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The Corporate Income Tax and the Competitiveness of U.S. Industries

MICHAEL S. KNOLL*

I. INTRODUCTION

The U.S. auto industry was hit hard by the financial crisis and recession that began in 2008. In 2009, it came to Washington, D.C., hat in hand, to ask Congress for a multi-billion dollar bailout.¹ Without that support, industry spokesmen said that one or more of the Big 3—General Motors (GM), Ford, and Chrysler—might not make it through 2009.² The industry received billions from Congress and they are still building and selling cars, although not as many as before the recession.³

Many reasons have been given for the U.S. auto industry's lack of competitiveness, including the U.S. tax system, especially the high U.S. corporate income tax rate.⁴ In comparison with our trading partners, the United States has a relatively high statutory corporate income tax rate. Among the thirty members of the Organisation for Economic Co-operation and Development (OECD), the United

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¹ Dee DePass, *Manufacturers Step on the Brakes; Producers Say the Recession Has Knocked Their Wheels Off, and the Nearest Tow Is at Least a Year Away*, Op.-Ed., *Star Trib.* (Minneapolis), Dec. 9, 2008, at 2D; Thomas H. Trimarco, *The Big Three: When Will They Ever Learn?*, *The Boston Globe*, Dec. 10, 2008, at A23.

² Ken Bensinger & Jim Puzanghera, *GM Raises the Stakes, Vows Cuts: The Carmaker Warns of Year-End Collapse as the Big 3 Submit Plans to Restructure and Seek Billions More from U.S.*, *L.A. Times*, Dec. 3, 2008, at A1; Sharon Silke Carty, *Automakers Ask for Billions in Loans, Credit; Two Say They're Nearly Out of Money*, *USA Today*, Dec. 3, 2008, at 1B.

³ See Bill Vlasic, *Detroit Goes from Gloom to Economic Bright Spot*, *N.Y. Times*, Aug. 14, 2010, at A1; Nick Bunkley & Bill Vlasic, *General Motors Files for an Initial Public Offering*, *N.Y. Times*, Aug. 19, 2010, at B1; David Shepardson, *Obama Wants a Bank Tax to Recoup Funds*, *Detroit News*, Jan. 15, 2010, at B6; Timothy F. Geithner, Op.-Ed., *Welcome to the Recovery*, *N.Y. Times*, Aug. 3, 2010, at A23.

⁴ William McGurn, *What's Good for GM Could Be Good for America*, *Wall St. J.*, Dec. 2, 2008, at A17 (stating that taxes and health-care expenses make U.S. companies less competitive); see IRC § 11 (35% federal statutory corporate income tax rate on incomes over \$18,333,333).

States has the second highest statutory corporate income tax rate after Japan.⁵

Not surprisingly, business interests have long sought lower corporate tax rates, claiming that lower rates will improve U.S. competitiveness.⁶ Although the argument that the high U.S. corporate income tax rate hurts competitiveness resonates around the country and across party lines,⁷ there seems to have been little serious attention devoted to understanding the mechanism(s) through which the corporate income tax reduces the competitiveness of U.S. corporations.

The most likely explanation for such a gap is that economists (many of whom have studied the corporate income tax) generally eschew talk of competitiveness, because "competitiveness" is not a precisely defined term in economics.⁸ Yet, the public dialogue about taxes is filled with talk of competitiveness.⁹ My purpose in this Article is to bridge the gap between economic scholarship and public discourse by explaining how the corporate income tax affects competitiveness. Although I use the U.S. auto industry as an example, the analysis and

⁵ Tax Found., Tax Data: OECD Nations Continue Cutting Corporate Tax Rates While U.S. Stands Still: Federal Plus Provincial/State Corporate Tax Rates for OECD Countries, 2007 and 2008 (2008), http://www.taxfoundation.org/files/corptaxrates_oecd_change2007-2008-20080813.pdf (including state and provincial taxes, the combined tax rate in Japan was 39.54% in 2008, whereas the combined tax rate in the United States is 39.25%). Although U.S. corporate tax rates are high relative to the rest of the world, the corporate income tax accounts for an ever decreasing portion of federal revenues. For decades, corporate tax revenues as a share of total tax revenues have been declining. See Budget of the United States, Historical Tables 32 (2008), <http://www.whitehouse.gov/omb/budget/fy2009/pdf/hist.pdf> (Table 2.2—Percentage Composition of Receipts by Source: 1934-2013). Although the top statutory U.S. corporate tax rate is 35%, the average tax rate (the total paid as a share of total income) is much lower, around 24%. See Ryan J. Donmoyer & Peter Cook, Rangel Plans Push to Cut Top Corporate Tax Rate to 28%, Bloomberg.com, Nov. 15, 2008, <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=AG7ISuB.yyII>. However, low effective tax rates combined with high marginal tax rates cannot be ideal because such taxes raise little revenue, but create large distortions.

⁶ See Peggy Brewer Richman, *The Taxation of Foreign Investment Income: An Economic Analysis* 4-10 (1963); Peggy B. Musgrave, *United States Taxation of Foreign Investment Income* 119 (1969).

⁷ In 2008, Rep. Charles Rangel (D-NY), at the time the chairman of the House Ways and Means Committee, called for cutting the top corporate income tax rate from 35% to 28% in order to improve the competitiveness of U.S. corporations. Donmoyer & Cook, note 5 (referring to a study by Ernst & Young that found U.S. corporations paid tax at an average effective rate of 23.7%). During the 2008 presidential campaign, candidate Barack Obama signaled his openness to such a reduction. See Nelson D. Schwartz & Steve Lohr, *Looking for Swing Votes in the Boardroom*, N.Y. Times, Aug. 17, 2008, at BU1.

⁸ See Samuel Brittan, "Competitiveness" Rears its Ugly Head, *Fin. Times* (London), Aug. 31, 2007, at 11 (discussing how politicians, business leaders, and even economists use the term "competitiveness" indiscriminately).

⁹ See Edmund L. Andrews, *Paulson Says U.S. Is Hurt by High Tax Rates*, N.Y. Times, July 25, 2007, at C5; C. Fred Bergsten, Editorial, *A Clear Route to Recovery: Exports*, Wash. Post, Feb. 3, 2010, at A15; Newt Gingrich & Dan Varroney, *Hoping for Change: Americans Still Need Jobs*, Chi. Trib., July 13, 2010, at C15.

conclusions are general. They apply to other industries and even to other countries that have a classic corporate income tax.¹⁰

This Article proceeds as follows.¹¹ I begin the next Part by describing what it means for an industry to be domestic and then I describe what it means for a domestic industry to be competitive. I show that there are two different definitions for the domestic industry in general use and that each definition is associated with a different notion of competitiveness. In Parts III and IV, I show that the mechanism through which the corporate income tax affects competitiveness differs depending upon how the domestic industry is defined. In Part V, I provide a diagrammatic representation of the results presented in Parts III and IV. Part VI concludes.

II. DEFINING "COMPETITIVENESS" AND "A DOMESTIC INDUSTRY"

Competitiveness is an often used, but rarely defined term.¹² It has been called a dangerous obsession¹³ and the hot-button issue in debates over international tax policy,¹⁴ yet it lacks a clear and specific meaning. Competitiveness can mean different things to different people and at different times. It also can apply at different levels of the economy. Competitiveness is sometimes said to be a characteristic of

¹⁰ A classic corporate income tax is one where the corporate income tax is separate and apart from the individual income tax. In addition, although this is not always part of the definition of a classic corporate income tax, but it is important to generate the results described below, foreign corporate taxes do not generate foreign tax credits for the individual investors, who are the ultimate owners.

