
Gary Clyde Hufbauer and Jisun Kim

Gary Clyde Hufbauer is the Reginald Jones Senior Fellow at the Peterson Institute for International Economics. He is coauthor of US Taxation of Foreign Income (2007) and Reforming the US Corporate Tax (2005) and author of Fundamental Tax Reform and Border Tax Adjustments (1996). Jisun Kim is a research assistant at the Peterson Institute. She assisted with US Taxation of Foreign Income (2007). The views expressed are their own.

© Peter G. Peterson Institute for International Economics. All rights reserved.

As the administration and Congress catch their breath from rescuing the economy, their thoughts are quickly turning to other issues—including the structure of the US tax system. Everyone agrees that the US tax system inflicts enormous complexity on the American public. But reform is never easy. Who pays the tax burden ranks among the most contentious issues that Congress has historically faced, and this time around will be no different.

One skirmish in the larger reform battle will be US taxation of multinational corporations (MNCs). According to a survey conducted by Miller & Chevalier (2009), which measured the perspectives and attitudes of leading corporate tax executives, about 70 percent of respondents believe that Congress might make MNCs pay a larger share of the tax burden, by increasing the taxation of international operations. The fear is now a step closer to reality. President Barack Obama’s message accompanying his 10-year budget blueprint, released on February 26, 2009, included this statement: “The Budget also begins to restore a sense of fairness to the tax code, eliminating incentives for companies that ship jobs overseas and giving a generous package of tax cuts to 95 percent of working families.”

According to the budget blueprint, over the next 10 years, about $354 billion would be generated from taxation on corporations and about $210 billion of that sum would come from “international enforcement, reform deferral, and other tax reform policies.” Most of these “reforms” are aimed squarely at US-based MNCs.

Three key issues often arise in the debate over US-based MNCs: jobs, competitiveness, and revenues. President Obama’s budget raises these issues front and center, and these issues are sure to become major themes in the congressional debate.

JOB CONCERNS

Among some political leaders, it is almost a matter of faith that MNCs are getting away with murder when it comes to overseas operations. Not only are the US-based MNCs avoiding their fair share of the tax bill, so they say, but also in the process they are shipping jobs abroad at the expense of American workers. During the presidential campaign, Senator Obama famously echoed these sentiments: “Unlike John McCain, I will stop giving tax breaks to corporations that ship jobs overseas and I will start giving them to companies that create good jobs right here in America.” In his address to the Joint Session of Congress on February 24, 2009, President Obama again declared: “We will restore a sense of fairness and balance to our tax code by finally ending the tax breaks for corporations that ship our jobs overseas.”

President Obama now proposes to translate these sentiments into new tax measures that will penalize investment abroad by US-based MNCs.

Debate over the role of MNCs in creating or destroying jobs can be traced to the 1960s, if not earlier. In the 1960s, the central question was the balance of payments effects of overseas
investment and pressure on the dollar, but the jobs issue was lurking in the background (Hufbauer and Adler 1968); in the 1970s, the central question became “runaway plants” and lost jobs. On the one hand are observers who see a direct substitution between investment abroad and investment at home and between jobs abroad and jobs at home. On the other hand are economists who see a complementary relation between activity abroad and activity at home (Bergsten, Horst, and Moran 1978; Graham 2000; Slaughter 2004; Griswold 2009; and Desai, Foley, and Hines 2009). For example, in their recent study, three distinguished scholars, Mihir A. Desai, C. Fritz Foley, and James R. Hines Jr. (2009), found a strong positive correlation between the domestic and foreign operations of US manufacturing firms between 1982 and 2004: A 10 percent increase in foreign employee compensation was associated with 3.7 percent greater domestic employee compensation, and a 10 percent increase in foreign investment was associated with 2.6 percent additional domestic investment. Other empirical studies likewise find that successful operations abroad of US-based MNCs tend to expand employment not only overseas but also at home. More activity abroad requires more hiring by the parent company and its domestic affiliates, both to export components and associated items and to provide research and development (R&D) and managerial support.

