
Table of Contents

Executive Summary	1
Introduction	2
Economic Theory of Border Tax Adjustments	3
The Destination Principle of Taxation	3
The Origin Principle of Taxation	4
Market Adjustments vs. Border Tax Adjustments	5
Worldwide Use of BTAs	6
The Use of BTAs among Nations	8
BTAs in the U.S.	8
BTAs and Fundamental Tax Reform	9
The National Sales Tax	9
The Flat Tax	10
The USA Tax	10
Would BTAs Really Make a Difference?	11
Shifting and Incidence Considerations	11
Case I – Income Taxes Shifted Backward; Consumption Taxes Shifted Forward	12
Case II – Income Taxes Shifted Backward; Consumption Taxes Shifted Backward	13
Case III – Income Taxes Shifted Forward; Consumption Taxes Shifted Forward	14
Case IV – Partial Shifting of the New Tax	14
BTAs and Uniform Taxation	15
Conclusion	17
Notes	18

Executive Summary

Fundamental tax reform, whether in the form of a flat tax, consumed income tax, or national sales tax, promises to greatly improve economic prosperity and eliminate much of the complexity and associated compliance costs of the current system. Supporters also make the case that fundamental tax reform has the potential to increase American business's competitiveness in international markets through the use of border tax adjustments (BTAs).

BTAs are one mechanism through which a "tax neutral" setting for international trade and economic competition can be established. The government accomplishes tax neutrality by rebating taxes on exports and applying taxes to imports. The General Agreement on Tariffs and Trade, which defines the scope of international BTAs, only recognizes consumption taxes or those taxes applied directly to goods and services as eligible for BTAs. This means the Value Added Tax (VAT), sales, and excise taxes are BTA-eligible but income, social insurance, and other direct taxes are not. In theory, European businesses are at a competitive advantage vis-à-vis their American counterparts because European countries impose a consumption-based tax on domestic companies while the United States government imposes an income-based tax. European companies, therefore, can make use of BTAs while American businesses cannot.

All three types of fundamental tax reform considered over the past few years—the national sales tax, the flat tax, and the unlimited savings allowance tax—would move the U.S. toward a consumption-based tax system and therefore into greater alignment with European trading partners. Each of these variants would have different consequences in terms of the practicality of BTAs. BTAs would be most compatible with both the USA tax and the national sales tax because of their consumption-based approach. They would be least compatible with the flat tax, although some make the

case that the flat tax on business could be eligible for BTAs.

Economists traditionally have taken an agnostic view of BTAs, despite their political popularity, because the natural dynamism of prices, especially exchange rates, effectively creates a tax-neutral trading environment without the need for BTAs. This is essentially true regardless of the form that fundamental tax reform takes or whether BTAs are included or not.

Admittedly, there would be a transition period during which time the presence or absence of BTAs will affect the competitiveness of firms. The question then is whether the short-term, transitional benefits

Border tax adjustments tend to mask the true cost of corporate taxes, thus making corporate representatives and lawmakers less sensitive to tax increases.

would be worth the cost of administering and complying with BTA. Most economists would answer no, especially because the presence of BTAs tends to mask the true cost of corporate taxes thus making corporate representatives and lawmakers less sensitive to tax increases.

This suggests that the merits of a particular tax reform model should be judged primarily by other criteria. Much more important than border adjustability is how tax reform would improve underlying economic incentives, such as rewarding risk, savings, and investment, which in turn would boost productivity. There has never been much of a mystery on this score. Eliminating the double tax that currently exists on savings and investment and reducing rates in general would spur economic growth and make U.S. companies much more competitive in the world market. Border adjustability is not likely to have a great deal of impact on the competitive position of U.S. businesses in world markets.

Introduction

Whether in the form of a flat tax, consumed income tax, or national sales tax, fundamental tax reform promises to greatly improve economic prosperity. Supporters of tax reform criticize the current federal tax structure because it punishes savings and investment, risk-taking, and hard work. In addition, they note that the current system

imports. This is because international law treats certain types of taxes, called “indirect” taxes, differently from “direct” taxes. The corporate and personal income tax, the heart of the current federal tax system, are considered to be direct taxes. In contrast, some versions of tax reform replace income taxes with a national sales tax or value-added taxes (VAT), both of which are considered indirect taxes.