¹¹ This Article is part of a larger project on taxes and competitiveness. The first paper in that series is Michael S. Knoll, *Taxes and Competitiveness* (U. of Penn., Inst. for Law & Econ., Research Paper No. 06-28, 2006), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=953074 [hereinafter *Taxes and Competitiveness*]. Other papers in the series include: Michael S. Knoll, *Taxation and the Competitiveness of Sovereign Wealth Funds: Do Taxes Encourage Sovereign Wealth Funds to Invest in the United States?*, 82 S. Cal. L. Rev. 703 (2009) [hereinafter *Sovereign Wealth Funds*]; Michael S. Knoll, *The UBIT: Leveling an Uneven Playing Field or Tilting a Level One?*, 76 Fordham L. Rev. 857 (2007) [hereinafter *UBIT*]; Michael S. Knoll, *International Competitiveness, Tax Incentives, and a New Argument for Tax Sparing: Preventing Double Taxation by Crediting Implicit Taxes* (U. of Penn., Inst. for Law & Econ., Research Paper No. 08-21, 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1259927 [hereinafter *Tax Sparing*]; Michael S. Knoll, *Business Taxes and International Competitiveness: Understanding How Taxes Can Distort Ownership and Designing a Nondistortive International Tax System, in Dimensions of Competitiveness 207* (Paul De Grauwe, ed. 2010); Michael S. Knoll, *Reconsidering International Tax Neutrality* (U. of Penn., Inst. for Law & Econ., Research Paper No. 09-16, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1407198 [hereinafter *Reconsidering*].

¹² See Paul Krugman, *Competitiveness: A Dangerous Obsession*, *Foreign Affairs*, Mar.-Apr. 1994, at 28.

¹³ *Id.*

¹⁴ Daniel N. Shaviro, *Decoding the U.S. Corporate Tax 133* (2009).

firms, of industries, or even of entire countries.¹⁵ It has the most familiar ring when it applies to industries or sectors, as in the phrase "the competitiveness of the U.S. auto industry." Accordingly, throughout this Article, I use the term "competitiveness" as a characteristic of a national industry.

Before I talk further about "competitiveness," however, I discuss what it means for an industry to be a national industry. Politicians, the press, and commentators often speak of the "U.S. auto industry" without being clear what they mean.¹⁶ There are at least two alternative definitions for the "U.S. auto industry."

Under the most colloquial and frequently used sense of the term, the U.S. auto industry is the U.S.-based and U.S.-incorporated automobile companies—the Big 3. The operations of the Big 3 are not confined to the United States. They are multinational corporations (MNCs) with operations in many countries.¹⁷ Under this definition, the U.S. auto industry comprises the global output of the Big 3 automakers.¹⁸

Under a second definition, the U.S. auto industry is the total production of automobiles in the United States without regard to the nationality of the producing company.¹⁹ The U.S. auto industry, then, is the total output of automobiles in the United States by U.S.- and foreign-based automakers.

Figure 1 illustrates these two definitions of the U.S. auto industry. The first definition (total auto production by U.S.-based automakers)

¹⁵ For a thoughtful review of the literature on competitiveness with an emphasis on the wide range of different definitions employed in the literature, see Eckhard Siggel, *International Competitiveness and Comparative Advantage: A Survey and a Proposal for Measurement*, 6 J. Indus. Competition & Trade 137, 140-48 (2006).

¹⁶ See, e.g., Michael Brocker, *German Makes Continue to Surge in U.S. Auto Market*, Philadelphia Inquirer, Aug. 12, 2010, at C01; Michael Hiltzik, *Dealers Need a Co-Signer: Congress*, L.A. Times, July 16, 2009, at B1; Jerry Hirsch, *Carmakers Ramping Up Ranks—U.S. Auto Industry Expects Growth in Home Construction and, Therefore, Vehicle Sales*, Chi. Trib., Jan. 19, 2010, at 19; Nelson D. Schwartz, *World Leaders Wary of U.S. Economic Measures*, N.Y. Times, Feb. 2, 2009, at B6; David Shepardson, *Obama Applauds U.S. Auto Industry*, Detroit News, Aug. 6, 2010, at A17; Peter Whoriskey, *At Detroit Auto Show, Washington Gets Close-Up Look at its Investment—Pelosi Applauds New Product Lines, Industry "Renaissance"*, Wash. Post, Jan. 12, 2010, at A12.

¹⁷ Although their overseas operations have been contracting, the Big 3 are all still MNCs. See Heather Timmons, *In Overhaul, G.M. May Look to its Far-Flung Arms*, N.Y. Times, June 4, 2009, at B4; Editorial, *So Far So Good*, N.Y. Times, May 18, 2009, at A22; Bill Vlasic, *G.M. Is to Sell Hummer to a Chinese Company*, N.Y. Times, Oct. 10, 2009, at B7.

¹⁸ Many cars sold in the United States, whether they bear a U.S. or foreign nameplate, are made partly in the United States and partly abroad. Ashley Fantz, *What Makes a Car American?*, CNN.com, Dec. 12, 2008, <http://www.cnn.com/2008/US/12/12/american.cars/>.

¹⁹ See Robert B. Reich, *Who Is Us?* Harv. Bus. Rev. Jan.—Feb. 1990, at 53, 53-64. For a critique of Reich's analysis, see Laura D'Andrea Tyson, *They Are not Us: Why American Ownership Still Matters*, Am. Prospect 37 (Winter 1991).

is given by the shaded rectangle entitled *Big 3 Auto Production*. The second definition is represented by the rectangle entitled U.S. auto production and marked by hash marks.

FIGURE 1
TWO DEFINITIONS OF THE U.S. AUTO INDUSTRY

As is clear from Figure 1, there are two major differences between the two definitions of the U.S. auto industry. The first definition (total global production of U.S. automakers) includes the foreign production of the Big 3 within the U.S. auto industry, which the second definition (total auto production in the United States by all automakers) excludes (the shaded rectangle and without hash marks). The second definition includes the U.S. production of foreign automakers, such as Toyota, BMW and Kia, within the scope of the U.S. auto industry, which the first definition excludes (the unshaded rectangle with hash marks).²⁰

²⁰ Foreign-based auto companies now produce more than half of the cars that Americans buy, with many of those cars produced in whole or part within the United States. Editorial, *America's Other Auto Industry*, Wall St. J., Dec. 1, 2008, at A22. Under the location-based definition of the U.S. auto industry, a car produced in part in the United

Neither definition of the U.S. auto industry is right or wrong. Both are plausible definitions of that industry and both definitions are in regular use.²¹ For the purpose of this Article, what is significant about the two definitions of the U.S. auto industry is that the impact of the corporate income tax on the competitiveness of the U.S. auto industry and the mechanism through which that effect occurs depends on how the U.S. auto industry is defined.²²

That brings us to the search for a definition for "competitiveness." A plausible broad working definition of competitiveness is as follows: An industry is competitive if it can attract large amounts of capital and labor at attractive rates and can combine that capital and labor efficiently into a product that it can (profitably?²³) sell at the market price. Using such a broad definition, it is obvious that many factors go into making an industry competitive, including a well-educated and highly productive work force, access to advanced technology, a solid command of manufacturing techniques, a committed and efficient management, the ability to attract capital at low cost, good labor-management relations, and savvy marketing. Many of those factors, however, are either unrelated to or are only tangentially related to taxation. One factor that is directly affected by taxation is an industry's ability to attract capital at favorable rates. Thus, in order to understand how the corporate income tax affects the competitiveness of the U.S. auto industry we need to answer the following narrower question: What effect does the corporate income tax have on the ability of the U.S. auto industry to raise capital? The answer to that question depends in part on which definition of the U.S. auto industry is used.²⁴

Under the first definition, the U.S. auto industry is defined as the global operations of the Big 3 automakers. Viewed from such a per-

States and in part elsewhere is the product of more than one auto industry. In effect, the value added in each country is the output of each national industry. For expositional purposes, I largely ignore complications that arise when automakers produce a car in two or more countries. I also ignore the role of independent suppliers.