### COMPETITIVENESS CONCERNS

A related concern is that the US position in the world economy has entered a long downward trend and that the United States is losing the competitiveness battle to emerging economies (the famous BRICKs). If this pessimistic outlook is correct, many causes could be cited, from imperial overstretch to failed schools. The US corporate tax system would be listed as among the causes, since it discourages firms from around the world (including US firms) from choosing the United States either as a site for production of goods and services or as a headquarters location for their global activities. Many countries have cut their corporate tax rates and defined the tax base to attract foreign investment and encourage exports. But the US federal tax rate remains high (35 percent), and only at the state level are corporate tax systems sometimes “tailored” to attract new investment.

To be sure, the US business tax system is quite favorable for “pass-through” firms—various partnerships and Subchapter S corporations—since their income is attributed to partners and shareholders and taxed only at the individual level. But this advantage does not extend to successful MNCs based in the United States: At the margin, they pay a federal corporate tax rate of 35 percent on their profits plus the state corporate tax rate, typically in the range of 4 to 6 percent. Marginal tax rates go a long way in shaping the competitive position of the United States in world markets, and by that measure, the United States is badly disadvantaged.

In a meta-analysis of empirical studies, the Organization for Economic Cooperation and Development (OECD 2008) concluded that, on average, inward foreign direct investment (FDI) increases by 3.7 percent following a one percentage point decrease in the corporate tax rate (e.g., from 25 to 24 percent) and that FDI has become increasingly sensitive to taxation, reflecting rising mobility of capital as nontax barriers to FDI continue to decline. Such findings, however, have yet to make an imprint on the design of US corporate tax policies.

Another concern is that the complex US tax system disadvantages the foreign operations of US-based MNCs. Even though the current US tax law allows MNCs to defer taxation of income earned abroad until that income is repatriated to the United States, US-based MNCs are not exempt from US taxation of their foreign earnings. In contrast to MNCs based in countries that often maintain a simple territorial system, either de jure or de facto, US-based MNCs are subject to worldwide taxation. Consequently they face heavier burdens of tax planning, reporting, and accounting, which in turn lead to higher administrative costs than their competitors incur as well as the higher tax burdens themselves. Many countries have

---

5. It’s hard, perhaps impossible, to know the shape of a counterfactual world in which successful US companies are not allowed to open foreign subsidiaries. Would they expand more rapidly in the United States? Would they instead lose their competitive edge and shrink? We think the latter outcome is more likely, based on two simple ideas: Global operations enable a company to spread its R&D and other overhead costs over a larger volume of sales, and many foreign markets are not easily accessed by a “produce here, sell there” model of doing business.

6. The BRICKs are Brazil, Russia, India, China (as first clustered together by Goldman Sachs), with Korea added.

7. The result of the meta-analysis is based on many studies (427 observations) that used different types of tax data including statutory tax rates, average tax rates (ATR), marginal effective tax rates (METR), and average effective tax rates (AETR).
sought to attract foreign investment and enhance the export performance of their domestic firms by adopting competitive tax policies—but not the United States.

**REVENUE CONCERNS**

A common criticism holds that US-based MNCs have expanded their foreign operations as a way to avoid the tax burden at home through the abusive use of transfer pricing techniques and the deferral of US tax on profits earned abroad. In a similar vein, wealthy US citizens and residents may evade US tax by shifting assets and income to tax haven countries.

Treasurer Secretary Timothy Geithner’s written testimony, prepared for his Senate confirmation hearing on January 21, 2009, answered questions from the Senate Finance Committee. Chairman Max Baucus, in one of his questions, quoted numbers assembled from a variety of corporate critics who claim that big bucks could be realized by curbing international tax avoidance. Baucus stated:

> “Estimates of revenue lost because of offshore tax evasion range from $50 to $100 billion. The Finance Committee has had a number of hearings on the offshore tax evasion issue and I believe the next step is to pass legislation cracking down on offshore tax evaders, and I will be introducing a bill early in this session of Congress to address this problem.”

In his response, Geithner said that he would give offshore tax evasion issues a high priority and examine a wide range of policy options to address these issues.

The estimate of $100 billion revenue loss was also cited in a staff report prepared for the hearing on tax haven banks and US tax compliance before the Senate Committee on Homeland Security and Governmental Affairs: Permanent Subcommittee on Investigations, held on July 17, 2008. As sources for the $100 billion estimate, the report lists a number of studies in its first footnote. Based on our own published work (Hubbauer and Assa 2007), we think the range of $50 billion to $100 billion substantially overstates the amount that might be collected annually by ending abusive practices. At the same time, we agree that appropriate changes in the taxation of international income could raise revenue for the Treasury, but not $50 billion, much less $100 billion, annually. In its 10-year budget proposals, the administration evidently agreed with our cautious outlook: International tax “reforms” are scheduled to raise just $210 billion over 10 years, an average of $21 billion a year.