While this distinction may seem esoteric, it has potentially important consequences. Under international law, only indirect taxes are eligible for border tax adjustments (BTAs). A BTA is a mechanism through which a country’s taxes are rebated on exports and applied to imports. Most of the U.S.’s major trading partners levy a greater share of their total tax burden in the form of indirect taxes and thus make extensive use of BTAs. In contrast, the U.S. relies more on direct taxes and uses comparatively few BTAs. Imagine, however, that the U.S. replaced the corporate income tax, a direct tax, with the VAT, an indirect tax. U.S. exporters would be able to send their products to another country without the burden of the corporate income tax. Alternatively, items shipped into the U.S. would be hit with our VAT tax.

Proponents of such a shift argue that, by allowing for the greater use of BTAs, the U.S. would make its exporters more competitive. However, there is considerable disagreement over whether that is truly the case. In this paper, we explore this competitiveness question in the context of fundamental tax reform. After all, if the U.S. is going to undertake the Herculean effort to overhaul the existing tax system, then the result should be a system that is advantageous from both a domestic and international perspective.

Supporters of tax reform criticize the current federal tax structure because it punishes savings and investment, risk-taking, and hard work, ... is unnecessarily complex, and creates large compliance costs.

is unnecessarily complex, creating large compliance costs. In contrast, the most popular tax reform models are decidedly pro-growth. Hard work and risk-taking are rewarded through the elimination of the double tax on savings and investment that exists within the current system. Moreover, each of the aforementioned tax systems

If the U.S. is going to undertake the Herculean effort to overhaul the existing tax system, then the result should be a system that is advantageous from both a domestic and international perspective.

would likely reduce the complexity of the current code, thus lowering tax compliance costs.

A less publicized area of fundamental tax reform relates to international trade. Some versions of tax reform would change the way taxes are applied to exports and

Economic Theory of Border Tax Adjustments

The issue of how governments should deal with the differences in their tax structures has been around since companies of different nations began trading. No business wants to be at a disadvantage compared to their foreign competition. No consumer wants to pay higher prices just because of taxation. The idea of border tax adjustments arose as a way to eliminate the distortions caused by different tax regimes and allow businesses to compete and consumers to purchase based on natural competitive advantages. Understanding the nature of this evolution is important to understanding the relevance and importance of BTAs in the context of today's fundamental tax reform debate.

The Destination Principle of Taxation

BTAs find their roots in the destination principle of taxation. This principle requires that a product that is sent to another destination for sale in that market must carry the same tax that exists in that destination. In other words, producers exporting their goods would apply the tax rate that exists in the importing country, not their own. Likewise, domestic consumers would find that all imported goods are taxed at the same rate as domestic goods. BTAs are the means through which this process takes place. Through the export BTAs, the taxes in the country of origin are rebated to the producer. Through the import BTAs, the taxes in the destination country are then applied to the producer's goods.

A highly simplified example will help explain how the process works. Consider two countries, the United States and South Korea, both of which have companies producing computer chips for \$10 per unit.¹ In the beginning, both countries use direct

taxes—BTAs are not available. Assume also that the exchange rate between the two countries is one U.S. dollar equals one South Korean Won (KRW). In this initial state, neither country has a comparative cost advantage in computer chip production—the computer chip costs \$10 in the United States and 10KRW in South Korea. Consumers in either country would pay \$10 (10KRW) regardless of whether the computer chip is produced domestically or is imported.

To see how BTAs work, imagine that the United States implements a 50-percent consumption tax. South Korea makes no change to its tax system. For the sake of the example, assume that the entire consumption tax in the United States is *shifted forward* into a higher price, meaning that the consumer bears the full burden of the newly imposed consumption tax.² Thus, computer chips produced and sold in the United States would sell for \$15, with \$5 of the price representing the new consumption tax. Computer chips produced in South Korea would still sell for 10KRW in South Korea.

Now suppose a chipmaker in the United States exports a computer chip to South Korea. Because the consumption tax is bor-

The idea of border tax adjustments arose as a way to eliminate the distortions caused by different tax regimes and allow businesses to compete and consumers to purchase based on natural competitive advantages.

der adjustable, the American exporter would receive an export rebate of \$5 and the computer chip would head toward South Korea's border at \$10, free of the United States tax. At the border, South Korea's consumption tax would be applied to the product. Since the rate is zero, the American computer chip would sell for 10KRW

in South Korea.

