increasing burden of government regulation on the private sector as a major barrier to the restoration of long-run economic growth.<sup>1</sup> Government regulation is seen as imposing costs and uncertainties that discourage domestic private-sector capital formation and employment growth. An increasingly onerous regulatory environment is alleged to be an important handicap for American companies competing at home and abroad with foreign companies less constrained by their home governments in how they carry out business activities.<sup>2</sup> An increasingly complex, uncertain, and costly regulatory regime in the United States may be harming the international competitiveness of American companies.

The primary focus of this report is to identify and evaluate available evidence bearing upon two broad issues: 1. Has the international competitiveness of U.S.-based companies declined in recent years? 2. For the same years, has government regulation in the United States become more onerous for U.S.-based businesses compared to the effects of government regulation on the private sectors of other countries?

The evidence presented suggests that U.S. international competitiveness has deteriorated by certain measures, and that future, and potentially more economically significant, declines may be anticipated. Evidence also identifies deterioration in the U.S. regulatory environment relative to other developed economies. This

1. See John Cochrane, "The Fed's Mission Impossible," *Wall Street Journal*, December 29, 2011, <http://online.wsj.com/article/SB10001424052970203391104577120422546692282.html>; and Edwin Feulner, "A Step Backward for Economic Freedom in 2012," *Wall Street Journal*, January 12, 2012, A15.
2. Baily and Slaughter, among others, highlight the role that regulation can play in undermining the economic performance of U.S. companies. See Martin N. Baily and Matthew J. Slaughter, "Strengthening U.S. Competitiveness in the Global Economy," Private Equity Council, December 2008.

fact pattern is consistent with concerns that the changing regulatory regime in the United States has harmed the performance of the U.S. private sector relative to other countries.

A more rigorous statistical analysis of the determinants of international competitiveness, including measures of a country's regulatory regime, should be undertaken to confirm or deny any inferences drawn from simple comparisons of changes in measures of U.S. international competitiveness and of the U.S. regulatory regime. We plan to conduct and report such an analysis in a later study. This study reviews the available literature and data bearing upon the relationship between regulation and international competitiveness to identify if there is any apparent justification for focusing more research and policy attention on the relationship and to provide insight into which future research initiatives might prove fruitful.

In this study, we adapt a relative focus. Specifically, we are evaluating the regulatory environment of the United States against the background of the regulatory environments of other countries and the economic performance of the U.S. economy relative to other countries. The report offers no direct guidance as to whether the U.S. economy would be better off in an absolute sense if the burden of government regulation on the private sector were reduced. However, to the extent that government regulation appears to be harming the ability of U.S. firms to compete in international markets, we contend that an additional burden of proof should be imposed on those arguing against reducing the scope and complexity of government regulation in the United States. Furthermore, if government regulation, on balance, harms private-sector performance, a more onerous regulatory regime in the United States is cause for concern even if regulatory regimes elsewhere have become more onerous relative to the U.S. regime.

The report proceeds as follows. Section 2 identifies and evaluates alternative measures of international competitiveness at the national level. Some measures are more relevant than others from the perspective of overall economic welfare and, therefore, deserve more weight in any overall assessment of how the U.S. economy is performing relative to other national economies. Section 3 presents and assesses evidence from a variety of sources bearing upon the issue of whether the United States has become less internationally competitive in recent years. The evidence, on balance, provides some grounds for concern that there has been a loss of competitiveness and that manifestations of this loss may become more pronounced in the foreseeable future.

Section 4 provides a conceptual discussion of alternative definitions of government regulation and the challenges facing any attempts to compare the scope and quality of government regulation across countries. In the absence of clear definitions of either the scope or nature of a country's regulatory regime, it is prudent to consider a range of available measures at both the economy-wide level and for individual sectors of the economy. We do this with a view toward identifying any overall pattern over time in the chosen measures for the United States relative to

other countries. Section 5 reports and evaluates various measures of the scope and quality of regulation in the United States and other developed countries over time. While the United States fares better on some measures and worse on others, the overall picture is of a regulatory environment in the United States that has become more onerous in recent years, absolutely and in relation to other countries.

The evidence presented and discussed in sections 3 and 5 suggest deterioration in the international competitiveness of the U.S. economy in recent years and a regulatory regime that has become more onerous for the private sector. We do not undertake an econometric analysis in this study to identify the statistical strength of the observed correspondence between changes in international competitiveness and changes in regulatory regimes. However, we have attempted to identify the conceptual linkages between the two phenomena and to review empirical evidence drawn from available econometric studies on the consistency and magnitude of the overall relationship between regulation and international competitiveness. Section 6 summarizes our review of the theoretical and empirical literature on the linkages between the government's regulatory regime and the economic performance of domestic firms.

The final section summarizes the main findings and conclusions of the report. We also suggest additional research that would help advance our understanding of how the U.S. regulatory regime affects the country's attractiveness as a location for private-sector investment.

## 2 MEASURING INTERNATIONAL COMPETITIVENESS

THE NOTION OF competitiveness as applied to countries is widely discussed in the business media, although the economic relevance of the application is contentious. The basic notion of competition implies the existence of winners and losers. Conversely, the basic insight from economic theory is that international trade and investment typically improve the economic welfare of participating countries in the long run. There is an argument for emphasizing measures of international economic performance that are connected to a nation's economic prosperity.

McFetridge and Swagel note that of the many indicators of international competitiveness that have been suggested in the literature, relatively few are directly linked to measures of economic prosperity.<sup>3</sup> McFetridge further argues that national competitiveness is a meaningful policy objective only if tied to the goal of maximizing the present value of the stream of per-capita consumption possibilities available to present and future generations.<sup>4</sup> Countries with higher rates of growth of real per-capita income are generally more successful than others in achieving this goal.

3. Donald McFetridge, "Competitiveness: Concepts and Measures" (Occasional Paper Number 5, Industry Canada, 1995); and Phillip Swagel, "International Competitiveness," American Enterprise Institute and the University of Maryland, mimeo, 2012.

4. McFetridge, "Competitiveness."

Productivity growth is a key indicator of a nation's economic performance because the growth of real per-capita income will largely reflect a nation's productivity growth.

Improved productivity implies that companies can produce at lower cost, thereby gaining a competitive advantage by being able to lower prices without necessarily reducing profit margins. Alternatively, improved productivity enables firms to improve the quality of their products without having to increase prices to maintain profit margins. Productivity improvements strengthen the ability of domestic firms to compete profitably in global markets. The enhanced competitive advantage of domestic firms should encourage domestic investment in physical and human capital which, in turn, promotes increased employment and higher real incomes.

## 2.1 Productivity Growth

OVER THE LONG run, improved productivity is the key to a country's per-capita income growth.<sup>5</sup> The most comprehensive measure of productivity is total factor productivity (TFP).<sup>6</sup> TFP is a conventional measure of how much physical (or real) output is produced given the physical (or real) amounts of all conventional factor inputs used to produce output. It is beyond the scope of this report to discuss TFP methodologies and the technical problems associated with creating indices of real output and real inputs. Suffice to say, TFP indices typically combine labor and capital into an aggregate index of real inputs. As a consequence, technological change and other contributors to improved efficiency are the main drivers of increases in TFP.

A second widely used measure of productivity (labor productivity) is created by dividing physical (real) output by an index of real labor input such as worker hours.<sup>7</sup> Increases in labor productivity will reflect technological change and related sources of improved efficiency as well as increases in the physical quantities of conventional inputs, such as capital, that are used with labor to produce output. It is beyond the scope of this report to discuss the advantages and disadvantages of TFP versus other measures of productivity performance. It is also beyond the scope of this report to discuss potential biases to productivity indices imparted by factors such as improvements in product quality and changes in business cycle conditions.<sup>8</sup>

5. Michael Porter, *The Competitive Advantage of Nations* (New York: The Free Press, 1990).

6. The concept is also sometimes identified as multifactor productivity (MFP), and we use TFP and MFP as synonyms in this report.

7. Porter and Rivkin argue that a country's ability to generate high output per employable person, rather than per currently employed person, reveals its true competitiveness, but productivity estimates based on the potential rather than the actual labor force are unavailable. See Michael Porter and Jan Rivkin, "The Looming Challenge to U.S. Competitiveness," *Harvard Business Review* (March 2012): 54–62.

8. For a brief discussion of possible measurement problems in constructing productivity estimates, see John Carlson and Mark Schweitzer, "Productivity Measures and the New Economy," *Economic Commentary*, Federal Reserve Bank of Cleveland, 1998.

Estimates of labor productivity are often more readily available than estimates of TFP, particularly when comparing countries' productivity growth. We make use of both measures of productivity growth when identifying changes over time in the international competitiveness of the United States.

Increases in TFP and labor productivity are the performance measures we believe are particularly meaningful when assessing the international competitiveness of the U.S. economy. Our primary focus is on productivity measures for broad segments of the economy. While we will discuss how government regulation can influence economy-wide performance, it should be acknowledged that specific government regulations are more relevant for some industries than others. For example, regulations governing financial transactions will ordinarily be most relevant to firms in the financial and insurance sectors of the economy. Given that the nature and extent of government regulation varies across industries, it is useful to identify differences in the productivity performances of specific U.S. industries compared to their counterpart industries in other countries when possible. McFetridge affirms the relevance of cross-country productivity comparisons at the industry level when assessing the international competitiveness of specific industries in different countries.<sup>9</sup> International comparisons of costs are also potentially relevant. Thus, Markusen suggests the following efficiency-based definitions of industry competitiveness: 1. An industry is competitive if it has a TFP level equal to or higher than that of its foreign competitors; 2. An industry is competitive if it has a level of unit (average) costs equal to or lower than its foreign competitors.<sup>10</sup>

Productivity performance is one of the country-level attributes included in the league table surveys of international competitiveness we summarize and assess in section 3. While differences across countries in productivity levels at a point in time may not be very informative, divergences in those levels over extended periods of time (reflecting differences in longer-run productivity growth rates) can be viewed as economically meaningful indicators of changes in the ability of the average firm located in a specific country to compete against firms located in other countries.