²¹ See *id.*

²² The analysis and discussion that follow assume that the Big 3 would pay U.S. corporate income tax on any future income. These three companies have reported staggering losses over the years. See, e.g., Zachery Kouwe & Louise Story, *Big Three's Troubles May Touch Financial Sector*, N.Y. Times, Nov. 24, 2008, at B1; Matthew Dolan, John D. Stoll & Joshua Mitchell, *Auto-Industry Crisis, Job Losses Test Obama*, Wall St. J., Nov. 8, 2008, at A1. Any income earned for many years would not be taxed until those loss carryforwards were used or expired. See IRC § 172. In effect, the Big 3 are tax-exempt. However, they might not have been viewed as effectively tax-exempt when they raised funds and made investments.

²³ See note 22.

²⁴ Thus, this Article does not look at how taxation can affect competitiveness through other routes, such as through the accumulation of knowledge or through the labor market.

spective, the U.S. auto industry competes with other national auto industries where each nation's industry is constituted by the automakers based in that country. Thus, the Japanese auto industry is the global production of Toyota, Nissan, Honda, and the other car companies based in Japan. Similarly, the German auto industry is the global production of Volkswagen, Mercedes-Benz, and the other car companies based in Germany. Those industries compete with one another globally and locally. For example, U.S., Japanese, and German auto companies compete with one another to produce and sell cars around the world and in specific markets, including the United States. Thus, the first definition of a domestic industry focuses on ownership. Under that definition, the U.S. auto industry comprises all of the productive assets owned by U.S.-based auto companies whether in the United States or elsewhere.²⁵

Because the first definition of the U.S. auto industry focuses on the nationality of the company that sells the car, not where the car is produced, the competition between U.S., Japanese, and German auto companies can be visualized as competition to acquire control over productive assets located in different locations.²⁶ Under this view, the various national auto industries compete, for example, to own an auto plant in Canada. Viewed from such a perspective, a national industry is more competitive than its rivals if it acquires the Canadian plant. Taxation, then, affects competitiveness through its impact on the ownership of productive assets.²⁷ Thus, the U.S. corporate income tax will adversely affect the competitiveness of the U.S. automotive industry if it reduces the incentive for the Big 3—relative to their foreign competitors—to own automobile-producing assets.²⁸ If the corporate income tax discourages U.S. firms from owning automotive assets, then

²⁵ The implicit assumption that a company has a nationality that can be identified is not without controversy. See note 31.

²⁶ Competition over where cars are produced falls under the second definition.

²⁷ See Knoll, *Sovereign Wealth Funds*, note 11, at 7-9.

²⁸ Viewed from such a perspective, competitiveness bears a familiarity to the notion of capital ownership neutrality, which is closely associated with the work of Mihir Desai and James Hines. See Mihir A. Desai & James R. Hines, Jr., *Evaluating International Tax Reform*, 56 *Nat'l Tax J.* 487 (2003); Mihir A. Desai & James R. Hines, Jr., *Old Rules and New Realities: Corporate Tax Policy in a Global Setting*, 57 *Nat'l Tax J.* 937 (2004); Mihir A. Desai, *New Foundations for Taxing Multinational Corporations*, 82 *Taxes*, Mar. 2004, at 39. The term capital ownership neutrality was coined by Michael Devereux in an unpublished working paper. See Michael P. Devereux, *Capital Export Neutrality, Capital Import Neutrality, Capital Ownership Neutrality, and All That* (Inst. for Fisc. Stud. 1990) (unpublished manuscript on file with the author). It is also similar to the notion of capital import neutrality as originally described by Peggy Musgrave. See Richman, note 6, at 8; Musgrave, note 6, at 119. For the argument that capital import neutrality has been and still regularly is used in two inconsistent ways, one of which is closely related to capital ownership neutrality, see Knoll, *Reconsidering*, note 11.

the corporate income tax directly reduces the competitiveness of the U.S. auto industry; otherwise, it does not.

Under the second definition, the U.S. auto industry is defined as the production of automobiles within the United States without regard to the nationality of the producing firms. The U.S. auto industry, then, includes the domestic production of the Big 3 as well as the U.S. production of foreign automobile makes and models. Viewed from such a perspective, the U.S. auto industry competes with foreign auto industries where each national industry is defined by the auto production occurring within that country regardless of the nation in which the firms that conduct those activities are based. For example, the German auto industry comprises the production of cars in Germany, including the domestic production of German car companies and the German production of non-German nameplates, including that of the Big 3 and the Japanese carmakers. Thus, the second definition of a domestic industry focuses on the location of assets. Under that definition, the U.S. auto industry comprises all automobile-producing assets located in the United States.

Viewed from this perspective, the competition that takes place between the U.S., German, and Japanese auto industries takes the form of competition to produce more cars within each country. Because auto production is a highly capital-intensive activity, that competition takes the form of competing to attract capital.²⁹ The corporate income tax, then, affects competition through its impact on investment in auto production in different countries.³⁰ Thus, the U.S. corporate income tax reduces the competitiveness of the U.S. automobile industry if it discourages investment in automobile production in the United States relative to investment in such production abroad. If the U.S. corporate income tax discourages production in the United States, then it directly reduces the competitiveness of the U.S. auto industry; otherwise, it does not.

In the next two Parts, I examine the impact of the corporate income tax on the U.S. auto industry under the two different notions of the competitiveness of the industry described above. For each definition of the U.S. auto industry, I describe how the corporate income tax directly affects competitiveness. In each case, I describe the mechanics through which that effect occurs and under what circumstances it occurs.

²⁹ The competition for capital is usually visualized as being for private capital, not government financing. Government financing at nonmarket terms is appropriately excluded from the analysis because it is at most tangentially connected to the corporate income tax.

³⁰ Viewed from such a perspective, competitiveness is similar to the notion of capital export neutrality. See Knoll, *Reconsidering*, note 11, at 16-20.

III. TAXES AND COMPETITIVENESS OF DOMESTICALLY-BASED MNCs

In the last Part, I described two alternative ways of defining a domestic industry—the global production of domestically-based producers³¹ and the domestic production of all producers regardless of where they are based. In that Part, I also described the link between the corporate income tax and the competitiveness of the domestic industry under each definition. Under the first definition, the corporate income tax hurts competitiveness if it discourages investment by domestically-based firms relative to foreign-based firms. Thus, the first definition focuses on the ownership of assets. Under the second definition, the corporate income tax hurts competitiveness if it discourages investment in the taxing country relative to investment abroad. Thus, the second definition focuses on the location of investment. In this Part, I assess the impact of the corporate income tax on the ownership of automotive assets by domestically-based and foreign-based corporations. In the next Part, I look at the impact of the corporate income tax on the location of that investment.

Under the first definition, the U.S. auto industry comprises the global production of U.S.-based automakers—the Big 3. Taxation affects the competitiveness of that industry by influencing whether the U.S. auto industry or its foreign rivals own specific assets. The impact of taxation on the ownership of assets depends upon whether the competition is among entities that raise the capital they invest from investors or among investors who invest their own capital. When the competition takes place among investors, each investor compares the after-tax rate of return on alternative investments to the after-tax rate of return on the investment under consideration.³² An investor is at a

³¹ In which jurisdiction a firm is based is not always an easy question to answer unambiguously. Under U.S. tax rules, a corporation's home is the state where it is incorporated. IRC § 7701(a)(4), (5). Many other countries use a facts-and-circumstances approach to determine a corporation's home for tax purposes. Such an approach makes tax planning more difficult, and it does not always yield clear answers. See generally Mitchell Kane & Edward Rock, *Corporate Taxation and International Charter Competition*, 106 Mich. L. Rev. 1229 (2008).