Meanwhile, if an exporter in South Korea sent a computer chip to the United States, it would receive no export rebate since South Korea has no consumption tax. Upon entering the United States, the 10KRW computer chip would be subject to the import BTAs. In other words, the United States would apply its 50 percent consumption tax rate to the computer chip. Consequently, South Korea's computer chip would sell for the same price (\$15) in the United States as a computer chip made in the United States.

The example illustrates that BTAs allow producers to trade in a tax-neutral arena. In our example, the American exporter can sell at the same tax rate that exists in low-tax South Korea. The exporter is not penalized for his country's higher taxes. (This analysis does not address the other effects that a change in tax policy will have on the economy. While important, these effects such as decreased productivity and increased prices are outside the scope of this paper.) Likewise, domestic producers in the United States, in a sense, are protected from South Korea's lower taxes since exporters in South Korea will have to pay the same 50 percent tax rate that exists in the United States. The BTAs also preserve the orig-

keep trade tax-neutral among nations. BTAs provide a way to adjust for differences among international tax rates while preserving natural comparative cost advantages among nations. In the example, despite a sharp rise in the United States's tax rate, American exporters were able to sell their computer chips on the same terms that exist in South Korea. In effect, the export BTAs enabled American exporters to blot out its consumption tax. Any naturally occurring comparative cost advantage realized by companies in the United States or South Korea also stayed the same despite the United States's large tax hike—one American computer chip continued to trade for one South Korean computer chip.

The illustration above also allows for an appreciation of why many in the business community seem to like BTAs. In theory, if taxes go up, BTAs preserve an exporter's competitive advantage since they can receive a rebate for the tax. On the other hand, domestic producers are protected from imports in the sense that any imports must carry the consumption taxes of the domestic nation (the import BTAs).

The Origin Principle of Taxation

In contrast to the destination principle, some economists advocate tax systems based on the origin principle.³ Under the origin principle, a good that is sent from one country to another must carry only the tax established in the country of origin. In the example above, this would amount to eliminating the BTAs. In other words, if an American exporter were to send its computer chips into South Korea, it would carry the country's 50 percent consumption tax rate into South Korea. Assuming again that producers shift the tax forward, American computer chips would cost 15KRW in South Korea. Likewise, if a South Korean chipmaker sent a computer chip into the United States, it would carry the country's zero percent consumption tax rate into the United States. Thus, the South Korean computer chip would cost only \$10 compared to domestically produced \$15 computer chips.

Under the origin principle, a good that is sent from one country to another must carry only the tax established in the country of origin, which amounts to eliminating the border tax adjustments.

inal comparative cost advantage between countries. In this example, after the BTAs are applied one American computer chip still trades for one Korean computer chip.

This example is a basic illustration of how BTAs work in theory. Their proponents claim they are an effective way to

An apparent advantage of the origin principle is that it puts consumers in a superb position to take advantage of differences in tax rates. Consumers in a high-tax country are able to take advantage of lower taxes in other countries. In the above example, consumers in the United States, with a relatively high tax, could initially take advantage of the low taxes on South Korean computer chips and save \$5 per computer chip. In theory, it appears that the origin principle serves to “artificially” lower the price of South Korean computer chips relative to American chips – *even though we assumed that comparative costs are really the same in both countries*. The origin principle also appears to place downward political pressure on tax rates.

Market Adjustments vs. Border Tax Adjustments

Should we be concerned that the origin principle appears to allow taxes to distort comparative advantage? Or, should lawmakers worry about protecting domestic producers from high taxes through the use of destination-based BTAs? Economic theory answers no to both of these questions. Certainly, the form of tax levied against businesses affects the ability of those companies to compete internationally. However, in theory, natural market adjustments and legislatively-imposed BTAs accommodate these effects in a similar manner. And, in practice, there are sound reasons to avoid BTAs. To understand this better, we return to the computer chip example.

Following the origin principle, South Korea would export more computer chips than it would import. Because the price for South Korean computer chips in the United States is \$5 cheaper than domestically produced chips, the demand for South Korean chips would rise relative to American chips. However, most economists would argue that this would be unsustainable, as a variety of natural economic adjustments would occur. For example, prices of capital and labor could fall in the United States to absorb the 50 percent consumption tax,

so that the price of American computer chips returns to \$10.