## 2.2 Indicators of Technical Change

SINCE TECHNOLOGICAL CHANGE is an important contributor to productivity growth in the longer run, some league table comparisons of competitiveness across countries report forward-looking indicators of technological change, such as research and development (R&D) intensities, percentages of scientists and engineers in the workforce, and so forth. There is no well-defined production function for technological change, and such indicators are, at best, rough predictors of future rates of

9. McFetridge, "Competitiveness."

10. James Markusen, *Productivity, Competitiveness, Trade Performance and Real Income: The Nexus Among Four Concepts* (Ottawa: Supply and Services Canada, 1992), 8.

technological change and productivity growth. Nevertheless, a country's capability to innovate and rapidly adopt new production and management practices developed in other countries strongly influences its future productivity performance. Indicators of what has been described as a country's "innovation system," or its scientific and technological capabilities, are potentially informative competitiveness measures through their linkage to productivity performance.<sup>11</sup> While direct measures of technological capability are unavailable, proxy measures related to innovation activity are often used to characterize a nation's capacity to realize technological progress,<sup>12</sup> and such measures can be meaningful indicators of international competitiveness through their linkage to future productivity performance.

### 2.3 Trade-Based Measures

INDICATORS OF INTERNATIONAL trade performance are arguably the most frequently referenced measures of international competitiveness reported by business journalists and other media sources. However, as McFetridge, Swagel, and many others have noted, trade performance is not linked in straightforward and reliable ways to a country's economic well being.<sup>13</sup> Observers frequently link a nation's competitiveness to its current account balance. Specifically, a declining surplus or growing deficit in the current account is taken to be indicative of a country's deteriorating competitive position in the international market for goods and services, since the country is importing more than it is exporting. One problem with this interpretation is that a country's imports will increase faster than its exports, all other things constant, if its real economic growth rate is higher than those of its trading partners. In this context, a growing trade deficit would misleadingly signal declining rather than increasing prosperity, if differential rates of real economic growth underlie differences in international trade performance across countries.<sup>14</sup>

Trade-based measures of international competitiveness often rely upon international comparisons of prices and costs. For example, the Organisation for Economic Co-operation and Development (OECD) measures competitiveness for a given country's manufactured exports as the difference between the country's export price and that of its competitors in their common markets. Among the chief measures of international competitiveness is a country's real exchange rate, typically

11. For a discussion of the components of geographical innovation systems, see B. Asheim and M. Gertler, "The Geography of Innovation: Regional Innovation Systems," in *The Oxford Handbook of Innovation*, ed. Jan Fagerberg, David Mowery, and Richard Nelson (Oxford: Oxford University Press, 2006), 291–317.
12. Such proxy measures sometimes include patents, R&D expenditures, and scientists and engineers.
13. McFetridge, "Competitiveness"; and Swagel, "International Competitiveness."
14. Technical problems and issues surrounding the use of international trade data to identify changes in national competitiveness are discussed in Marine Durand, Jacques Simon, and Colin Webb, "OECD's Indicators of International Trade and Competitiveness" (Working paper no. 120, OECD Economics Department, OECD, Paris, France, 1992), <http://dx.doi.org/10.1787/708306180711>.

calculated as the nominal exchange rate multiplied by a ratio of consumer prices in the focal country and in one or more of its trading partners. A higher real exchange rate for the U.S. dollar can be interpreted as a loss in U.S. competitiveness in that the price of an overall basket of U.S. goods is increasing relative to the price of a theoretically similar basket of foreign goods when measured in a common currency. As with other measures of international competitiveness, price- and cost-based measures must be interpreted cautiously. For example, the goods exported by U.S.-based companies might increase in price relative to those of foreign competitors because the relative quality of U.S.-made products is increasing. This is known as the Balassa-Samuelson effect, which explains why countries that are productive in their tradeables sectors have higher real exchange rates. In this context, it would be misleading to interpret an increase in export prices (or the real exchange rate) as indicating a worsening economic performance of U.S.-based producers relative to foreign competitors.

Some trade-based measures of international competitiveness distinguish among the mix of goods traded. They focus on a country's international market share of higher value-added goods or its share of high-technology products. The underlying notion here is that the international demand for higher value-added or technology-intensive products is likely to grow faster than for other products. Entry into those product markets by new foreign-based producers is more difficult than in the case of conventional products. Producers that can successfully export high value-added and technology-intensive products can potentially earn economic rents that translate into higher income levels for the home country.<sup>15</sup> A problem with this argument is that there is no reliable evidence showing that changes in the industrial mix of a country's exports cause changes in that country's real economic growth rate.

## 2.4 Investment-Based Measures

COUNTERPARTS TO TRADE-BASED measures of international competitiveness are measures related to capital flows. In particular, foreign direct investment (FDI) flows are potential indicators of how attractive investors find individual locations.<sup>16</sup> Hence, if specific countries attract a disproportionate amount of inward FDI (relative to their overall size), it might indicate that private-sector business conditions are particularly favorable in those locations relative to other locations.

Since there is evidence that legal and regulatory regimes influence the location

15. Alan Rugman and Joseph D'Cruz, *New Visions for Canadian Business: Strategies for Competing in the Global Economy* (Toronto: Diane Publishing Company, 1990).

16. Kochan defines U.S. competitiveness as the capacity to be attractive to businesses and to simultaneously create a more prosperous society, where prosperity is linked to productivity. See Thomas Kochan, "A Jobs Compact for America's Future," *Harvard Business Review* (March 2012), <http://hbr.org/2012/03/a-jobs-compact-for-americas-future/ar/1>.

decisions of foreign direct investors, measures of inward FDI intensity (for example, inward FDI relative to gross domestic product) may be meaningful indicators of international competitiveness.<sup>17</sup> Since inward FDI generally has been found to contribute to improved productivity in the host economy, inward FDI intensity is also consistent with welfare-based measures of economic performance, such as real output per capita. A relevant caveat, however, is that FDI inflows will reflect a variety of national characteristics relative to other countries and not just differences in regulatory governance.

Increased outward FDI might be interpreted as indicating fundamental problems in a home-country economy that are motivating domestic firms to invest abroad. The problem with this interpretation is that the ability of home-country firms to succeed in foreign markets might reflect fundamental strengths in the home economy, including a regulatory environment conducive to innovation and increased productivity. International business scholars widely acknowledge that multinational companies (MNCs) must overcome “liabilities of foreignness” (LOFs) when competing in foreign markets. These LOFs oblige MNCs to cultivate firm-specific competitive advantages that more than offset the relevant LOFs in order to compete successfully in foreign markets. Specific attributes of the home country, including the legal and regulatory regimes, can influence how effectively domestic firms can cultivate firm-specific advantages.

The relationship between outward FDI and home-country productivity growth is controversial. The controversy derives, in part, from the fact that MNCs often transfer production from home-country plants to plants operated by foreign affiliates. Critics claim that such offshoring leads to a loss of economies of scale in the home country and, therefore, reduces productivity of home-country firms. On the other hand, empirical evidence suggests that offshoring leads to lower costs for the MNC and to growth in head-office activities, such as R&D, that are likely to promote improved productivity in the home country.<sup>18</sup>

On balance, empirical evidence is mixed regarding the effects of outward FDI on the home country’s productivity performance.<sup>19</sup> Hence, it seems prudent to focus on inward FDI intensity as a measure of international competitiveness. At the same time, investors’ intentions to relocate existing capacity outside the United States, or to locate new capacity in the United States, might be taken as relevant evidence

17. For some evidence on the link between legal and regulatory governance and inward FDI, see Steven Globerman and D. Shapiro, “The Impact of Government Policies on Foreign Direct Investment: The Canadian Experience,” *Journal of International Business Studies* 30, no. 3 (1999): 513–32; and Steven Globerman and D. Shapiro, “Global Foreign Direct Investment Flows: The Role of Governance Infrastructure,” *World Development* 30, no. 11 (2002): 1,899–1,919.

18. Steven Globerman, “The Implications of Outward Direct Investment for the Canadian Economy,” Conference Board of Canada, 2012.

19. Steven Globerman and V. Chen, “Best Policy Practices for Promoting Inward and Outward Foreign Direct Investment,” Conference Board of Canada, 2010.

of either a deteriorating or improving business climate in the United States relative to other locations. In fact, there is some available evidence on corporate relocation intentions, which we discuss in section 3.

## 2.5 Summary

NUMEROUS INDICATORS OF the international competitiveness of countries have been discussed in the media as well as in the academic literature. Economists tend to conclude that any policy-relevant measure of a country's international competitiveness should be consistent with accepted measures of overall economic welfare. With qualifications that need not concern us here, higher real per-capita incomes of the residents of a country are consistent with improved overall economic welfare. Since productivity growth is the main source of higher real per-capita incomes, a nation's productivity performance relative to other countries is arguably a meaningful measure of its international competitiveness. Evidence bearing upon the productivity performance of the United States relative to other countries is presented and discussed in the next section. Since technological change is a major determinant of productivity growth, we also report how indicators of the capability of the U.S. innovation system have changed relative to other countries. Finally, inward FDI flows and the expressed intentions of corporate managers to relocate investments from one country to another are economically relevant indicators of the attractiveness of the overall business environments of countries. FDI data and relocation intentions are also reported in section 3.

There is much more controversy surrounding the economic relevance of trade-related measures of national economic performance. While current account deficits and related measures of international trade performance are frequently cited indicators of competitiveness problems for the U.S. economy, such measures are not necessarily signals of declining economic welfare. We do not consider trade-related data in our overall assessment of U.S. international competitiveness.