³² One way to view the difference between entities and investors is that entities specialize in their investments whereas investors tend to hold diversified portfolios so as to reduce risk. Accordingly, when assets are differentially taxed, investors trade off risk and return. The after-tax capital asset pricing model (CAPM) describes how differential taxes across assets and investors affect portfolio choices. The after-tax CAPM was first described by Michael Brennan. M.J. Brennan, *Taxes, Market Valuation and Corporate Financial Policy*, 23 Nat'l Tax J. 417 (1970). It was subsequently expanded and applied by, among others, David Bradford, Roger Gordon, David Guenther, and Richard Sansing. Roger H. Gordon & David F. Bradford, *Taxation and the Stock Market Valuation of Capital Gains and Dividends*, 14 J. Pub. Econ. 109 (1980); David A. Guenther & Richard Sansing, *The Effect of Tax-Exempt Investors and Risk on Stock Ownership and Expected Returns* (2008) (unpublished manuscript, on file with the author). It was first used to study international tax policy by Mihir Desai and Dhammika Dharmapala. Mihir A. Desai & Dhammika

tax-induced disadvantage only when the ratio of the investor's after-tax rate of return for the investment under consideration to the same investor's after-tax rate of return on alternative investments is below that same ratio for competing investors. It thus follows, that an investor is not at a tax-induced disadvantage in the competition to acquire a specific asset simply because that investor is taxed more heavily than his competitors on the income from that asset. Instead, the first investor is only at a tax disadvantage if he is taxed more heavily than his rivals on the investment relative to alternative investments (commonly called the benchmark asset or benchmark portfolio).³³

When, however, the competition takes place among entities that raise capital to invest—as opposed to investors who allocate their own investment capital—tax considerations favor investing through the lowest-taxed entity.³⁴ When an investment is made through a highly-taxed entity, a higher tax burden is imposed on that investment than when the investment is made through a lightly-taxed entity. That is to say, when the competition is among entities, absolute levels of taxation determine which entity has a tax-induced advantage in competitiveness. (In contrast, when the competition is across investors, relative levels of taxation determine who has a tax-induced advantage.) Thus, the competition among corporations to acquire assets depends upon absolute as opposed to relative tax rates.

From a tax perspective, what distinguishes corporations from other investment entities is that corporations are taxed separately from their investors.³⁵ The corporate income tax is assessed on the corporation's income and the liability is paid out of corporate assets. Corporate income is not included on the investor's return and corporate taxes are not considered to be paid by the individual investor.³⁶ Accordingly, because corporations are separately taxed entities, the corpo-

Dharmapala, *Investor Taxation in Open Economies* (2009) (unpublished manuscript), available at http://www.columbia.edu/null/download?&exclusive=filemgr.download&file_id=162914 (last visited Sept. 14, 2010). I subsequently applied the after-tax CAPM to examine how tax policy affects the competition between sovereign wealth funds and private investors for different investments. Knoll, *Sovereign Wealth Funds*, note 11, at 7-17.

³³ I make this argument in Knoll, *Taxes and Competitiveness*, note 11, at 12-17, and apply it in Knoll, *UBIT*, note 11, at 6-12, and Knoll, *Sovereign Wealth Funds*, note 11, at 7-9.

³⁴ When the entity is taxed, but the income earned and the taxes paid by the entity are attributable to the investor or are creditable as with the indirect foreign tax credit, IRC §§ 902, 960, then the entity is effectively an untaxed pass-through entity for tax purposes.

³⁵ In the tax literature, this is referred to as a classic corporate income tax. Corporate income is taxed twice: once at the level of the individual and then again at the level of the investor. IRC §§ 1, 11, 61.

³⁶ Some jurisdictions integrate the corporate and individual taxes. There are two basic ways to do this. If the investor is exempt, tax is assessed at the corporate level. If the investors receive a tax credit for the tax paid by the corporation, then the tax is effectively assessed at the investor level.

rate income tax operates as a toll charge on investments made through corporations.³⁷ Thus, when the toll charge differs across companies (because tax rates differ), the corporate income tax affects competitiveness. Companies that pay a higher effective corporate income tax rate than their competitors are at a tax-induced disadvantage in competitiveness, and conversely. In effect, the higher tax rate raises the company's hurdle rate on new investments. That is because the before-tax return on the investment pays both the corporate tax and the investor, who presumably requires the same after-tax return regardless of the entity through which the investment is made. Thus, a higher corporate tax burden directly translates into a higher hurdle rate for investments.

As a result, the effect of the corporate income tax on competitiveness depends upon where income arises.³⁸ For investments that produce income in the United States, the U.S. corporate income tax is assessed on that income whether the parent corporation is a U.S. or a foreign corporation.³⁹ Thus, when it comes to acquiring productive assets in the United States, the U.S. corporate income tax does not disadvantage U.S.-based firms relative to their foreign-based rivals.⁴⁰ That is so even when the U.S. corporate income tax rate exceeds foreign rates.

For investments that produce income outside of the United States, however, the U.S. corporate income tax disadvantages U.S.-based corporations relative to their foreign-based counterparts.⁴¹ Because the United States taxes U.S.-based corporations on their worldwide income, U.S. corporations pay U.S. tax on their foreign source income.⁴²

³⁷ I make this argument in Knoll, *Business Taxes*, note 11, at 11-12, and Knoll, *Taxes and Competitiveness*, note 11, at 18-19. A similar argument is made by Devereux, note 28.

³⁸ There are elaborate and complex source rules that determine what jurisdiction has the primary right to tax a given income stream.

³⁹ IRC § 11, 881(a), 882(a).

⁴⁰ The discussion in the text ignores any difference in the ability of U.S.-based and foreign-based companies to set internal transfer prices in a manner that reduces taxes. For an introduction to transfer pricing, see Brian J. Arnold & Michael J. McIntyre, *International Tax Primer* ch. 4 (2d ed. 2002).

⁴¹ Foreign and domestic investments are widely assumed to be substitutes. There is, however, some evidence that they are complements. See Mihir A. Desai, C. Fritz Foley & James R. Hines, Jr., *Domestic Effects of the Foreign Activities of US Multinationals* 5 (Div. of Research, Harvard Bus. School, Working Paper, 2008), available at <http://www.people.hbs.edu/ffoley/fdidomestic.pdf>. That is to say, more efficient firms invest more everywhere. If that is right, the U.S. reliance on a worldwide corporate income tax will disadvantage U.S. firms not only with respect to their foreign investments, but also will disadvantage them with respect to their domestic investments.

⁴² IRC § 11 (not limiting taxable corporate income to U.S. source income). Although the United States is often said to come closer to a pure worldwide tax system than almost any other country, the U.S. tax system falls short of that ideal by not having an unlimited foreign tax credit and by deferring taxation on some classes of foreign income.

To avoid double taxation, U.S. taxpayers receive a foreign tax credit (FTC) for taxes paid to foreign governments on their U.S. source income.⁴³ That credit, however, is limited to the U.S. tax that would have been paid on that income.⁴⁴ Thus, when it comes to making investments in overseas assets, the U.S. corporate income tax imposes an additional or incremental tax.⁴⁵ That tax disadvantages U.S. corporations relative to foreign corporations that do not pay any additional tax on their foreign source income.⁴⁶

In general, the disadvantage that a U.S.-based corporation faces abroad is greater the lower the tax rate imposed by the host jurisdiction relative to the rate imposed by the United States.⁴⁷ Thus, the disadvantage is likely to be large when the host jurisdiction uses tax incentives to attract foreign investment. When offered to U.S.-based corporations, such incentives ultimately will end up in the U.S. treasury. In contrast, when offered to foreign-based corporations that are not taxed on a worldwide basis, those tax incentives will likely rebound to the benefit of the recipient firms.⁴⁸

As suggested immediately above, the disadvantage U.S.-based MNCs face in the competition to acquire foreign assets is not inherent in the corporate income tax. Instead, the disadvantage is a result of the United States taxing the worldwide income of U.S.-based corporations. Many countries do not tax their domestic corporations' worldwide income, choosing instead to tax only the income earned within the jurisdiction. Jurisdictions that do not tax the foreign source income of their residents and domestically-based corporations are said to employ a source-based or a territorial tax system. It follows that if the United States were to adopt a territorial tax system and stop tax-

⁴³ IRC § 901.