**THE ROAD AHEAD**

The United States needs comprehensive tax reform, designed to boost both the domestic and international activities of US-based MNCs, and bring more foreign investment to American shores. To that end, tax reform should target fundamental issues rather than populist sound bites. In the following sections, we discuss a short list of reforms that meet our prescription.

**Corporate Tax Rate**

To stop US jobs from moving offshore, President Obama should try carrots, not sticks. As mentioned, the combined federal and state statutory tax rates are quite high on successful multinational firms—the ones making decisions to locate new plants here or abroad. All in, the marginal (i.e., statutory) tax rate for these firms is about 39 percent, compared with the OECD average statutory rate of about 27 percent. Through special tax holidays and exemptions, some BRICKs offer statutory tax rates well below the OECD levels. Ample evidence shows that investment is sensitive to low marginal tax rates; unfortunately, the United States is just not in the game of offering a low marginal (statutory) tax rate for large and successful firms.

Overall, the US federal government does not collect a great deal of tax from American business: In a good year, such as 2006, US federal corporate taxes amounted to 2.8 percent of GDP, compared with the OECD average of 3.6 percent. While the United States has the second highest statutory corporate tax rate among OECD countries—in other words, the second highest marginal rate—the average US effective corporate tax rate is lower owing to generous rules for depreciation, amortization, and credits. In shaping investment decisions, a low average effective rate is not as important as a low marginal rate. The statutory corporate tax rate can be properly interpreted as the marginal rate applicable to future earnings.

---

8. Timothy F. Geithner’s written testimony prepared for the hearing on confirmation of Mr. Timothy F. Geithner to be Secretary of the US Department of Treasury, available at www.finance.senate.gov.

9. Ibid.

10. Ibid.


This is the most relevant tax rate for successful MNCs when they decide where to expand. A lower statutory rate is more important than myriad deductions tailored to the interests of particular industries, because the statutory rate affects decisions at the margin for the most profitable firms.

While many countries have adopted simpler tax systems with lower rates, seeking to improve their competitive position in the world economy, the United States has taken the opposite direction. The United States maintains a complicated tax system with multiple loopholes but accompanied by high statutory corporate rates. Rather than complaining about excessively generous tax systems abroad, it makes more sense for the United States to adopt a competitive tax system at home, with fewer loopholes but lower rates. The states can do their part, but the federal government is the big boy in the corporate tax arena, and it must take the lead.

With that goal in mind, the United States should simplify the corporate tax regime and lower the statutory tax rate to 25 percent or less. During the presidential campaign, Senator Obama proposed to reduce the corporate tax rate but this idea was apparently dropped in his 10-year budget proposals. Congress should revive the idea of a decisively lower rate as the centerpiece of corporate tax reform. From a competitive standpoint, this is far more important, for example, than the current low tax (15 percent) on dividends paid and capital gains or the multiple loopholes, credits, and exemptions sprinkled through the corporate tax code. Moreover, the amount of revenue would be about the same.14

Portfolio Income Earned Abroad

Portfolio income earned abroad lies at the center of tax evasion. Tax treaties are in place to deal with tax evasion and avoidance, but those treaties have their own loopholes. For example, they permit hybrid entities (“check the box”),15 a favorite avoid-

14. The average effective federal tax rate on US corporate income, over the years 2002 to 2006, was around 25 percent (corporate income tax receipts by Treasury divided by US domestic corporate profits). See Martin A. Sullivan, “The Effective Corporate Tax Rate Is Falling,” Tax Analysts, January 22, 2007, www.taxanalysts.com. This implies that a corporate tax rate of 25 percent, with no loopholes, credits, or exemptions in the tax base, would raise about the same amount of tax revenue. According to President Obama’s budget, raising the tax on dividends and capital gains for upper-income taxpayers to 20 percent would increase tax revenues by about $118 billion over 10 years, an average of about $12 billion a year.