This occurs in the following manner. Recall in the initial state, before the new 50 percent consumption tax, that the price of computer chips in the United States was \$10. Let us assume in this initial state that labor and capital both received factor incomes of \$5 each. In effect, this means that each factor received 50 percent of the revenue generated by the sale of computer chips. Next, the 50 percent consumption tax is imposed in the United States and the price of domestically produced computer chips rises to \$15 per unit. Of this \$15, the government receives \$5, and labor and capital continue to receive \$5 each. Each factor (government, labor and capital) now takes one third of the after-tax price of the computer chip.

Without BTAs, the \$15 price is simply too high relative to the world market price of \$10. Therefore, factor prices would have to fall just enough to restore the old price

In theory, natural market adjustments and legislatively imposed border tax adjustments accommodate the effect in a similar manner.

of \$10. This could happen in a manner that keeps factor shares the same as when the tax was shifted forward to consumers. For this to occur labor and capital would absorb a 33 percent reduction in their old nominal returns of \$5 each. This means labor would accept a payment of \$3.33 and capital would take \$3.33 as their return on investment. The price of the computer chip (before taxes) in the United States would therefore fall to about \$6.67. The 50 percent tax would be levied upon this final cost so that the final price would be \$10. In the end, labor, capital and government receive the same one third share of output as they did when the tax was shifted for-

ward—but the final price (\$10) does not change and international competitiveness is restored.⁴ Of course, the lower returns to capital and labor do have real economic effects. However, as will be demonstrated in this paper, the real economic effects of changes in tax policy will be the same under a destination-based system of BTAs as under an origin-based open market. What we are concerned with here is the necessi-

among countries.

Because of the economic equivalence between origin-based market corrections and a destination-based system of BTAs, many economists take a rather agnostic view of the issue. They would argue that since it does not matter because of the natural adjustments, the issue is of no significant consequence. However, there are a variety of issues that come up in the context of the political economy and fundamental tax reform. First, BTAs may play a significant and real role in the transition period from the existing tax system to a new consumption-based system. This issue is explored in full below.

Second, there may be some political economy advantages of an origin-based system. Recall that border tax adjustments make it rather easy for exporters to adjust to a tax increase because of the export rebate. At the same time, domestic producers are hurt by the higher tax but protected from low-taxed foreign competition since the higher tax would be applied to imports as well. However, since they are “shielded” from higher taxes by the BTAs, it is likely that resistance to tax increases among the business community would be less forceful. In the political marketplace this artificial protection may lead to less resistance to tax increases and therefore, higher taxes. Thus, from a political economy standpoint, there are legitimate concerns about implementing BTAs. Also, there are significant compliance and administrative costs associated with BTAs that should not be overlooked.

Worldwide Use of BTAs

The practical application of BTAs dates as far back as the 1860s when France and Zollverein agreed to provide for border tax adjustments on exports. France and Great Britain made a similar agreement in the 1880s that included the corollary provision that imported goods would be taxed no more heavily than domestic goods.⁵ However, it was not until the late 1960s that widespread plans for BTAs were put for-

While economists may argue that border tax adjustments have little consequence, ... BTAs may play a significant role in the transition period from the existing tax system to a new consumption-based system.

ty of BTAs for preserving a country’s competitive position in international markets.

Another potential natural adjustment is the exchange rate for currency between the United States and South Korea. In the example, the price of a South Korean computer chip is \$10, but an identical American computer chip costs \$15. A consumer in the United States could save \$5 per chip by purchasing South Korean chips. As more people rush to buy South Korean computer chips, demand for South Korean Won would increase relative to demand for American dollars. Over time, the dollar would depreciate by 33 percent, so that one dollar would trade for 0.67KRW. Thus, it would take \$1.50 to purchase 1KRW.