⁴⁴ IRC § 904.

⁴⁵ Under some circumstances, U.S.-based corporations will have an advantage in the competition to acquire foreign assets. Specifically, when the U.S. corporate tax rate is below the foreign corporate tax rate and the foreign taxes are fully creditable in the United States, then U.S.-based firms will value the assets more highly than domestic firms. In effect, the toll charge has become a subsidy. See J. Clifton Fleming, Jr., Robert J. Peroni & Stephen E. Shay, *Some Perspectives from the United States on the Worldwide Taxation vs. Territorial Taxation Debate*, 3 J. of Australasian Teachers Assn. 35, 35-36 (2008), available at http://www.atax.unsw.edu.au/atta/jatta/jattavol3no2/1_jatta_vol3_no2.pdf.

⁴⁶ Deferral reduces but does not eliminate that disadvantage. Moreover, because of the possibility of using FTCs earned in one country to offset tax on the income earned in another country, it therefore follows that for any specific investment the U.S. corporation might have either an advantage or disadvantage relative to foreign competitors. It is, however, likely because the United States collects revenue on foreign source income that on average U.S. corporations are disadvantaged by the corporate income tax. Moreover, the enactment of any proposals that would reduce deferral would reduce the competitiveness of U.S.-based MNCs abroad.

⁴⁷ See Knoll, *Tax Sparing*, note 11, at 11-17.

⁴⁸ *Id.* at 9.

ing the foreign source income of U.S. corporations, it could eliminate the disadvantage described above. In such circumstances, the U.S. corporate income tax would no longer operate as a toll charge on U.S. corporations investing abroad.⁴⁹

The United States does not have to go as far as adopting a pure territorial tax system in order to eliminate the disadvantage faced by U.S. corporations. No country uses either a pure worldwide or a pure territorial tax system; most countries use hybrid tax systems that combine elements of both systems.⁵⁰ Many countries employ a hybrid that taxes active income on a territorial basis and passive income on a worldwide or residence basis. In practice, such an approach often results in taxing corporate income at source and individual income at the investor's residence.⁵¹ Accordingly, if the United States were to adopt such a hybrid, the U.S. corporate income tax would not operate as a toll charge on foreign source income and U.S.-based corporations would not be disadvantaged when investing overseas.⁵²

The Obama Administration, however, is not trying to move the U.S. international tax system into closer alignment with those of our major trading partners. Instead, the Administration says that it wants to tighten worldwide taxation by reducing deferral, which would move our international tax system further away from those of our trading partners.⁵³ If enacted and enforced, such a policy would increase the toll charge from making overseas investments through U.S. compa-

⁴⁹ Fleming et al., note 45, at 36-37. The logic for taxing passive income on a residence basis is that such income has no clear source and can easily be made to seem to have whatever source is desired. Accordingly, most countries with territorial tax systems tax passive income on a residence basis. See Hugh J. Ault & Brian J. Arnold, *Comparative Income Taxation: A Structural Analysis* 372-75, 378 (2d ed. 2004); Fleming et al., note 45, at 85.

⁵⁰ Fleming et al., note 45, at 36-37.

⁵¹ See Reuven Avi-Yonah, *International Tax as International Law* 11-13 (2007).

⁵² See Knoll, *Business Taxes*, note 11, at 18-19. The analysis is different and simpler when the entity is not taxed, but is instead treated as a pass-through entity. (An entity can be a pass-through because the entity is not taxed or because the investor includes entity income on his personal return and treats the entity's tax liability as a tax payment on his own behalf. In the United States, partnerships, limited liability companies (LLCs), and S corporations are examples of the first type of pass-through. The indirect FTC, which in the United States only applies when a U.S. corporation owns at least 10% of the stock of a foreign corporation from which it has received a dividend, is an example of the second.) See IRC § 701, 902(a), 1363(a); Reg. § 301.7701-2(c), -3(b). In that case, the individual investor's tax rate is the only relevant tax rate. Moreover, differences in relative tax rates do not distort ownership as long as tax rates are equal across investments.

⁵³ See Robert Carroll, *The Importance of Tax Deferral and a Lower Corporate Tax Rate* (Tax Found., Spec. Rep. No. 174, Feb. 2010), available at <http://www.taxfoundation.org/files/sr174.pdf>.

nies, thereby further reducing the competitiveness of U.S.-incorporated MNCs.⁵⁴

IV. TAXES AND THE COMPETITIVENESS OF DOMESTIC PRODUCTION

The corporate income tax also affects competitiveness when the domestic industry is defined by the productive activity located within that nation. Under the second definition of a domestic industry, the U.S. auto industry comprises all of the automobile-producing activity that occurs in the United States without regard to where the corporations performing that activity are based. As described above, such a domestic industry is competitive if it attracts large amounts of capital.⁵⁵ Taxation, then, can hinder the competitiveness of such an industry by discouraging local investment.

In order to understand how the corporate income tax discourages investment in U.S. automobile production, consider an automotive investment that will be made in either the United States or Europe, but not in both places. The investment might be the plant where a new fuel-efficient automobile to be sold in Asia is produced. If the investment is made in the United States, whether by a U.S.- or a foreign-based corporation, the United States collects corporate income tax on the income that arises in the United States.⁵⁶ If, however, the investment takes place in Europe, the United States does not collect any corporate tax on that income. Instead, the European jurisdiction where the investment is made will collect any corporate tax on that income. Thus, if the U.S. corporate income tax rate exceeds the corporate income tax rate in the alternative European jurisdiction, then the U.S. corporate income tax will reduce the return from making an investment in the United States relative to the return from making the same investment in Europe.⁵⁷ That, in turn, will increase the mini-

⁵⁴ The discussion in the text assumes that the tax residence of a corporation is fixed. In effect, residence is an historical artifact that it is not practical to change because of various rules and provisions, such as the U.S. anti-inversion provisions. See IRC § 7874; Reg. § 1.7874-1; Temp. Reg. § 1.7874-1T, -2T. The opposite pole from the position assumed in the text is to assume that a corporation can reside anywhere. If the choice of corporate residence is purely elective and has no consequences other than tax, then presumably all companies will choose the tax home associated with the lowest total tax cost. Competition among states, then, can be expected to push the residence state tax bite close to zero. An intermediate position is to assume that residence follows real world activity. In that case, small economic changes that result in a change in residence could have large tax consequences. In other words, the tax costs and benefits of certain small changes can be large, which means that such changes can have large implicit tax costs or subsidies.

⁵⁵ See discussion in Part II.

⁵⁶ See IRC §§ 11, 882.

⁵⁷ More generally, the relevant tax rate is not just the corporate tax rate. The relevant rate is the incremental rate on the capital income that is collected when the investment occurs in the United States instead of Europe.

minimum required rate of return ("hurdle rate") for such an investment in the United States relative to the hurdle rate for such an investment in Europe. Therefore, if the U.S. corporate income tax rate exceeds the European rate, then the U.S. corporate income tax will discourage investment in the United States in favor of investment in Europe.⁵⁸

Although the investment-dampening effect of the corporate income tax is easiest to see when the output is sold in a third jurisdiction, the same logic applies when the output is sold in one of the jurisdictions where the investment can be made. Longstanding income tax principles call for the division of total income into the income from production and the income from sale.⁵⁹ The income from sale typically arises in the importing jurisdiction, whereas the income from production typically arises where production occurs. Thus, a corporate income tax, by raising the hurdle rate for investment in the taxing jurisdiction, drives capital investment toward other jurisdictions.⁶⁰ Hence, the second way that the U.S. corporate income tax harms the competitiveness of U.S. industries is by discouraging investment in productive activities in the United States in favor of investment elsewhere.⁶¹

In contrast with the ownership-based definition of the U.S. auto industry (where a worldwide corporate income tax harms competitiveness, but a territorial tax does not), under the location-based definition, both territorial and worldwide corporate income taxes harm competitiveness. That a territorial corporate income tax harms competitiveness is easiest to see when every jurisdiction has such a tax. In that case, the income is taxed—at least in part—where investment occurs. Higher tax rates lead to less investment. It is also easy to see that the investment-dampening effect of the corporate income

⁵⁸ Throughout this Article, I assume that tax rates are the same across industries so that all investments subject to a specific tax regime are taxed at the same rate. If tax rates differ across investments, the location of specific investments can be affected through the impact on input prices.