15. A hybrid entity is an entity that is classified differently under the laws of different countries. A hybrid entity (or a reverse hybrid entity) is regarded as a corporation by one jurisdiction but as a pass-through entity (a partnership or a disregarded entity) not subject to corporate taxation by another jurisdiction. For example, a US limited liability corporation (LLC) is viewed as a pass-through entity for US tax purpose unless an election is filed to treat an LLC as a corporation, while it is considered as a corporation for Canadian tax purposes. Interest payments can be made by one member of an MNC family to a related hybrid entity and claimed as a deduction by the payor; however, when received by the hybrid entity, the interest payments are not subject to tax at the entity level. See Altshuler and Grubert (2006).

16. The temporary tax holiday under the American Jobs Creation Act of 2004...
pay approximately the same tax as their competitors operating in Europe, Latin America, and Asia.

If deferral is ended, however, US-based MNCs will pay substantially more tax than their MNC competitors, which are generally not taxed by their home countries on income earned abroad. In other words, a French-based firm operating in Brazil simply pays the Brazilian tax, whether 10 or 20 percent of its Brazilian income, and nothing more to France. If deferral is ended, the US-based competitor operating in Brazil would pay the Brazilian tax plus any difference between the Brazilian tax and the US corporate rate on Brazilian income. With such a drastic change in the competitive balance, some US-based MNCs will choose to sell their foreign subsidiaries to MNCs based in countries that do not collect tax on corporate income earned abroad.

Would that sort of disengagement from world markets be good for the United States? According to the Bureau of Economic Analysis (BEA 2008), in 2006, approximately 20 percent of all US exports of goods were exports from US parent firms to their foreign affiliates. In the absence of ownership ties that bind MNC networks to the United States, many of these export sales would likely be captured by firms based in other countries. Moreover, contrary to popular belief (captured in the phrase “runaway plants”), most sales by US-owned subsidiaries operating abroad are destined for foreign markets, not the United States. Daniel Griswold (2009) reports that about 90 percent of the goods and services produced by the foreign operations of US-based MNCs are sold to customers either in the host country or in third countries outside the United States.

To summarize, networks of firms, controlled by MNCs based in the United States, constitute an impressive channel for selling US exports to foreign markets. It makes little sense to unravel these networks by taxing the foreign components more heavily than they would be taxed if owned by MNCs based in other home countries.

Instead, the United States should adopt a territorial approach to the taxation of “active income” earned by foreign operations of US-based MNCs. In other words, rather than end deferral across the board, the United States should end any US taxation of active income earned by subsidiaries operating abroad. The complex US worldwide system of taxing corporate income earned abroad when remitted to the United States, but allowing a foreign tax credit, raises very little revenue but imposes heavy administrative costs. It also encourages emerging global firms to locate their headquarters anywhere but the United States. The existence of a US parent corporation means that all its foreign subsidiaries are subject to US taxation under the “worldwide income” concept.17

The United States should adopt a territorial approach to the taxation of “active income” earned by foreign operations of US-based MNCs.

Shifting from a worldwide tax system to a territorial system would ensure that the United States remains an attractive location for MNC headquarters—since the active business income of foreign subsidiaries would no longer be subjected to a residual US corporate tax. To be sure, under this approach, bright lines must be drawn so that portfolio income, sometimes called mobile income, does not masquerade as active business income earned by a foreign subsidiary and thereby escape US taxation. That’s an important detail, but it’s not a fundamental objection to the territorial system we propose.

Formula Apportionment

One of the devilish features of the current system is abuse of transfer pricing: US parent firms may pay too much for inputs supplied by subsidiaries located in low-tax jurisdictions, and they may charge too little for their own sales to those subsidiaries. Trying to establish the right transfer price is difficult, especially for intellectual property, and income can be shifted across borders but still remain in the family of related corporate firms, by using hybrid entities, thin capitalization, inappropriate royalty rates, and other devices. One careful estimate suggests that these abuses might reduce US tax revenues by around $7 billion a year (Altshuler and Grubert 2006).