### 3 EVIDENCE ON U.S. COMPETITIVENESS

IN THIS SECTION, we report and assess data bearing upon various measures of international competitiveness discussed in section 2. No single measure, or set of measures, is a definitive indicator of improving or deteriorating U.S. international competitiveness. Even productivity-based measures must be viewed with caution, since productivity measurements can be influenced by differences across countries in statistical methodologies, business-cycle conditions, and industrial structures. What we are looking for is whether there is a consistent pattern of improvement or deterioration in the position of the United States relative to other countries across a range of indicators of international competitiveness.

#### 3.1 Productivity Measures

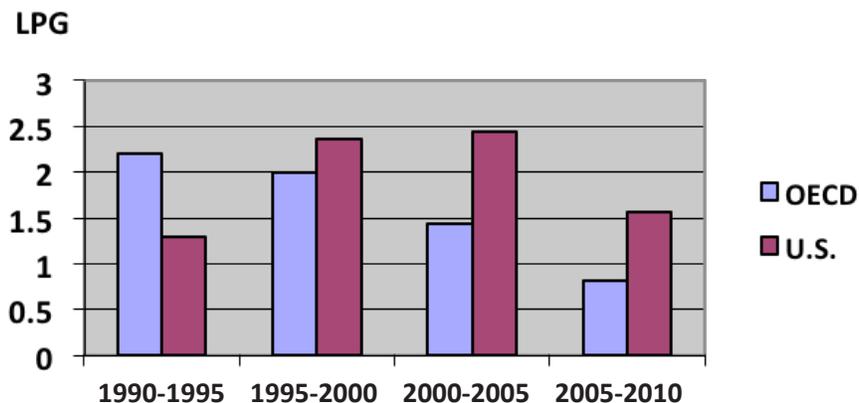
THE OECD PROVIDES relatively comparable productivity estimates across countries over virtually two decades. Most OECD members are developed countries that make a reasonable reference group to compare to the United States in terms of productivity performance. While much attention has been paid recently to the BRIC economies (Brazil, Russia, India, and China), and while U.S. concerns about unfair trade practices center largely on China, it does not make sense to compare the productivity performance of a mature economy such as the United States to the performance of relatively low-income developing countries.

Figure 1 reports estimates of the average annual growth rate of labor productivity of the United States and averaged across 16 OECD countries for subperiods covering 1990–2010.<sup>20</sup> U.S. labor productivity performance improved relative to the OECD sample from around 1996 through 2005. The U.S. labor productivity advantage decreased modestly over the period 2006–2010 compared to 2001–2005.<sup>21</sup> The estimates in figure 1 suggest a substantial improvement in U.S. international competitiveness over 1996–2005 followed by a modest deterioration over 2006–2010.

20. The specific measure of labor productivity is real gross domestic product per hours worked. The OECD countries include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Spain, Sweden, and the United Kingdom.

21. OECD labor productivity growth was about 52 percent of U.S. labor productivity growth from 2001–2005. It was approximately 59 percent from 2006–2010.

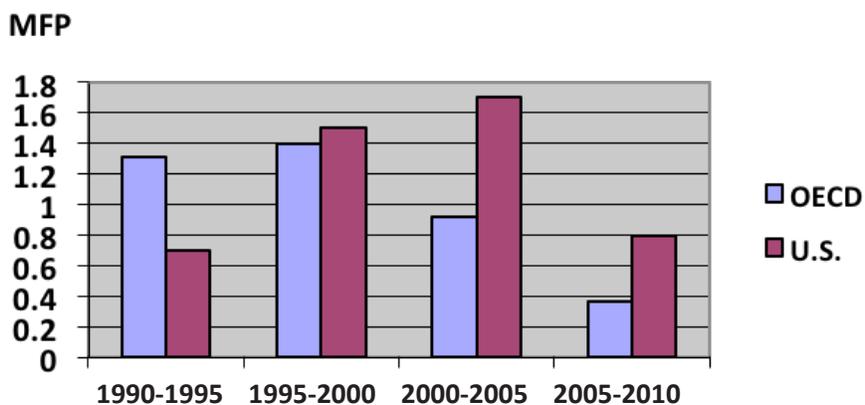
FIGURE 1: TOTAL LABOR PRODUCTIVITY ANNUAL GROWTH RATE (%)



Source: Authors' calculations from OECD stat extracts

Figure 2 reports estimates of the annual growth rate of total factor productivity averaged across 13 OECD countries and for the United States for similar subperiods as reported in figure 1.<sup>22</sup> The pattern for total factor productivity growth is similar to that for labor productivity growth. U.S. productivity performance improves substantially relative to the performance of other OECD countries over the period 1995–2005. Unlike labor productivity, there is no evidence of a decline in the U.S. total factor productivity growth advantage over the period 2005–2010.<sup>23</sup>

FIGURE 2: TOTAL MULTI-FACTOR PRODUCTIVITY ANNUAL GROWTH RATE (%)



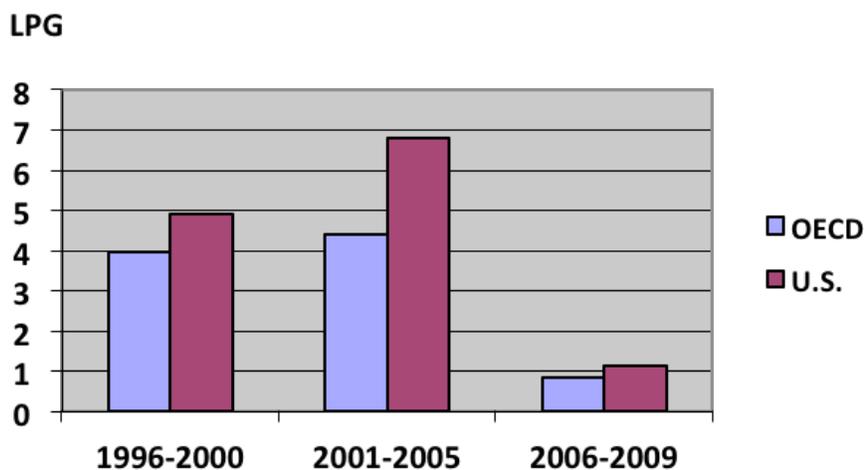
Source: Authors' calculations from OECD stat extracts

22. Requisite data was unavailable for Belgium, Denmark, and Norway.

23. Average annual total factor productivity growth for the OECD was around 54 percent of U.S. productivity growth over the period 2000–2005 and around 45 percent over the period 2005–2010.

Company productivity performance for individual sectors of OECD economies provides some perspective on whether the patterns observed at the economy-wide level are particularly influenced by the performance of specific industries or sectors. Figure 3 provides estimates of the average annual growth rate of labor productivity for the manufacturing sector for different subperiods covering the years 1996–2009. In this case, the average shown is for all OECD countries, including the United States. The OECD reports an aggregate labor productivity growth rate series for manufacturing that includes the United States, so it is convenient to use this aggregate measure as a comparison to the U.S. series; however, the inclusion of the United States in the overall OECD average biases the reported productivity growth rate advantage of the United States downward over the sample time period.

FIGURE 3: LABOR PRODUCTIVITY ANNUAL GROWTH RATE (%), MANUFACTURING



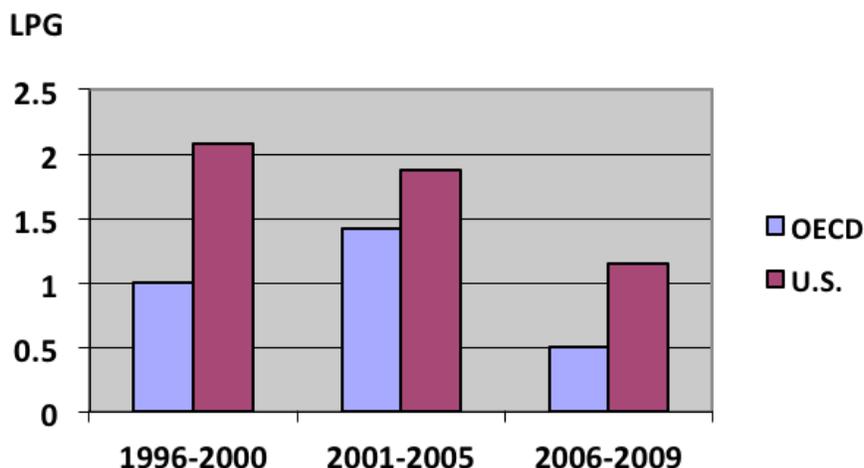
Source: Authors' calculations from OECD stat extracts

Figure 3 shows that labor productivity for manufacturing grew faster in the United States than in the aggregate of all OECD countries in each of the three time periods reported. As is the case for the total economy estimates of labor productivity growth, the relative outperformance of U.S. manufacturing productivity growth is smaller in the most recent years compared to 2000–2005.

Figure 4 reports the average annual growth rate of labor productivity for financial and business services. The reported OECD estimates are aggregations across all OECD countries, including the United States. It should be noted that productivity estimates for service industries are especially difficult to construct and interpret given the heterogeneity of service outputs. Notwithstanding this caveat, the broad pattern of the data reported in figure 4 is comparable to the previous productivity comparisons. Specifically, the productivity growth rate for financial and business services in the United States exceeds the comparable productivity growth rate

aggregated across all OECD countries for each subperiod examined commencing in the mid-1990s; however, unlike manufacturing, the U.S. outperformance in productivity growth for services is modestly higher in the final subperiod compared to the middle subperiod.

FIGURE 4: LABOR PRODUCTIVITY ANNUAL GROWTH RATE (%), FINANCIAL AND BUSINESS SERVICES



Source: Authors' calculations from OECD stat extracts

In summary, the productivity growth rate estimates reported in figures 1–4 identify a consistent pattern: U.S. productivity growth rates exceeded those of other OECD countries consistently over the period 1996–2010, with the opposite being the case for the first half of the 1990s. At the overall economy level and for manufacturing, the U.S. outperformance in labor productivity growth is slightly smaller in the second half of the 2000–2010 period compared to the first half; however, this does not appear to be the case for services. In short, productivity estimates do not show evidence of any marked deterioration of U.S. international competitiveness, although they hint at some moderation of U.S. outperformance in recent years.