South Korea’s 10KRW computer chip is now worth \$15. At this point, there is no advantage for a consumer in the United States to import computer chips from South Korea. Likewise, the \$15 domestically produced computer chip costs 10KRW, so there is no disadvantage for a consumer in South Korea to import from the United States. In effect, the exchange rate adjusts to “correct” for the differences in tax rates

ward. At that time the European Community required its members to replace their national “turnover taxes,” or sales taxes, with a value added tax (VAT). By 1970, all members of the European Community had to adjust their VAT at the border according to the destination principle of taxation. As a Tax Foundation study of that time stated, “This system insures that goods and services whether from within or from outside the E.E.C. are subject to equal amounts of taxes imposed by the country in which they are finally consumed, regardless of the country in which they were produced.”⁶

The VAT is a tax on the value a firm adds to a product in the production process. This is usually defined as the total revenues of the firm minus the costs of inputs bought from other firms. Value added is the economic contribution made by a firm after it buys inputs produced by other firms. For example, if a person buys \$10 worth of lemons and hires someone to make and sell a batch of lemonade for \$30, the value added of the lemonade seller is \$20. In effect, the seller took \$10 worth of lemons and added \$20 of value to produce lemonade.

Consider the production of a chair for the market. First, the raw lumber cut from a tree is sold to a chairmaker for \$10. Then, the chairmaker builds the chair and sells it to a furniture store for \$50. The store then sells the chair to a customer for \$60. The value added at each stage of production is \$10 (lumber), \$40 (chair making), and \$10 (retailing). In other words, the value added of each stage of production equals the final value of the product itself, \$60.

If a VAT of 10 percent were imposed, then the lumber firm would pay \$1, the chair maker would pay \$4, and the retailer would pay \$1. The VAT would yield \$6. The VAT is generally assumed to be forward shifted into the final price of the good. Therefore, the actual sales price at each stage would now be \$11 for the lumber (the lumberman needs an extra \$1 for taxes to maintain his \$10 of value added), \$55 for the chair making (the chair maker needs to pay for the \$1 of tax shifted to him from

the lumberman and another \$4 for taxes on his value added of \$40) and \$66 for the final sales price (the retailer has to pay for the \$5 of taxes shifted to him from the chair maker and another \$1 for taxes on his value added of \$10).

This simple example raises several interesting points. First, the VAT is very similar to a national sales tax in many respects. A national sales tax of 10 percent levied on the pre-tax value of the product (\$60) would yield the same amount of tax collections (\$6) as the VAT and the same final after-tax price of \$66. In fact, many economists consider the two taxes to be similar in terms of their impact on consumers and producers.

Second, the chair example highlights some of the problems the Europeans had with their old turnover tax. The turnover tax was similar to a sales tax except it was

The European Community required its members to replace their national “turnover taxes,” or sales taxes, with a value added tax (VAT), and by 1970, all members had to adjust their VATs at the border according to the destination principle of taxation.

applied to the various stages of production and not limited to the final price. This led to the problem of cascading, or multiplying, of taxes. Returning to the example above, imagine applying a 10 percent sales tax to each stage of production. The lumberman would pay a tax of \$1 on his contribution of \$10 and so the price after tax would be \$11. However, the chair maker would post a pre-tax price of \$51 (in order to keep his old \$40 value added). The sales tax of 10 percent would therefore add \$5.10 and so the new after-tax price would be \$56.10. The retailer would post a pre-tax price of

\$66.10 (to maintain his \$10 value added). The sales tax of 10 percent would add \$6.61 and so the final after-tax price faced by the end consumer would be \$72.71.

Instead of the \$6 in taxes collected under the VAT or national sales tax, the turnover tax would result in collections of \$12. While choosing a lower tax rate could correct this problem, uniformity problems would remain. In other words, the size of the tax depends on the number of times the good changes hands before reaching the consumer. Certain goods could face more taxes than others simply because they changed hands more often. The VAT avoids this problem.

Third, the example shows how easy it is to apply BTAs with a VAT. Assume that the furniture store in the example above decides to ship the chair to another country. The store would receive an export rebate of \$5 for all the VAT taxes shifted to it from the prior stages. Consequently, the chair could be shipped to a foreign destination without the VAT in the home country. When the good is sold in another country, the VAT in that country would be applied. Thus, the chair trades at the same

rebated at the border are consumption taxes or those taxes applied to goods and services. This means the VAT, sales, and excise taxes are BTA-eligible but income and social insurance taxes are not.