The transfer pricing problem can be dealt with in targeted and blunt ways. The targeted way is to outlaw hybrid entities, establish presumptive minimum and maximum levels for intellectual property royalties, and recharacterize debt as equity in highly leveraged firms. The blunt way is formula apportionment: For example, use a two-factor formula to divide the worldwide income (the tax base) of an affiliated group of companies between different jurisdictions according

---

17. Another reason for shying away from the United States as a headquarters location is that the US tax system has somewhat less favorable rules for allocating research, development and experimentation (RD&E) and general and administrative (G&A) expenses to domestic income than the tax systems of other key countries. For more details, see Hufbauer and Assa (2007).
to the number of employees and amount of sales in each jurisdiction.\textsuperscript{18}

Unilateral US imposition of formula apportionment may seem appealing, but it would override multiple tax treaties—not a good step for an administration that wants to restore a multilateral character to US foreign policy. On the other hand, negotiating an agreed formula for dividing the tax base between jurisdictions is never easy. Despite decades of trying, the various US states have never agreed on a common formula for dividing up the corporate tax base within the United States. In the absence of a common formula, the formula apportionment approach will certainly result in overlapping taxation—parts of the corporate tax base will be claimed by two or more jurisdictions.

If the Obama team decides to try out a formula approach, we have a suggestion: start by trying to negotiate a common formula with our two North American Free Trade Agreement (NAFTA) partners, Canada and Mexico. US corporations have dense ties in North America, and so do Canadian and Mexican corporations. The exercise would indicate the scope and limitations of formula apportionment applied more widely.

\textbf{Repatriation Holiday}

The American Jobs Creation Act (AJCA) of 2004 had a special provision to encourage US-based MNCs to repatriate income from their foreign subsidiaries.\textsuperscript{19} The idea was to boost investment and jobs in the United States. This provision allowed US-based MNCs to deduct 85 percent of the dividends received from their foreign affiliates from their US taxable income. The one-time deduction effectively lowered the federal corporate tax rate on those dividends from a maximum level of 35 percent to 5.25 percent. To take advantage of the special AJCA provision, companies were required to outline their investment plan and file a domestic reinvestment plan. While the use of the repatriated earnings was limited to certain purposes, such as new hires, job training, salary or benefit payments, or infrastructure investments, there was no specific time limit for making the expenditures.

Since money is fungible, many economists are skeptical that the AJCA much changed the use of corporate funds. Whether the domestic reinvestment plans were effective or not, about 70 percent of firms planned to complete their expenditure plans by the end of 2007 and 95 percent no later than the end of 2009.\textsuperscript{20} As a result of the AJCA, about $312 billion in extra funds were repatriated. By sector, of the $312 billion, manufacturing firms accounted for about 80 percent of total qualifying dividends repatriated—about 32 percent for the pharmaceutical and medical firms and about 18 percent for the computer and electronic equipment firms—while wholesale and retail trade and information services each accounted for about 4 percent. The Treasury collected at least $16 billion additional revenue that otherwise would have gone unpaid for decades.\textsuperscript{21}

On Capitol Hill, there was a big debate over including a similar provision in the giant economic stimulus package enacted in February 2009. Senators Barbara Boxer (D-CA) and John Ensign (R-NV) supported another tax holiday, arguing that additional funds repatriated to the United States would help stimulate the economy while raising some revenue. Other politicians dismissed the idea and questioned the economic impact of a temporary tax holiday. Senator Carl M. Levin (D-MI) claimed that “such tax holidays not only reduce U.S. tax revenue in the long run, but create new incentives for US multinationals to send more jobs, funds and facilities offshore.”\textsuperscript{22}

Scholars have diverging views on the economic impact of a tax holiday. A recent study by Robert J. Shapiro and Aparna Mathur (2009), funded by the Information Technology and Innovation Foundation, analyzed the experience of the AJCA and reported that of the $312 billion extra repatriated earnings, $73 billion was used to create or retain jobs, $75 billion to finance new capital spending, and $39 billion to repay domestic debt. In addition to the direct corporate tax revenue of $16 billion on the repatriated income, about $18 billion in additional personal income tax revenues was generated from the additional jobs and higher wages supported by the tax holiday. Based on this analysis, Shapiro and Mathur suggest that a repetition would attract about $420 billion of

\begin{itemize}
\item Another tax holiday, at a 5.25 percent repatriation rate, would gain revenue and make it easier for corporations to raise cash in the midst of the financial crisis.
\end{itemize}

\textsuperscript{18} A two-factor formula would normally ignore sales between related firms in the affiliated corporate group.

\textsuperscript{19} Section 965, newly added to the Internal Revenue Code (IRC) by the AJCA, outlines the one-time relief rendered to the US corporations for repatriated dividends received from their controlled foreign corporations.

\textsuperscript{20} Based on Internal Revenue Service (IRS) data; see Redmiles (2008).