In a later section of the report, we shall review studies that seek to explain the acceleration of U.S. productivity growth relative to other developed countries that commenced around the mid-1990s and continued through at least 2005. The earlier and more comprehensive deregulation of the telecommunications sector in the United States compared to other countries may be an important factor in explaining the phenomenon. This explanation highlights the potentially long lag between changes in regulatory policies and changes in productivity performance. It also underscores the caveat that recent policies potentially harming relative U.S. productivity performance may not materialize in published productivity data until future periods.

### 3.2 Other Measures

AS NOTED EARLIER, innovation is linked to technological change, which is a major contributor to productivity growth. Any adverse changes in the U.S. innovation environment relative to other countries might be an early signal of declining international competitiveness of the U.S. economy that will be observable in a deteriorating relative U.S. productivity performance in future time periods.

The World Economic Forum's (WEF) Global Competitiveness Report provides league table estimates of a wide range of factors the WEF believes underpins international competitiveness. One broad factor is innovation, which is a composite of specific country attributes, including "capacity for innovation."<sup>24</sup> The league table estimates for many of the factors reported in the Global Competitiveness Index are aggregations of subjective responses by corporate executives to surveys carried out by the WEF. Since the responses to survey questions are scaled from one to seven, the cardinal (absolute) values reported are less informative than the country rankings.

Table 1 reports the U.S. ranking relative to 17 other OECD countries with respect to the climate for innovation.<sup>25</sup> It also reports the average value assigned by respondents to the U.S. innovation environment on the seven-point scale used to create the league tables. The relative position of the United States deteriorates modestly between 2008 and 2011. Specifically, while the United States enjoys the highest ranking in 2005 and 2008, two countries receive a higher ranking in 2011 while one country receives an identical ranking. The absolute value of the U.S. ranking also declines modestly in recent years.

TABLE 1: CLIMATE FOR INNOVATION, OECD COUNTRIES RELATIVE TO THE UNITED STATES

	2005	2008	2011
Superior to United States	0	0	2
Equal to United States	0	0	1
Inferior to United States	17	17	14
U.S. Value	5.93	5.84	5.57

Source: WEF Global Competitiveness Index

IMD, a Swiss business school, produces an annual World Competitiveness Yearbook (WCY) that ranks countries' abilities to create and maintain an environment in which enterprises can compete. Like the WEF, the IMD's league tables encompass a wide range of factors characterizing national economies. Many of these do not satisfy the relatively specific economic criteria for meaningfully measuring

24. For a description of the WEF's Global Competitiveness Index and a discussion of the methodology underlying the construction of the index, see World Economic Forum, "The Global Competitiveness Report 2011–2012," World Economic Forum, Geneva, Switzerland, 2011. The Global Competitiveness Index is publicly available from 2005 onward.

25. These include the 16 OECD countries included in figure 1 and Austria.

international competitiveness as discussed in section 2.<sup>26</sup> The IMD does report survey information regarding relocation threats for manufacturing and R&D facilities. Specifically, IMD asks respondent executives if relocation of production or R&D facilities is not a threat to the future of their national economy. Responses are calibrated on a scale from 1 to 10, where 10 indicates the highest “nonthreat,” that is, the weakest possible threat potential relocation poses to an economy.

Table 2 reports IMD’s league table rankings with respect to the relocation threat of production activities while table 3 reports its rankings with respect to the relocation threat for R&D activities. Lower reported likelihoods of relocation (that is, higher value responses) may be interpreted as indicating a greater location advantage for a country. Since the absolute scalar value of the responses is arbitrary, the main focus of tables 2 and 3 should be on the U.S. ranking relative to other countries. For interest, we also report the absolute values given by respondents for questions pertaining to relocation threats facing the United States.

**TABLE 2: RELOCATION THREAT FOR PRODUCTION, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	2	0	5	9
Equal to United States	0	0	0	0
Inferior to United States	15	17	12	8
U.S. Value	6.18	6.21	4.37	4.08

*Source: World Competitiveness Yearbook*

Table 2 reports for selected years how the United States ranks relative to 17 OECD countries with respect to the relocation threat for production activities. The number of countries receiving a superior ranking to the United States increases over 2000–2011, which is consistent with a noticeable decrease in the estimated absolute scalar value for the United States over the same period. Table 3 shows a sharp relative increase in the relocation threat for R&D activities facing the United States, commencing in 2000 and continuing through 2011. In particular, while only four countries enjoyed a lower relocation threat rating in 2005, nine countries enjoyed a lower relocation threat rating than the United States in 2011. Moreover, there was a marked decrease in the absolute scalar ranking for the United States over the period 2000–2011, as was true for production activities.

26. The IMD league tables are based on analysis done by business scholars and on IMD’s own research. Data for some measures of competitiveness are available back to 1995. For a description of the IMD’s survey methodology, see “Research Methodology,” IMD website, [http://www.imd.org/research/centers/wcc/research\\_methodology.cfm](http://www.imd.org/research/centers/wcc/research_methodology.cfm).

**TABLE 3: RELOCATION THREAT FOR R&D, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	2	0	4	9
Equal to United States	0	0	0	1
Inferior to United States	13	17	13	7
U.S. Value	6.18	6.21	4.37	4.08

Source: *World Competitiveness Yearbook*

The information summarized in tables 2 and 3 is reinforced by a recent Harvard Business School survey. The survey involved nearly 10,000 Harvard Business School alumni who were asked to identify the potential for future measures of U.S. international competitiveness to fare worse than recent measures.<sup>27</sup> Survey respondents were asked whether they believed U.S.-based firms will be more or less able to compete in the global economy in three years' time.<sup>28</sup> Almost three-quarters of the respondents expected U.S. competitiveness to deteriorate in the future, although there are differences in responses across sectors. Respondents were also asked about the likelihood of relocating business activities to other countries. Since the respondents are senior managers located all over the world, their responses to questions about possible relocation allow a comparison of the United States to other countries. A U.S.-based respondent was three times more likely to be considering moving a business activity outside the home country than a non-U.S.-based respondent.

Survey respondents considered the business environment in the United States to be relatively strong as at the time of the survey, but they expressed concern about the future of U.S. competitiveness. Hence, the Harvard Business School survey along with the findings reported in tables 2 and 3 provide support for a concern that the relatively favorable U.S. productivity performance might be in jeopardy going forward. One of the factors survey respondents mentioned as threatening the future performance of the U.S. economy is regulatory burden and uncertainty, which this report will address in section 6.

As discussed in section 2, FDI flows can also signal location attractiveness. In particular, FDI inflows suggest that foreign investors view the recipient country as a favorable site in which to carry out specific value-chain activities. Since larger economies will attract more foreign investment than smaller countries, other things constant, table 4 reports the ratio of inward FDI flows summed over all developed economies to total gross domestic product summed over those economies, as well as for the United States separately. The FDI data are taken from the United Nation's

27. Michael E. Porter and Jan W. Rivkin, "Prosperity at Risk: Findings of Harvard Business School's Survey on U.S. Competitiveness," Harvard Business School, January 2012, <http://www.hbs.edu/competitiveness/pdf/hbscompsurvey.pdf>.

28. The survey was undertaken in October 2011.

World Investment Report Database.<sup>29</sup> For the subperiods identified, the U.S. ratio is consistently higher than the ratio for all developed economies. U.S. “outperformance” is most pronounced in the 1996–2000 period and converges more closely to the performance of other developed countries in the more recent periods.

**TABLE 4: INWARD FOREIGN DIRECT INVESTMENT FLOW AS PERCENTAGE OF GROSS DOMESTIC PRODUCT**

	1990–1995	1996–2000	2001–2005	2006–2011
All Developed Economies	9.3%	17%	24.9%	29.7%
United States	11.2%	23.6%	31.2%	34%

*Source: United Nations' World Investment Report database*

### 3.3 Summary

THE INDICATORS OF international competitiveness reviewed in this section suggest that the U.S. economy has outperformed other developed economies over the past 15–20 years. There are some suggestions that the U.S. competitive advantage has weakened in recent years, however, and that managers of global companies are viewing future prospects for U.S. international competitiveness less favorably than in the past.

## 4 COMPARING COUNTRIES' REGULATORY ENVIRONMENTS

TO EVALUATE EVIDENCE that government regulation in the United States has become more burdensome to domestic businesses over time compared to other countries, it is necessary to identify relevant measures of regulatory burden. There is no clear consensus for defining and quantifying a country's regulatory regime for purposes of policy analysis. Indeed, the preferred measures will depend upon society's priorities with respect to regulation.<sup>30</sup> For example, if a primary objective is to improve the accountability of regulators, attributes such as the ability of regulators to be disciplined or removed from office should be included in any description of a country's regulatory regime. Furthermore, the relevant scope for identifying the regulatory environment is also unsettled. For example, some discussions of a country's regulatory environment encompass tariff and nontariff barriers to trade, tax rates, anti-trust legislation, and the overall size of the government sector. Other discussions tend to focus more narrowly on the activities of specific regulatory agencies, such as the Environmental Protection Agency, the Food and Drug Administration, and the Securities and Exchange Commission.

For pragmatic reasons, we limit the scope of our comparison of national regulatory

29. See “Inward and Outward Foreign Direct Investment Flows, Annual, 1970–2011,” United Nations Conference on Trade and Development STAT, last updated July 12, 2012, <http://unctadstat.unctad.org/tableviewer/tableview.aspx?reportid=88>.

30. World Bank Group, “Better Regulation for Growth,” 2010.

environments to several relatively broad categories, including product-market regulations, labor-market regulations, and financial regulations. These tend to be the manifestations of regulation for which league table international comparisons are most typically reported. In reviewing the available literature on the productivity effects of government regulation in section 6, however, we will also pay attention to environmental regulations.