⁵⁹ Income is not apportioned among countries, but instead the income arising in each country is taxed first by that country. Other countries through which that income might pass have only a secondary right to tax that income.

⁶⁰ This principle has long been recognized in the international tax literature. See Richman, note 6, at 8-9, 90-94; Musgrave, note 6, at 72-73.

⁶¹ The corporate income tax is not the only tax that discourages domestic production. The individual income tax has the same effect so long as individuals and noncorporate entities (such as partnerships, LLCs, and S corporations) are engaged in capital-intensive productive activities that can move offshore. In such circumstances, the U.S. income tax will raise the hurdle rate on investments in the United States. That, in turn, will discourage investment in the United States, thereby driving such investment abroad. Thus, the detrimental effect of income taxation on production in the United States is broader than the corporate income tax. Moreover, the deleterious effects of the individual income tax on local production can be cured by global adoption of worldwide individual taxation with unlimited FTCs. Absent such coordination, countries with high tax rates will be disadvantaged in the competition to attract investment.

tax does not arise when the entity is not separately taxed—that is to say, when the entity is a pass-through entity—and the investor is subject to worldwide taxation (with unlimited FTCs). In that case, all income is taxed at the level of the investor. Assuming that the investor is taxed at the same rate (at the margin) on all income, then the individual's tax liability is not sensitive to the location where income is earned, which in turn implies that taxation does not distort location.

The location-distorting effects of the corporate income tax are harder to see, but generally persist, when corporate entities are taxed on a worldwide basis. As described above, if all jurisdictions provide an unlimited FTC, then all investors have an incentive to invest through entities located in the jurisdiction with the lowest corporate income tax rate.⁶² In such circumstances, the marginal corporate tax rate on any investment is independent of the location where the investment occurs. Instead, the marginal corporate tax rate on every corporate investment is the corporate tax rate assessed by the jurisdiction where all corporations are based. In theory, such a tax system can be locationally neutral because the effective tax rate on all corporate investments is the same.⁶³

In practice, however, worldwide corporate taxation is very unlikely to lead to locational neutrality. No country is likely to emerge as the consensus choice for corporate tax home because no country would likely be willing to make the financial sacrifice that would be necessary to ensure locational neutrality.⁶⁴ A low-tax country that attracts foreign corporations would have to rebate the difference in taxes paid on investments in jurisdictions with higher tax rates.⁶⁵ The cost to any jurisdiction of such an open-ended policy could be immense. Instead, countries with worldwide tax systems tend to limit FTCs to taxes paid abroad and do not provide refunds. That limitation gives effect to local tax rate differences and distorts the location of investment.

⁶² The discussion in the text assumes that all countries tax corporations and their investors separately and that all countries provide both corporations and investors with unlimited FTCs.

⁶³ Corporate investments might not all be channeled through the jurisdiction with the lowest corporate income tax rate. Nontax issues, such as corporate governance practices, corporate law, and securities laws, can affect the decision where corporate parents are based. In that case, if all investors invest through corporations in the same jurisdiction, then locational neutrality will occur. If, however, parent corporations are located in more than one jurisdiction with different tax rates, then locational neutrality will not be achieved.

⁶⁴ In a traditional worldwide tax system, the country levies the same tax on domestic activity within the country and on the foreign source income of domestic residents. Fleming et al., note 45, at 35-36.

⁶⁵ Of course, low-tax countries looking to attract corporations have no incentive to provide such refunds. Typically, they employ territorial taxation.

It is also common, although the United States does not currently do this, to restrict the use of FTCs so that excess FTCs from high-tax countries cannot be used to offset taxes owed on the income earned in low-tax countries. (Moreover, the proponents of worldwide taxation generally favor a country-by-country limitation on the FTC.⁶⁶) The use of such country-by-country FTC limitations gives greater effect to cross-border differences in tax rates, thereby undercutting locational neutrality. Under such circumstances, worldwide corporate income taxation would raise the tax rate on low-taxed income to the home country level, but it would not reduce the tax on any income taxed at a rate above the home country level. Thus, to the extent that corporations can choose their tax homes, the incentive to select low-tax jurisdictions remains and so there will be little tax collected at home. As a result, local tax rates will be determinative: They will affect location and there will not be locational neutrality.

Alternatively, assume that the choice of tax home is not elective, but closely follows the location of specific assets. In that case, the effective tax on locating those assets in a jurisdiction is not only the tax assessed on the income produced by those assets, but also includes any other income that is taxed in the home jurisdiction by virtue of locating those assets in that jurisdiction. Thus, local tax rates will affect the location of investment and the tax system will not be locationally neutral.

In sum, it is uncertain what, if anything, worldwide taxation at the corporate level does to promote locational neutrality. In contrast with worldwide taxation at the investor level, where the mechanism for achieving locational neutrality is clear (although the conditions are strict—including universal adoption of worldwide taxation with unlimited FTCs and investors with fixed locations—and there can be a high cost to the residence jurisdiction of adopting such a tax system), with corporate taxation it is not clear what is the mechanism whereby worldwide taxation will help to achieve locational neutrality.⁶⁷ Expressed more succinctly, the case for worldwide corporate taxation as a method of achieving locational neutrality is highly questionable and remains to be made. It cannot and should not be presumed from a simple analogy to taxation of the individual investor.

As the discussion above suggests, the disadvantage that the U.S. automotive industry—defined as the production of automobiles within the United States—suffers as a result of the U.S. corporate income tax is

⁶⁶ See, e.g., Fleming et al., note 45, at 36.

⁶⁷ Moreover, in a few special cases where a mechanism is specified, the conditions required for that mechanism to achieve locational neutrality are likely to be very strict (even stricter than they are for individual taxation) and very unlikely to occur.

not a function of the scope of that tax—whether it is territorial or worldwide—but rather is a function of the U.S. corporate income tax rate relative to corporate income tax rates in other jurisdictions. It, thus, follows that the United States can unilaterally improve its competitiveness by reducing its corporate income tax rate.⁶⁸ The obvious cost of such a policy to the U.S. government is a loss in revenue.⁶⁹ In light of the United States' current fiscal condition, the lost revenue would have to be replaced.⁷⁰

It follows from the discussion in the last two Parts that it is possible for the corporate income tax to produce both types of harmful effects at the same time. A U.S. worldwide corporate income tax will operate as a toll charge on overseas corporate investments by U.S. MNCs, thereby disadvantaging U.S.-based MNCs relative to their foreign competitors. In addition, if the U.S. corporate income tax rate exceeds the rate in many other countries with which the United States competes for investment, then the high U.S. corporate income tax rate will also discourage corporate investment in the United States. Because the above is a reasonably accurate description of current corporate income tax practices in the United States and the rest of the world, there is good reason to believe that the U.S. corporate income tax discourages production both by U.S. firms and in the United States.

⁶⁸ The United States would enhance its competitiveness by reducing other taxes on corporate income, such as the taxes on dividends and capital gains (from sales of shares).