\textsuperscript{21} To the extent these funds financed capital outlays and salaries, additional taxes were paid on the incomes generated.

liquid funds now held abroad, and about $97 billion would contribute to job creation or retention. Using a macroeconomic model, Allen Sinai (2008) likewise projected positive economic effects of the temporary tax holiday, including an increase in the growth of real GDP, higher corporate cash flow, and an increase in R&D spending.23

Other studies take a different view. After examining the financial reports of 40 large US-based MNCs, Lee A. Sheppard and Martin A. Sullivan (2009) concluded that firms have loaded up on unrepatriated foreign earnings, possibly in anticipation of another holiday. They caution that repeated “one-time relief” would encourage more shifting of profits offshore. Treasury Secretary Geithner likewise voiced a skeptical attitude about the repetition of a repatriation tax holiday.24 Jennifer L. Blouin and Linda K. Krull (2008) found that firms that repatriated income under the AJCA were firms with limited investment opportunities both abroad and at home. Blouin and Krull (2008) reported that repatriating firms increased their share repurchases more than nonrepatriating firms during 2005; they found no evidence of significantly more spending on R&D or property, plant, and equipment during the period following the AJCA. Dhammika Dharmapala, C. Fritz Foley, and Kristin J. Forbes (2008) reached similar results: Repatriations did not result in more investment, employment, or R&D; instead, a $1 increase in repatriations was associated with an increase of about $1 in payouts to shareholders—a $0.91 increase in share purchases and a $0.08 increase in dividends.

These diverging views suggest that one ought to be cautious about the domestic impact of another tax holiday. However, in our view, the debate over the disposition of AJCA funds is beside the point. The studies converge on a different but more important fact: Current US corporate tax policy imposes great burdens on US-based MNCs, prompting them to retain earnings abroad. The 2004 AJCA experience clearly shows that MNCs are highly sensitive to tax rates on repatriation. As mentioned earlier, we believe that the United States should end any US taxation of active income earned by subsidiaries operating abroad. In our view, repeating the AJCA experiment seems like a useful halfway stop to permanent adoption of the territorial approach, no matter how corporations choose to spend the repatriated income.

The current crisis furnishes another reason for advocating a repetition of the tax holiday. As President Obama emphasized, this is “an economic crisis as deep and dire as any since the days of the Great Depression.”25 Many companies are having liquidity problems. If US companies can help themselves using their own money, that seems like a good idea.26 Another tax holiday, at a 5.25 percent repatriation rate, would gain revenue and make it easier for corporations to raise cash in the midst of the financial crisis.27

CONCLUSION

US-based MNCs make a substantial contribution to the US economy. According to the BEA (2008), in 2006, the value added of US-based MNCs was recorded at $3.5 trillion; of that amount, US parent firms and their domestic affiliates accounted for about 72 percent. Approximately 51 percent of all US exports of goods are MNC-associated exports.28 Many empirical studies show that foreign and domestic investments are complements, not substitutes.29 Given these facts, and the realities of international competition, President Obama should reframe his campaign rhetoric directed against “tax breaks to corporations that ship jobs overseas.”30 The United States should not try to constrain the overseas operations of US-based MNCs. Instead, it should reform its tax system at home and create a business-friendly environment.

24. See Geithner’s written testimony prepared for the hearing on confirmation of Mr. Timothy F. Geithner to be Secretary of the US Department of Treasury, available at www.finance.senate.gov.
26. Dharmapala, Foley, and Forbes (2008) report that domestic operations of US-based MNCs that repatriated earnings abroad under the AJCA were not financially constrained at the time of the AJCA. However, the current situation is quite different from 2005.
27. Huang and Greenstein (2009) take a different point of view. They argue that the primary challenge that companies face during the recession is a decline in demand for their products, not a shortage of cash, and that only a small number of companies would benefit directly from the tax holiday. We disagree.
28. “Associated exports” include sales by MNC parent firms and their domestic affiliates to markets abroad, plus sale by non-MNC domestic firms to MNC subsidiaries operating abroad.
29. For the latest such study, see Desai, Foley, and Hines (2009).
REFERENCES


---

The views expressed in this publication are those of the authors. This publication is part of the overall programs of the Institute, as endorsed by its Board of Directors, but does not necessarily reflect the views of individual members of the Board or the Advisory Committee.