#### 4.1 Defining and Measuring Government Regulation

GOVERNMENT REGULATIONS IN the United States are essentially rules issued by government departments and agencies designed to carry out the intent of legislation enacted by Congress. The rules guide the activities of organizations covered by the legislation and reflect regulators' interpretation of the relevant legislation. The normative rationale for providing regulators with the scope to set and determine rules is that legislators cannot be expected to foresee all possible situations to which legislation might apply. It is impossible to write legislation that creates a bright line separating lawful from unlawful behavior that can be applied uniformly to all cases of potential relevance. Obviously, the interpretive scope given to regulatory agencies invites the potential for rules they enact and implement to go beyond what might have been intended by the relevant legislation. While regulators are accountable in principle for their rule making, there is much debate about whether that accountability is sufficient.

Based on this definition, it is difficult, as a practical matter, to make meaningful comparisons between government regulation in the United States and government regulation in other countries in any comprehensive way. Government regulation is ubiquitous and complex. The de facto effects on business organizations will clearly depend upon who is doing the regulating. The practical challenge to undertaking a comprehensive comparison of government regulation across countries is underscored by the fact that there are dozens of federal government regulatory departments and agencies in the United States alone regulating the activities of organizations in industries ranging from commodities futures trading to postal service. In addition, government agencies charged with regulatory functions often carry out other activities that can influence the macroeconomic performance of a country. For example, the Federal Reserve System has a mandate to regulate banks. At the same time, it conducts monetary policy. In principle, the two responsibilities are separable. In practice, banking regulations may affect monetary policy.

In short, any attempt to compare regulatory regimes across countries will inevitably involve compromises and will be susceptible to criticism that the measures chosen are either too broad or too narrow.<sup>31</sup> The league table sources discussed in

31. Another concern is that regulatory enforcement varies across countries in ways that are difficult to measure.

this section report numerous potential measures of government regulation. Most of the measures reported reflect the subjective assessments of business people and others knowledgeable about business-government relations in a country rather than the actual costs companies incur to comply with regulations. Some of the measures reported, such as tariffs, are more meaningfully characterized as taxes than regulation. Health and safety regulations, which are captured in some surveys as regulatory trade barriers, clearly fit the category of government regulation, although when categorized as import barriers or regulatory trade barriers, they apply to foreign rather than domestic producers. Corruption indices reported in some surveys might encompass extralegal actions by regulators, although they capture a range of behavior by politicians and bureaucrats that extends beyond traditional regulatory activities.

These caveats imply the need for caution in interpreting information about government regulation reported in the league table results reviewed in section 5. The information is largely subjective and less than comprehensive. Information reported reflects our subjective judgments about what should be considered manifestations of government regulation as opposed to broader measures of government policy, such as taxation, that also affect business conditions in a country. No single reported measure of regulation should be seen as particularly meaningful. Rather, one should assess whether the overall set of measures reported shows any distinct trend over time for the United States relative to other countries.

#### 4.2 The Potential Linkages between Regulation and International Competitiveness

GOVERNMENT REGULATIONS ARE often specific to particular industries or sectors of an economy. Any assessment of the economic effects of government regulation should have a narrower focus than the overall economy. If relatively large sectors of an economy, such as the financial sector, are affected by regulation, the economic performance of the national economy will also exhibit an effect reflecting a change in the performance of a relatively large segment of the economy. Beyond this averaging effect, regulations specific to, or primarily affecting, specific sectors or industries can have more widespread effects through so-called knock-on effects.<sup>32</sup> For example, if the prices of key inputs to other industries are increased as a result of regulation, it can result in a substitution away from those inputs toward less efficient input mixes on the part of producers that use the input in question. In addition, to the extent that regulation restricts competition in specific sectors of the economy,

32. For discussions of how government regulation can influence the economic performance of a country, see Nicholas Crafts, "Regulation and Productivity Performance," *Oxford Review of Economic Policy* 22, no. 2 (2006): 186–202; and Fabio Schiantarelli, "Product Market Regulation and Macroeconomic Performance: A Review of Cross-Country Evidence," Boston College, 2008, <http://fmwww.bc.edu/ec-p/wp623.pdf>.

it can slow down innovation in those sectors as well as the adoption of innovations. Since there are ordinarily interindustry technology spillovers, a slowdown in the rate of technological change in a key sector, such as information and communications-related industries, can have adverse effects on the productivity growth rates of other domestic industries. Finally, to the extent that government regulatory policy increases uncertainty about future macroeconomic conditions, it might adversely influence the investment decisions of producers not directly facing a changing regulatory environment as well as producers directly affected by regulatory changes.

These potential linkages ignore any potential benefits of regulation to a national economy. In particular, they ignore broad societal effects that may affect a country's welfare. One potential example in this regard is environmental regulation. Reductions in pollution and other environmental amenities directly improve the quality of life of a country's residents. Properly accounted for, estimates of actual improvements in health, safety, and the environment translate into increases in real income per capita equivalent to productivity increases. Moreover, improvements in social amenities, such as a clean and safe environment, can also have positive knock-on effects for private-sector productivity. For example, environmental amenities can attract highly skilled workers whose participation in the workplace leads to increased productivity of complementary factors of production.<sup>33</sup> A higher quality of financial regulation and supervision can promote the growth and efficiency of financial markets with attendant benefits for other sectors of the economy.<sup>34</sup> Such benefits can be considered a form of public good comparable to any positive direct effects of environmental regulation.

A related argument has been made that government regulation can stimulate new and profitable domestic investment, primarily by encouraging regulated firms to innovate and establish first-mover advantages in activities and industries likely to become increasingly important segments of the world economy. Indeed, one justification sometimes offered in support of stricter environmental regulations is that they will accelerate the development of domestic Green Energy businesses that will be able to compete and sell products in global markets.<sup>35</sup> This position is articulated by the heads of the European Environmental Protection Agencies who conclude from available evidence that good environmental management and regulation does

33. In this regard, there has been substantial recent discussion in the business press about Chinese managers, engineers, and other skilled and highly educated Chinese nationals relocating from China to the United States, Canada, and other developed countries to escape pollution, food and other product-safety risks, and the so forth.

34. R. Levine, N. Loayza, and T. Beck, "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics* 46, no. 1 (2000): 31–77.

35. Michael Porter and Claas Van Der Linde, "Toward a New Conception of the Environment—Competitiveness Relationship," *The Journal of Economic Perspectives* 9, no. 4 (1995): 97–118; and Paul Lanoie, Michel Patry, and Richard Lajeunesse, "Environmental Regulation and Productivity: New Findings on the Porter Analysis," CIRANO Scientific Series, September 2001, <http://www.cirano.qc.ca/pdf/publication/2001s-53.pdf>.

not impede overall competitiveness and economic development. On the contrary, regulation can be beneficial by creating pressure that drives innovation and alerts business about resource inefficiencies and new opportunities, which can result in lower costs and more attractive products.<sup>36</sup>

The obvious challenge to this argument is that if being socially responsible increases corporate profitability, companies do not need government regulation to motivate their investments in environmental management and other socially responsible initiatives. It is also unclear why regulators would have better insights than private-sector managers into the types of socially responsible initiatives most likely to enhance international competitiveness.<sup>37</sup>

Any overall evaluation of the effects of regulation on a country's economic welfare must consider both the social benefits and social costs of regulation. We do not undertake any such overall assessment in this report. Rather, we focus on the potential links between regulation and measures of international competitiveness that reflect the performance of the private sector. We do not claim that evidence identifying more onerous government regulation necessarily demonstrates that the net social costs of government regulation are also increasing, but such evidence would be consistent with a claim that more onerous government regulation might be contributing to recent indications of declining U.S. international competitiveness.

### 4.3 Summary

REGULATION IS A complex and multifaceted phenomenon. There is no universally accepted definition of regulatory quality, nor are the boundaries between regulation and other public policies agreed upon. The issue of whether government regulation in the United States has become more onerous relative to government regulation elsewhere should be informed by an overall assessment of different measures of the regulatory environment rather than any specific measure or genre of regulation, such as environmental regulation. Such an overall assessment is provided in section 5.

Theoretical controversy surrounds the effects of regulation on the international competitiveness of private-sector businesses. Since the effect of government regulation on private-sector productivity and related performance measures is an empirical issue, we review some empirical evidence in section 6.

36. Network of Heads of European Environment Protection Agencies, "The Contribution of Good Environmental Regulation to Competitiveness," mimeo, 2005, 1.

37. We review some of the available evidence on the link between environmental regulation and private-sector productivity growth in section 6.

## 5 EVIDENCE ON REGULATORY BURDEN

IN THIS SECTION, we identify and review evaluations of the burden of government regulation on the U.S. private sector relative to the private sectors in other countries. For the most part, the evaluations are subjective responses to surveys by executives and other informed people; however, since the surveys are done by different organizations, our overall assessment of whether and how the burden of regulation in the United States has changed relative to other countries reflects a broad range of expert opinion.

### 5.1 Evidence from the World Economic Forum

VARIOUS MEASURES OF national regulatory environments are reported in the WEF's Global Competitiveness Report. Perhaps the most direct and comprehensive measure is the survey response to a question about the overall burden of government regulation. A summary of the survey response to this question is provided in table 5.<sup>38</sup> The position of the United States relative to 17 other OECD countries declined modestly from 2005 to 2008 and then remained constant, which is consistent with the absolute survey response value for the United States over the sample period.

**TABLE 5: BURDEN OF GOVERNMENT REGULATION, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2008	2011
Superior to United States	6	7	7
Equal to United States	0	0	0
Inferior to United States	11	10	10
U.S. Value	3.45	3.44	3.42

Source: WEF, *Global Competitiveness Index*

Since a source of concern about government regulation is the uncertainty it can create surrounding private-sector property rights, table 6 reports responses to a survey question about the perceived strength of private property rights in a country. In this case, there is a substantial deterioration in the U.S. regulatory environment. Specifically, only two OECD countries were identified as having superior property rights in 2005, whereas fourteen were superior to the United States in this regard in 2011. The sharp decrease in the U.S. absolute rating suggests that the deteriorating relative U.S. performance is at least in part due to U.S.-specific developments.