⁶⁹ Michael J. Graetz, 100 Million Unnecessary Returns: A Simple, Fair and Competitive Tax Plan for the United States 121, 124 (2008); see also IRS, Gross Collections, by Type of Tax, Fiscal Years 1960-2009, <http://www.irs.gov/pub/irs-soi/09db06co.xls> (last visited Aug. 25, 2010) (showing business income tax gross collections of \$354 billion in fiscal year 2008 and \$225 billion in fiscal year 2009).

⁷⁰ There is another caveat for proponents of worldwide corporate taxation. As described in the last Part, the United States can improve the competitiveness of U.S.-based MNCs without lowering its corporate income tax rate by unilaterally moving to a territorial tax system. Although the United States can unilaterally reduce the disadvantage to production in the United States by reducing the U.S. corporate tax rate, it cannot reduce that disadvantage by moving closer to a worldwide tax system. The source of the disadvantage is not that the United States does not have a pure worldwide system tax, but is instead that other countries from which investment in the United States comes do not have pure worldwide corporate income tax systems. Reducing the disadvantage to U.S. production without lowering U.S. tax rates (or raising foreign tax rates) requires other countries to move towards worldwide taxation—and that is not likely to happen. Indeed, the trend is away from worldwide taxation to the hybrid system described earlier. See text accompanying notes 50-51. Moreover, the movement must be such that all corporations are taxed on a worldwide basis on all of their investments so that local tax rates are not binding.

V. A DIAGRAMMATIC REPRESENTATION OF HOW THE CORPORATE INCOME TAX AFFECTS COMPETITIVENESS

In the last two Parts, I described how the corporate income tax affects competitiveness. I showed that the impact of the corporate income tax on competitiveness and the mechanism through which the tax affects competitiveness depends upon how the domestic industry is defined. In this Part, I express the impact of the corporate income tax on competitiveness diagrammatically.

An example and some notation will be helpful. Consider a simple world with only two jurisdictions—the European Union and the United States. Denote the before-tax rate of return by R and the U.S. corporate income tax rate by t .⁷¹ The EU jurisdiction is assumed not to have a corporate income tax. The subscripts EU and US denote whether an asset is located in the European Union or the United States and the same superscripts denote whether the asset is owned by an EU or U.S. corporation.

FIGURE 2
GRAPHICAL DEPICTION OF HOW CORPORATE INCOME TAX
HURTS COMPETITIVENESS

⁷¹ In practice, one would want to use the effective marginal tax rate—the present value of additional taxes paid on an incremental dollar of income—and not the statutory tax rate. For a discussion of effective marginal tax rates, see Myron S. Scholes, Mark A. Wolfson, Merle Erickson, Edward L. Maydew & Terry Shevlin, *Taxes and Business Strategy* 186 (3d ed. 2005).

Let the vertical axis in Figure 2 represent where productive assets are most efficiently located. The bottom of Figure 2 represents those assets where the efficiency advantage from locating in the United States is greatest. At the top are those assets where the efficiency advantage from locating in the European Union is greatest. The horizontal solid line represents the point where there is no efficiency gain from locating the asset in either the United States or the European Union.⁷² Accordingly, if there are no distortions affecting the location of assets, then all assets above the horizontal solid line are located in the European Union and all assets below that line are located in the United States.

Let the horizontal axis represent who most productively owns various assets. On the far left are those assets for which the productivity advantage from U.S. ownership is greatest. On the far right are those assets for which the productivity advantage from EU ownership is greatest. The solid vertical line represents those assets for which U.S. and EU ownership are equally productive.⁷³ Accordingly, if there are no distortions affecting the ownership of assets, then all assets to the right of the solid vertical line are EU-owned and all assets to the left of that line are U.S.-owned.

Figure 2, thus, contains four quadrants, labeled 1 through 4, where each quadrant represents a different combination of efficient location and ownership. The bottom left quadrant (*quadrant 1*) contains assets that are efficiently located in the United States and U.S.-owned.⁷⁴ The bottom right quadrant (*quadrant 2*) contains assets that are efficiently located in the United States and EU-owned.⁷⁵ The top left quadrant (*quadrant 3*) contains assets that are efficiently located in the European Union and U.S.-owned.⁷⁶ Finally, the top right quadrant (*quadrant 4*) contains assets that are efficiently located in the European Union and EU-owned.⁷⁷ If taxation does not distort the location and ownership of assets, then all productive assets will be located where they are most efficiently located and owned by their most efficient owner.⁷⁸

⁷² That is to say, $R_{US} = R_{EU}$. Below that line, $R_{US} > R_{EU}$, and above that line, $R_{US} < R_{EU}$.

⁷³ Thus, at the line, $R^{US} = R^{EU}$. To the left of that line, $R^{US} > R^{EU}$, and to the right of that line, $R^{US} < R^{EU}$.

⁷⁴ In the bottom left quadrant, $R^{US}_{US} > R^{EU}_{US}, R^{US}_{EU}, R^{EU}_{EU}$.

⁷⁵ In the bottom right quadrant, $R^{EU}_{US} > R^{US}_{US}, R^{US}_{EU}, R^{EU}_{EU}$.

⁷⁶ In the top left quadrant, $R^{US}_{EU} > R^{EU}_{US}, R^{US}_{US}, R^{EU}_{EU}$.

⁷⁷ In the top right quadrant, $R^{EU}_{EU} > R^{US}_{US}, R^{US}_{EU}, R^{EU}_{US}$.

⁷⁸ The analysis and discussion in the text do not distinguish among different owners from the same country. In other words, it is implicitly assumed that all potential owners from any country are taxed the same. If different owners are taxed at different rates, then the analysis is more complicated and the distortions are likely to be even greater.

Figure 2 also can be used to illustrate the two different definitions of the U.S. automobile industry. Under an ownership-based definition, the U.S. auto industry is the total production of U.S.-based manufacturers. In Figure 2, this definition is represented by *quadrants 1 and 3*. Similarly, the ownership-based EU automobile industry is represented by *quadrants 2 and 4*. Under a location-based definition, the U.S. auto industry is the production of automobiles in the United States by both U.S.-based and foreign-based auto producers. This definition is represented in Figure 2 by *quadrants 1 and 2*. Similarly, the location-based EU auto industry is represented by *quadrants 3 and 4*.

Figure 2, then, can be used to describe how the U.S. corporate income tax affects U.S. competitiveness. As described in the text above, the tax will raise the before-tax rate of return in the United States relative to that in the European Union. That effect is represented by the horizontal dashed line that lies below the horizontal solid line. Accordingly, the assets represented by the area between the two horizontal lines are the assets most efficiently located in the United States, but which as a result of the United States imposing a corporate income tax are located in the European Union. Those assets are indicated by the area marked by the letters *A, B, and C*.