38. A higher reported value on the scale from one to seven identifies a less burdensome regulatory environment.

**TABLE 6 : PROPERTY RIGHTS, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2011
Superior to United States	2	14
Equal to United States	2	0
Inferior to United States	13	3
U.S. Value	6.39	5.06

Source: WEF, *Global Competitiveness Index*

Table 7 summarizes survey responses to a request to assess the regulation and supervision of the securities exchanges of 17 OECD countries and the United States.<sup>39</sup> The results show a slight deterioration in the relative U.S. performance from 2008–2011. Specifically, whereas U.S. regulation of its security exchanges was deemed superior or equal to eight other OECD countries in 2008, it was superior or equal to only five other OECD countries in 2011. This deterioration coincides with a notable absolute decline in the average rating for the United States over the same period, which suggests that the deteriorating relative U.S. performance is not solely the consequence of improving regulatory effectiveness in other countries.

**TABLE 7: REGULATION OF SECURITIES EXCHANGES, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2008	2011
Superior to United States	10	9	12
Equal to United States	2	3	1
Inferior to United States	5	5	4
U.S. Value	5.84	5.67	4.60

Source: WEF, *Global Competitiveness Index*

Tables 8 and 9 summarize responses to two frequently cited measures of a country's regulatory environment: the estimated number of procedures to start a new business and the estimated number of days to start a new business. While the relative position of the United States in terms of number of procedures to start a new business is essentially unchanged over the period 2005–2011, there is some worsening of its relative position with respect to the number of days to start a business.<sup>40</sup>

39. On a scale of one to seven, a higher valued response denotes more effective regulation.

40. As seen in table 9, the U.S. value for the estimated number of days to start a business is constant over the full time period shown, suggesting that improvements in this measure took place outside the United States.

**TABLE 8: NUMBER OF PROCEDURES TO START A BUSINESS, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2008	2011
Superior to United States	9	8	9
Equal to United States	1	3	3
Inferior to United States	7	6	5
U.S. Value	6	6	6

Source: WEF, *Global Competitiveness Index*

**TABLE 9: NUMBER OF DAYS TO START A BUSINESS, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2008	2011
Superior to United States	2	3	4
Equal to United States	0	1	1
Inferior to United States	15	13	12
U.S. Value	6	6	6

Source: WEF, *Global Competitiveness Index*

## 5.2 Evidence from the Heritage Index of Economic Freedom

A BROAD PERSPECTIVE on the effects of government regulation on the decision-making freedom of private-sector managers is provided by the Heritage Foundation's Index of Economic Freedom.<sup>41</sup> Tables 10–12 report assessments of business freedom, financial freedom, and labor freedom. Business freedom reflects the ability to start, operate, and close a business. Higher valued assessments reflect a lower burden of government through the regulatory process. Financial freedom is a measure of banking efficiency and of independence from government control and interference in the financial sector. Labor freedom is a composite measure of various aspects of the legal and regulatory framework of a country's labor market. A higher reported index value reflects greater private-sector freedom in financial and labor markets. As with other such indices, these assessments must be considered subjective.

The information reported in tables 10–12 present a somewhat mixed picture. Specifically, while business freedom in the United States increased absolutely between 2005 and 2011, the United States lost ground relative to other OECD countries over the time period. Financial freedom declined in the United States between 2005 and 2011, absolutely as well as relative to other OECD countries; however, labor freedom was effectively unchanged absolutely and relatively over the period 2005–2011.

41. For more about the index, see "About the Index," The Heritage Foundation, 2012, <http://www.heritage.org/index/about>.

**TABLE 10: BUSINESS FREEDOM, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	1	0	1	8
Equal to United States	8	5	5	0
Inferior to United States	8	12	12	9
U.S. Value	85	85	85	91

Source: Heritage Index of Economic Freedom

**TABLE 11: FINANCIAL FREEDOM, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	5	4	0	9
Equal to United States	7	7	6	4
Inferior to United States	5	6	11	4
U.S. Value	70	70	90	70

Source: Heritage Index of Economic Freedom

**TABLE 12: LABOR FREEDOM, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2005	2008	2011
Superior to United States	1	2	0
Equal to United States	0	0	0
Inferior to United States	16	15	17
U.S. Value	95	95	96

Source: Heritage Index of Economic Freedom

### 5.3 Evidence from the World Competitiveness Yearbook

THE WORLD COMPETITIVENESS Yearbook also provides assessments of the regulatory environments of the United States and the counterpart sample of 17 OECD countries. Table 13 summarizes survey opinion responses to the statement “bureaucracy does not hinder business activity.” Tables 14 and 15 summarize responses to similar statements for labor-market and environmental regulations. Higher reported values denote less hindrance.

**TABLE 13: BUREAUCRACY, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2010
Superior to United States	8	6	9	8
Equal to United States	0	1	1	0
Inferior to United States	9	10	7	9
U.S. Value	4.37	4.66	3.37	4.26

Source: World Competitiveness Yearbook

**TABLE 14: LABOR REGULATIONS, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	3	1	1	1
Equal to United States	0	0	0	0
Inferior to United States	14	16	16	16
U.S. Value	6.62	6.86	6.55	6.48

Source: *World Competitiveness Yearbook*

**TABLE 15: ENVIRONMENTAL REGULATIONS, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	1995	2000	2005	2011
Superior to United States	16	13	7	9
Equal to United States	1	0	1	1
Inferior to United States	0	4	9	7
U.S. Value	5.02	5.83	5.98	6.42

Source: *World Competitiveness Yearbook*

For bureaucratic hindrance, both the absolute and relative measures of the metric for the United States are essentially unchanged comparing 1995 to 2005. There is a slight improvement in both absolute and relative measures when comparing 2005 to 2010. The labor-market regulatory environment improved modestly comparing 1995 to 2000, although it is essentially unchanged from 2005 to 2011. There is a notable improvement in the effects of environmental regulation on the business sector comparing 1995 to 2005 with a slight worsening of the relative U.S. ranking from 2005-2011.

Table 16 reports assessments of whether the legal and regulatory frameworks encourage the competitiveness of enterprises on an overall basis. By this measure, the overall regulatory environment improved substantially in the United States relative to other OECD countries from 2000–2005; however, it deteriorated, if anything, in the post-2005 period, although the absolute U.S. value increases somewhat post-2005.

**TABLE 16: LEGAL/REGULATORY FRAMEWORK, OECD COUNTRIES RELATIVE TO THE UNITED STATES**

	2000	2005	2011
Superior to United States	14	5	6
Equal to United States	0	0	2
Inferior to United States	3	12	9
U.S. Value	5.62	5.54	6.02

Source: *World Competitiveness Yearbook*

## 5.4 Evidence from the World Bank

TABLE 17 REPORTS a well-known index of overall regulatory quality created and maintained by the World Bank.<sup>42</sup> The index is created from responses to surveys conducted by the World Bank covering a wide range of experts knowledgeable about business conditions in specific countries. The index captures an integrated perception of the ability of a national government to formulate and implement sound policies and regulations that permit and promote private-sector development. The responses summarized in table 17 provide perhaps the most dramatic indication of a deterioration of regulatory quality in the United States from 2005 to 2010. Specifically, while only four OECD countries scored higher on the World Bank Index in 2005, ten OECD countries scored higher in 2010.

TABLE 17: REGULATORY QUALITY, OECD COUNTRIES RELATIVE TO THE UNITED STATES

	1996	2000	2005	2010
Superior to United States	4	3	4	10
Equal to United States	1	2	3	0
Inferior to United States	12	12	10	7
U.S. Value	1.63	1.69	1.61	1.42

Source: World Bank

## 5.5 Effects of Regulation on Competition

THE ADVERSE EFFECTS of regulation on private-sector productivity are prominently linked to reductions in competition attributable to regulation. Evidence on whether and how government regulation is affecting the intensity of competition in domestic markets is potentially quite relevant to an assessment of the burden of regulation on a national economy.

In this regard, table 18 reports WEF evaluations of the intensity of competition in domestic markets for the United States and the 17 OECD countries. Table 18 strongly suggests a deterioration of the U.S. regulatory environment in recent years. It shows a substantial number of countries characterized by more competitive domestic environments than the United States in 2011, whereas there were none with more competitive environments in 2005.

42. For a discussion of the indicators reported by the World Bank, see D. Kaufmann, A. Kraay, and M. Mastruzzi, "Governance Matters: Governance Indicators for 1996–2004," (World Bank Policy Research Working Paper, No. 3630, World Bank, 2008).

TABLE 18: INTENSITY OF COMPETITION, OECD COUNTRIES RELATIVE TO THE UNITED STATES

	2005	2011
Superior to United States	0	9
Equal to United States	0	2
Inferior to United States	17	6
U.S. Value	6.28	5.61

Source: WEF, *Global Competitiveness Index*

## 5.6 Overall Summary

WHILE NOT UNIFORMLY the case, the preponderance of evidence reviewed in this section suggests that the burden of regulation on the private sector has increased in the United States relative to other OECD countries, at least since 2005.

## 6 THE EMPIRICAL RELATIONSHIP BETWEEN REGULATION AND PRODUCTIVITY

THIS SECTION ADDRESSES whether an increasingly onerous burden of regulation in the United States relative to other countries can be expected to reduce the international competitiveness of the U.S. economy. It is beyond the scope of our report to present new statistical evidence on this issue; however, there is an extensive empirical literature examining the relationship between government regulation and private-sector productivity. This literature provides substantial insight into the nature and strength of the effects of government regulation on productivity. In this section, we review and assess this evidence.

To anticipate our assessment, the available evidence links government regulation to decreasing productivity performance. The deteriorating regulatory environment in the United States post-2005 identified in section 5 should be a cause for concern for policymakers. It may be a contributor to recent decreases in U.S. economic performance relative to other countries and a harbinger of future international competitiveness problems for U.S. businesses.

### 6.1 Overview of the Evidence from Other Studies

OTHER LITERATURE PROVIDES an overall assessment of the effects of government regulation on national economic performance. These studies tend to conclude that overregulation contributes to lower productivity growth. Moreover, specific manifestations of regulation have been especially implicated, most particularly regulations that inhibit entry into product markets.<sup>43</sup> Differences in the stringency of government regulations in product markets, particularly the tight regulation of Information Communications Technology (ICT)-using service sectors, is a major

43. Crafts, "Regulation and Productivity Performance."

explanation of diverging productivity performances of OECD countries over the period covering the early 1990s through at least the mid-2000s.<sup>44</sup> One of the key ways inefficient service sector regulations affected productivity growth was by hindering the movement of resources toward the most dynamic and efficient firms.

Colecchia and Schreyer assert that widespread diffusion of ICT and the development of the ICT-producing industry are closely linked to a tradition of open and competitive markets for telecommunications services and to the liberalization of other product markets.<sup>45</sup> Specifically, Colecchia and Schreyer report the results of an analysis of 10 OECD countries showing that productivity growth differentials between the United States and European countries over the sample time period are at least partly explained by a larger and more productive ICT-producing sector in the United States.<sup>46</sup> Since TFP grew relatively rapidly in sectors such as semiconductors and computers, the U.S. economy benefited disproportionately. Its semiconductor and computer sectors account for a relatively large share of the U.S. economy compared to other economies.<sup>47</sup> While rapid productivity growth in ICT-producing industries partly reflects underlying developments in science and technology, Colecchia and Schreyer argue that the widespread diffusion of ICT, as well as the development of ICT-producing sectors, is closely linked to a tradition of open and competitive markets for telecommunications services in the United States.<sup>48</sup> Similarly, Arnold, Nicoletti, and Scarpetta conclude that tight regulation of services, especially in European Union countries, slowed down growth in ICT-using sectors.<sup>49</sup>

Tschoegl argues that the legal and regulatory system primarily affects the ability of domestic firms to compete internationally by inhibiting the ability of domestic firms to innovate.<sup>50</sup> He creates time-series measures of competitiveness from rankings in Euromoney's annual survey of foreign exchange market competitiveness from 1976 through 1995. Tschoegl finds that U.S. and U.K. banks achieved higher rankings than banks from Germany and Japan. He concludes that German and Japanese banks existed in a highly regulated and less competitive environment that discouraged innovation and market responsiveness.

44. Jens Arnold, Guiseppe Nicoletti, and Stefano Scarpetta, "Regulation, Allocation Efficiency and Productivity in OECD Countries" (OECD Department Working Papers, No. 616, OECD, Paris, France, 2008), <http://www.cepr.org/meets/wkcn/4/4562/papers/scarpetta.pdf>.

45. Alessandra Colecchia and Paul Schreyer, "ICT Investment and Economic Growth in the 1990s: Is the United States a Unique Case? A Comparative Study of Nine OECD Countries" (STI Working Paper 2001/7, OECD, Paris, France, 2001).

46. Ibid.

47. Jorgenson also discusses how ITC-producing industries were a major source of much of the acceleration in TFP growth in the United States after 1995. See Dale Jorgenson, "Introduction: Economic Growth in Canada and the United States in the Information Age," in *Economic Growth in Canada and the United States in the Information Age*, ed. D.W. Jorgenson (Ottawa: Industry Canada, 2004): 1–5.

48. Colecchia and Schreyer, "ICT Investment and Economic Growth in the 1990s."

49. Arnold, Nicoletti, and Scarpetta, "Regulation, Allocation Efficiency and Productivity in OECD Countries."

50. Adrian Tschoegl, "Country and Firm Sources of International Competitiveness: The Case of the Foreign Exchange Market," Wharton Financial Institutions Center, 1996.

Galindo, Schianterelli, and Weiss, like Tschoegl, conclude that financial liberalization promotes the development of financial markets by promoting competition.<sup>51</sup> Conversely, Delis, Molyneux, and Pasiouras argue that restrictions on banks' activities related to their involvement in securities, insurance, real estate, and ownership of nonfinancial firms had a positive effect on the productivity of banks in 22 countries over the period 1999–2006.<sup>52</sup> Notwithstanding this latter study, there is generally broad support for the conclusion that regulatory reforms that promote competition in product markets boost countries' productivity performance.<sup>53</sup> Several other statistical studies supporting this conclusion are summarized in table 19. For broad sectors of national economies and for different measures of productivity performance, the studies find that government regulation has a negative effect on productivity levels and growth rates.

**TABLE 19: STUDIES EXAMINING THE LINK BETWEEN PRODUCT MARKET REGULATION AND PRODUCTIVITY PERFORMANCE**

Author(s)	Sector	Country/Region	Measure of Performance	Effect of Regulations
Koedijk and Kremers <sup>54</sup>	Business	EU Countries (1981–93)	TFP growth	Negative
Nicoletti and Scarpetta <sup>55</sup>	Manufacturing and service	OECD Countries (1984–98)	TFP growth	Negative
Conway, de Rosa, Nicoletti, and Steiner <sup>56</sup>	Economy and services	OECD Countries (1978–2003)	Labor productivity	Negative

The balance of evidence also suggests that labor-market regulations discourage productivity growth. Table 20 summarizes the results of a number of econometric studies that examine the empirical link between labor-market regulation and productivity levels and growth across broad sectors of national economies. Most report a negative relationship, although the findings are somewhat nuanced. For example, Bassanini and Venn identify specific labor-market regulations that have positive

51. A. Galindo, F. Schianterelli, and A. Weiss, "Does Financial Liberalization Improve the Allocation of Investment? Micro Evidence from Developing Countries," (Working Papers in Economics no. 503, Boston College, Boston, MA, 2002).
52. Manthos D. Delis, Philip Molyneux, and Fatos Pasiouras, "Regulations and Productivity Growth in Banking," (MPRA Paper no. 13891, Munich Personal RePEc Archive, Munich, Germany, 2009), [http://mpa.ub.uni-muenchen.de/13891/1/MPRA\\_paper\\_13891.pdf](http://mpa.ub.uni-muenchen.de/13891/1/MPRA_paper_13891.pdf).
53. For reviews supporting this conclusion, see Colecchia and Schreyer, "ICT Investment and Economic Growth in the 1990s"; and Department for Business Enterprise and Regulatory Reform, "Impact of Regulation on Productivity" (BERR Occasional Paper no. 3, BERR, 2008).
54. K. Koedijk, and J. Kremers, "Market Opening, Regulation and Growth in Europe," *Economic Policy* 111, no. 23 (1996): 443–67.
55. Giuseppe Nicoletti and Stefano Scarpetta, "Regulation, Productivity and Growth: OECD Evidence," OECD Economics Department, 2003.
56. Paul Conway, Donato De Rosa, Giuseppe Nicoletti, and Faye Steiner, "Regulation, Competition and Productivity Convergence" (OECD Economics Working Papers no. 509, OECD, Paris, France, 2006), <http://www.kdi.re.kr/upload/7669/Nicolett-0502.pdf>.

effects on industrial productivity while others have negative effects on productivity.<sup>57</sup> Regulatory restrictions on employers' freedom to lay off employees or terminate employment seem to have particularly adverse consequences for productivity performance.

**TABLE 20: STUDIES EXAMINING THE LINK BETWEEN LABOR MARKET REGULATION AND PRODUCTIVITY PERFORMANCE**

Author(s)	Sector	Country/Region	Measure of Performance	Effect of Regulations
Koedijk and Kremers <sup>58</sup>	Business	EU (1981–93)	TFP growth	Negative
Gust and Marquez <sup>59</sup>	Business sector	Industrial countries (1992–99)	Labor productivity growth	Negative
Bassanini, Nunziata, and Venn <sup>60</sup>	All industries	OECD (1982–2003)	TFP	Negative
Hall, Propper, and Van Reenan <sup>61</sup>	Hospitals	England (1995/6–2002/3)	Output per worker	Negative
Autor, Kerr, and Kugler <sup>62</sup>	Manufacturing	United States (1970–99)	TFP	Negative
Storm and Naastepad <sup>63</sup>	All	OECD (1984–94; 1994–2004)	Growth in output per hour	Positive
Bassanini and Venn <sup>64</sup>	Various	OECD (1979–2003)	Growth and levels of TFP and labor productivity	Mixed

57. Andrea Bassanini and Danielle Venn, “Assessing the Impact of Labor Market Policies on Productivity: A Difference-in-Differences Approach” (OECD Social, Employment, and Migration Working Papers 54, OECD, Paris, France, 2007), <http://www.oecd.org/dataoecd/27/20/38797288.pdf>.

58. Koedijk and Kremers, “Market Opening, Regulation and Growth in Europe.”

59. Christopher Gust and Jaime Marquez, “International Comparisons of Productivity Growth: The Role of Information Technology and Regulatory Practices” (International Finance Discussion Papers no. 727, Board of Governors of the Federal Reserve System, Washington, DC, May 2002), <http://www.federalreserve.gov/pubs/ifdp/2002/727/ifdp727.pdf>.

60. Andrea Bassanini, Luca Nunziata, and Danielle Venn, “Job Protection Legislation and Productivity Growth in OECD Countries,” (IZA Discussion Paper no. 3555, Institute for the Study of Labor, Bonn, Germany, 2008), <http://ftp.iza.org/dp3555.pdf>.

61. Emma Hall, Carol Propper, and John Van Reenen, “Can Pay Regulation Kill? Panel Data Evidence on the Effect of Labor Markets on Hospital Performance” (CEP Discussion Paper no. 843, Centre for Economic Performance, London School of Economics, London, UK, 2008), <http://cep.lse.ac.uk/pubs/download/dp0843.pdf>.