Furthermore, the size of the area labeled *A, B, and C* depends upon the U.S. corporate income tax rate.⁷⁹ The higher the U.S. tax rate, the larger is the area labeled *A, B, and C*. As the U.S. tax rate decreases, this area gets smaller. When the EU and U.S. tax rates are equal, then taxation has not dislocated any investments. If, however, U.S. tax rates are below EU tax rates, then the dashed line is above the solid line and taxation shifts assets from the European Union to the United States. As the discussion above makes clear, location depends upon relative tax rates. If tax rates are the same across locations, then taxes do not affect location. If they differ, then taxation encourages invest-

⁷⁹ Because investors keep only their after-tax return, equilibrium requires that the after-tax rate of return on assets in the United States and in the European Union is equal. If that condition is violated, then investors will shift capital from one jurisdiction to another until the after-tax rate of return is equal across jurisdictions. Assuming that the United States does not tax the EU income of U.S.-based MNCs, the after-tax rate of return of corporate capital in the United States equals the before-tax rate of return in the European Union. That is to say, in equilibrium, $R_{US}(1 - t) = R_{EU}$. Thus, assets that are more productive in the United States than in the European Union, but are not sufficiently more productive in the United States to cover the U.S. tax (that is to say, $R_{EU}/(1 - t) > R_{US} > R_{EU}$), will migrate from the United States to the European Union. The higher the U.S. corporate income tax rate, the greater the migration.

ment in low-tax jurisdictions and discourages it in high-tax jurisdictions.⁸⁰

As described in the text above, one effect of the United States enacting a corporate income tax, assuming that the tax is assessed on a worldwide basis, is to impose a toll charge on U.S. companies that invest abroad.⁸¹ In the example, the toll charge will raise the hurdle rate for investments by U.S. corporations in the European Union. That, in turn, will bring about a shift from U.S. to EU ownership of those investments where the productivity advantage from U.S. ownership is insufficient to compensate for the higher hurdle rate brought about by the corporate income tax.⁸²

That effect is illustrated in Figure 2 by the vertical dashed line, which only goes down as far as the horizontal dashed line. The vertical dashed line, which indicates changes in ownership, does not extend below the horizontal dashed line because the toll charge only impacts investments by U.S. corporations abroad. It does not affect the domestic investments of U.S. corporations. Thus, those assets represented by the area above the horizontal dashed line and to the right of the vertical dashed line are located in the European Union and EU-owned. Assets above the horizontal dashed line and to the left of the vertical dashed line are assets located in the European Union and U.S.-owned. Accordingly, the assets for which ownership is shifted are those assets represented by the area between the two vertical lines. Those assets are indicated by the area marked by the letters *B* and *D*.

Analogously to the situation with location, the size of the area labeled *B* and *D* depends upon the U.S. corporate income tax rate. That can be seen as follows. Equilibrium requires that the after-tax rate of return on U.S.-owned and EU-owned assets is equal at the margin. For assets located in the European Union that implies that at the margin the after-tax rate of return on capital owned by a U.S.-based MNC equals the before-tax rate of return on capital owned by

⁸⁰ So long as the United States is a small country in the world capital market, the distribution of assets between the United States and the European Union does not depend on whether the United States has a territorial or worldwide tax system. That is to say, if the United States is a price taker in global markets, then market rates of return do not depend on whether the United States taxes or exempts its residents on their overseas income. In terms of Figure 2, that implies that R_{EU} and R_{US} are independent of whether the United States taxes or exempts its residents on their non-U.S. income. It thus follows that so long as the United States is a price taker in global capital markets, that the location of assets does not depend on whether the United States adopts territorial or worldwide taxation.

⁸¹ See discussion in Part III.

⁸² Tightening worldwide taxation (for example, by reducing the opportunity for deferral) discourages U.S. corporations from holding overseas assets by raising the toll charge on investments through U.S. companies. See Knoll, Taxes and Competitiveness, note 11, at 34-36.

an EU-based corporation.⁸³ Thus, the adoption by the United States of a corporate income tax will cause assets located in the European Union that are more productive in U.S. hands than in EU hands (but are not sufficiently more productive in U.S. hands to cover the tax⁸⁴) to migrate from U.S. to EU ownership. Once again, the higher the U.S. tax rate, the greater the migration.

That migration can be stopped without reducing the statutory U.S. corporate income tax by the United States unilaterally moving from worldwide taxation to territorial taxation. If the United States were to adopt territorial taxation, then EU-based and U.S.-based firms would pay the same tax (assumed to be zero in the example) when they invested in the European Union. There would be, then, no toll charge on overseas corporate investment. In terms of Figure 2, when the U.S. corporate income tax rate on overseas investment is zero ($t = 0$), then the dashed vertical line separating U.S.- and EU-owned assets ($R^{US}(1 - t) = R^{EU}$) sits exactly on top of the solid dotted line separating efficiently U.S.- and EU-owned assets ($R^{US} = R^{EU}$).

As described above, the current tax environment can be characterized as follows: The United States has a relatively high corporate income tax rate and the United States has a worldwide tax system for its MNCs. Thus, the harm to U.S. competitiveness from the corporate income tax is represented by the areas labeled A, B, C, and D. The assets represented by those areas have had their location (A and C), ownership (B) or both their location and ownership (D) shifted away from the United States by the U.S. corporate income tax.

VI. CONCLUSION

Politicians, the press, and policy analysts regularly assert that high corporate tax rates hurt U.S. competitiveness. Yet, in spite of their frequent assertions that the corporate income tax hurts competitiveness, the connection between the corporate income tax and competitiveness has not been carefully spelled out. In this Article, I use the U.S. automobile industry as an example in order to explore that connection.

As described above, the corporate income tax directly harms the competitiveness of the U.S. auto industry in one of two ways depending upon how the domestic auto industry is defined.⁸⁵ First, when the U.S. auto industry is defined in terms of the production of automo-

⁸³ That is to say, $R^{US}_{EU}(1 - t) = R^{EU}_{EU}$.

⁸⁴ That is to say, $R^{EU}_{EU}(1 - t) > R^{US}_{EU} > R^{EU}_{EU}$.

⁸⁵ The corporate income tax can also have indirect effects on U.S. competitiveness. The analysis of such effects usually will entail a detailed analysis of the affected industry, including its use of specific tax provisions. In this Article, I look only at direct effects.

biles that occurs within U.S. borders (without regard to where the corporations producing those cars are based), the corporate income tax, by increasing the tax burden on U.S. source income raises the hurdle rate on domestic investment. The higher hurdle rate discourages investment in the United States in favor of investment abroad. Second, when each nation's auto industry is defined by the global production of auto producers based in that nation (without regard to where production occurs), a worldwide corporate income tax operates as a toll charge on a firm's foreign income-producing activities undertaken abroad. Such a toll charge raises the hurdle rate on foreign direct investment, which in turn discourages investment through the affected corporation relative to investments made through untaxed or lower-taxed corporations from other countries. When excess credits from income earned in one country can be used to offset excess income earned in another, the toll charge can be a subsidy for some investments.

Although most of the discussion and analysis in this Article focuses on the impact of the corporate income tax on the U.S. automobile industry, the methodology and the results are not confined to a single industry or state or even to a single tax. There are several tax reform proposals that their proponents advocate, at least in part, on the grounds that they will improve U.S. competitiveness.⁸⁶ The framework developed in this Article for analyzing how the corporate income tax affects competitiveness can be applied to examine the impact other existing taxes have and various tax reform proposals would have on competitiveness. As this Article makes clear, although it is a point that is often overlooked, how a tax affects the competitiveness of a domestic industry depends on whether the domestic industry is defined as the production that takes place within a state regardless of where the producers are based or as the total production of domestic-based producers both at home and abroad. The effects will often differ and so it is important to be clear about how the domestic industry is defined.

When the debate over tax reform and tax rates heats up—and it soon will—central issues in that debate will be what should happen to the corporate income tax, how should the overseas income of U.S.

⁸⁶ Among the most prominent of these proposals are: Graetz, note 68; Reuven S. Avi-Yonah & Kimberly A. Clausing, *A Proposal to Adopt Formulary Apportionment for Corporate Income Taxation: The Hamilton Project* (Univ. of Michigan Law & Econ., Olin Working Paper No. 07-009, 2007), available at <http://ssrn.com/abstract=995202>; Edward D. Kleinbard, *Designing an Income Tax on Capital*, in *Taxing Capital Income* 165 (Henry J. Aaron, Leonard Burman & C. Eugene Steuerle eds., 2007); The Presidential Advisory Panel on Tax Reform, *Final Report* (Nov. 2005), available at <http://govinfo.library.unt.edu/taxreformpanel/final-report/index.html>.

corporations be taxed, and what tax rates need to be increased in order to raise revenue. A better understanding of the connections between taxes and competitiveness should raise the level of that debate and that might even lead to a better tax system.