62. David H. Autor, William R. Kerr, and Adriana D. Kugler, “Do Employment Protections Reduce Productivity? Evidence from U.S. States” (NBER Working Papers no. 14348, National Bureau Economic Research [NBER], Cambridge, MA, 2007), [http://www.nber.org/papers/w12860.pdf?new\\_window=1](http://www.nber.org/papers/w12860.pdf?new_window=1).

63. S. Storm and C. W. M. Naastepad, “Labor Market Regulation and Productivity Growth: Evidence for Twenty OECD Countries (1984–2004),” *Industrial Relations* 48, no. 4 (2009): 629–54.

64. Bassanini and Venn, “Assessing the Impact of Labor Market Policies on Productivity.”

The evidence is more ambivalent with respect to the relationship between environmental regulations and productivity performance. Echeverri-Carroll and Ayola interpret the available evidence as offering little support for the hypothesis that environmental regulations have had a large net adverse effect on competitiveness; however, they offer the caveat that this conclusion could change in the future if environmental regulations become more stringent.<sup>65</sup> While they acknowledge that the cost for U.S. businesses to comply with federal government regulations is sizable and has been growing rapidly, they assert that differences in environmental compliance costs have not yet had a consistent and serious effect on industrial competitiveness. Their broad conclusion is supported by several other surveys of empirical research on the effects of environmental regulation.<sup>66</sup>

Table 21 summarizes a number of econometric studies of the relationship between environmental regulation and productivity for overall manufacturing and for specific manufacturing sectors. The summary affirms that the available evidence is mixed with respect to the effect of environmental regulations on productivity performance. As with other forms of regulation, the effect of environmental regulations on private-sector productivity depends importantly on the precise nature of the regulations. In particular, regulations that significantly restrict competition tend to harm productivity performance.

**TABLE 21: STUDIES EXAMINING THE LINK BETWEEN ENVIRONMENTAL REGULATION AND PRODUCTIVITY PERFORMANCE**

Author(s)	Sector	Country/Region	Measure of Productivity	Effect of Regulations
Lanoie, Patry, and Lajeunesse <sup>67</sup>	Manufacturing	Quebec (1985–94)	TFP growth	Mixed
Berman and Bui <sup>68</sup>	Oil refining	Los Angeles (1979–92)	TFP growth	Positive
Greenstone, List, and Syverson <sup>69</sup>	Manufacturing	United States (1972–2000)	TFP level	Negative
Gray and Shadbegian <sup>70</sup>	Paper, oil and steel	United States (1979–85)	TFP growth and levels	Negative (compliance costs)

65. Elsie Echeverri-Carroll and Sofia Ayola, “Regulation and Competitiveness of U.S. Businesses,” University of Texas at Austin, LBJ School of Public Affairs, 2008.

66. Department for Business Enterprise and Regulatory Reform, “Impact of Regulation on Productivity.”

67. Lanoie, Patry, and Lajeunesse, “Environmental Regulation and Productivity.”

68. Eli Berman and Linda Bui, “Environmental Regulation and Productivity: Evidence from Oil Refineries,” *The Review of Economics and Statistics* 83, no. 3 (2001): 498–510.

69. Michael Greenstone, John List, and Chad Syverson, “The Effects of Environmental Regulation on the Competitiveness of U.S. Manufacturing” (working paper, U.S. Census Bureau, Washington, DC, 2011), <ftp://ftp2.census.gov/ces/wp/2011/CES-WP-11-03.pdf>.

70. Wayne B. Gray and Ronald J. Shadbegian, “Environmental Regulation and Manufacturing Productivity at the Plant Level” (NBER Working Paper no. 4321, NBER, Cambridge, MA, 1993), [http://www.nber.org/papers/w4321.pdf?new\\_window=1](http://www.nber.org/papers/w4321.pdf?new_window=1).

Empirical studies tend to confirm that government regulations of product and labor markets adversely affect both the level and growth rate of private-sector productivity. Since productivity is arguably the most meaningful indicator of international competitiveness, the available evidence lends support for concerns that increasingly burdensome government regulation in the United States will ultimately harm the international competitiveness of the U.S. economy. This interpretation of the empirical literature must be tempered by several observations. One is that a negative link between regulation and productivity performance is not consistently observed for all forms of regulation. Indeed, some specific regulations have been found to contribute to improved economic performance. For example, regulations that give creditors priority in receiving their claims on corporations encourage publication of more comprehensive and accurate financial statements, which contributes to better functioning financial systems.<sup>71</sup> A second caveat is that productivity performance is influenced by myriad factors not typically identified as government regulation. For example, marginal tax rates affect incentives to invest, and capital investment is an important influence on labor productivity. Third, the manner in which regulations are implemented and enforced can affect productivity performance, and this characteristic of regulation is difficult to measure.

## 6.2 Additional Evidence

BECAUSE THE EFFECTS of a more burdensome regulatory environment take time to actually materialize in reduced international competitiveness, more forward-looking measures of competitiveness should be linked to indicators of the regulatory environment. One potential forward-looking measure is the threat of companies relocating value-chain activities abroad. We correlated various regulatory measures from the World Competitiveness Yearbook with indices of threats to relocate production and R&D. For overlapping or approximately overlapping years, we correlated individual measures of U.S. regulatory quality with the reported likelihood of relocating production and R&D outside the United States. The relocation threat measures are the same as reported in tables 2 and 3 as “U.S. values.” In the case of most of the regulatory measures specified, there was a positive and statistically significant correlation between a more favorable regulatory environment and a reduced threat to relocate production across a sample of OECD countries.<sup>72</sup> The correlation coefficients between a more favorable regulatory environment and a lower threat to relocate R&D were also generally positive and statistically significant, although weaker than in the case of relocating production. In short, a less favorable U.S. regulatory environment has been linked to increased relocation threats in the past. The recent deterioration of the U.S. regulatory environment can be expected to motivate companies to consider additional relocation of activities in the future.

71. Levine, Loayza and Beck, “Financial Intermediation and Growth.”

72. Details of the correlation analysis are available from the authors upon request.

### 6.3 Summary

SINCE REGULATIONS VARY in their scope and nature of enforcement, it is not surprising that differences can be identified across studies regarding the effect of regulation on private-sector productivity. Nevertheless, the available statistical evidence, on balance, tends to show that regulations, particularly in product and labor markets, harm productivity performance. This heightens concerns about the increasing burden of regulation on the U.S. private sector identified in section 5. Of particular concern are proliferating regulations that increase barriers to new firm entry. Some evidence was discussed in section 5 identifying a decrease in competition in domestic markets in the United States. While the decrease cannot be directly linked to increased regulation, it is certainly plausible that a link exists. Moreover, even if the identified decrease in competition reflects factors other than more onerous regulation, a proliferation of additional regulations that attenuate competition even further would be a very unwelcome development for the U.S. economy.

The survey reported by Porter and Rivkin identifies increasingly inefficient regulation as an important factor encouraging companies to consider relocating outside the United States.<sup>73</sup> When respondents were asked the leading reasons for moving existing activities out of the United States, almost one-quarter cited fewer or less-expensive regulations in other countries. They also identified regulatory uncertainty and regulatory burden as prominent barriers to investing and creating jobs in the United States. Our correlation analysis identifies an empirical link between regulatory burden and threats to relocate value-chain activities, which supports the survey findings Porter and Rivkin report.<sup>74</sup>

In sum, while multiple factors can potentially encourage an improved performance of the U.S. economy, reducing the burdens and uncertainties of government regulation is prominent on the list. The evidence suggests that government regulation has raised strong concerns about the location attractiveness of the United States, and a failure to make regulation more conducive to efficient private-sector production will arguably soon be manifested in deteriorating objective measures of performance, including productivity.

## 7 SUMMARY, CONCLUSIONS, AND FUTURE RESEARCH

THIS REPORT SUMMARIZES and assesses evidence relating government regulation in the United States to the international competitiveness of the U.S. economy. It identifies economically relevant measures of international competitiveness and presents and assesses evidence on those measures. It discusses alternative measures of the burden of government regulation and presents evidence on how government regulation in the United States has changed over time relative to other OECD countries.

73. Porter and Rivkin, "Prosperity at Risk."

74. Ibid.

We find some indications of deteriorating relative U.S. economic performance. In particular, the relative attractiveness of the United States as an investment location appears to be weakening. Similarly, there are increasing threats of production being relocated outside the United States. While the United States continues to enjoy a productivity advantage relative to other OECD countries, the advantage seems to have weakened in recent years. In short, there are grounds for concern that the international competitiveness of the U.S. economy is deteriorating.

The available evidence also indicates that government regulation in the United States has become more onerous in recent years compared to other countries. A particular concern is that more onerous government regulation is contributing to reduced competition in U.S. domestic markets compared to competition in other countries. Our review of the literature identifies a strong positive link between competition, innovation, and productivity growth. This link supports a conclusion that more onerous product- and labor-market regulations in the United States will adversely affect productivity performance and other aspects of U.S. international competitiveness.

Future research might look more closely at the statistical relationship between different manifestations of government regulation and specific measures of international competitiveness. The literature suggests that alternative types of regulations may have different effects on the private sector's economic performance. The various measures of government regulation reported by league table sources constitute a source of data that might allow identification of the effects of specific regulations on the international competitiveness of countries. For example, models might be specified and estimated across countries and over time in which the dependent variable is productivity growth or some other measure of international competitiveness, and the independent variables include a measure of government regulation. League tables provide policymakers with information on the nature of government regulation in their country relative to other countries.

The goal of such research is to provide policymakers with insight into which specific manifestations of government regulation are particularly important contributors to future changes in international competitiveness. The type of empirical model outlined here might help make the widely available league table information concerning national regulatory regimes more useful to policymakers seeking to reduce the adverse effects of government regulation on the private sector.