The reasoning is that consumption taxes are 'indirect' taxes. This means that while businesses may actually collect such taxes and remit them to the government, the taxes are passed through to the consumer in the form of higher prices. In contrast, income taxes are considered to be absorbed by the factors of production (labor and capital) and not so easily shifted to consumers. Since consumption taxes are hypothesized to lead to higher prices, the reasoning is that BTAs can help restore international price competitiveness. Whether they are necessary to accomplish this restoration is a debatable proposition, as we have discussed above and will investigate in the context of fundamental tax reform below.

Countries that are relatively dependent upon consumption taxes are better able to make use of BTAs than countries that rely on other forms of taxation. This is why BTAs are in widespread use in Western Europe where the VAT is used extensively. BTAs are less useful in the United States, where consumption taxes are less prevalent, especially at the federal level. In 1992, for example, United States indirect taxation as a percentage of all taxes (all levels of government included) was about 17 percent. Indirect taxation as a percentage of all taxes in Western European countries was about 32 percent—almost double the U.S. share. In 1992, indirect taxes took about 5 percent of Gross Domestic Product (GDP) in the U.S. compared to almost 13 percent in Western Europe.⁸ These statistics imply that European countries are in a better position to make much greater use of BTAs than does the United States.

While not as common as in Europe, BTAs are currently used in the United States. ... Manufacturers of cigarettes do not apply local, state and federal excise taxes on cigarettes sent to another country, nor do they apply state and local sales taxes.

consumption tax rate that exists in the country of destination.⁷

The Use of BTAs among Nations

The rules defining the scope of BTAs are spelled out in the General Agreement on Tariffs and Trade (GATT), which is now a component of the World Trade Organization. In general, the only taxes that may be

BTAs in the U.S.

While not as common as in Europe, BTAs are currently used in the United States. They can be especially significant when it comes to goods that carry high excise and

sales taxes. For example, manufacturers of cigarettes do not apply local, state and federal excise taxes on cigarettes sent to another country nor do they apply state and local sales taxes. Consider cigarettes shipped from New York City to Europe; the federal excise tax is 34 cents per pack, the state excise tax is \$1.11 per pack and the local excise tax is 8 cents per pack. This amounts to \$1.53 per pack in excise taxes that are rebated at the border. In addition, state and local sales taxes of approximately 35 cents per pack are exempted at the border. On the other hand, these taxes would be added to foreign cigarettes shipped into New York City; their own country's consumption taxes were stripped off when they were exported. This allows U.S. and foreign cigarettes to compete on a tax-neutral basis, according to the destination principle.

Another form of border tax adjustment is the controversial Foreign Service Corporation (FSC). Under this arrangement, U.S. exporters can receive partial relief from corporate income taxes on goods shipped abroad. Specifically, the FSC lowers the corporate tax rate from 35 to 30 percent for such transactions. However, the European Community has challenged this provision on the ground that it violates WTO rules. They argue that this export "rebate" is really an export subsidy since the relief is of a direct tax, the corporate income tax, rather than an indirect tax such as a VAT.

State-levied sales taxes in the United States are based on a curious mix of destination and origin principles. Generally speaking, the U.S. system of sales taxation is a kind of "natural" system of BTAs modeled on the destination principle. This is because sales taxes are not imposed on the wholesale value of a product, which means no explicit export rebate is necessary. For example, if a wholesaler ships a product into another state for sale, the item would not carry the sales tax of the wholesaler state since sales taxes are applied at the retail level. However, when the item is sold to a consumer, the sales tax of the host state applies.

Items sent from one state to another do not carry the sales tax of the state of origin since they leave at the wholesale level. However, the items are taxed at the sales tax rate that exists in the state of destination.

While the state system of sales taxes are destination-based, there is also considerable

The question is, would an increased reliance on indirect taxes and the allowance of more BTAs lead to an improvement in U.S. competitiveness?

room for mail order and cross-border sales among states. This injects the origin principle. For example, if a person in New York City wants to escape high excise and sales taxes on an item, he can travel to Delaware where there is no sales tax and excise taxes are low. In our cigarette example above the New Yorker could save \$1.55 per pack or close to \$16 per carton in sales and excise taxes by shopping in Delaware. In effect, cross-border and mail-order sales allow consumers in high tax states to buy at the low tax rates that exist in the state of origin. While so-called "use" taxes are supposed to be paid on such items when consumers return from their tax haven trips, this is seldom enforced except in the case of high priced items such as automobiles.

BTAs and Fundamental Tax Reform

Fundamental tax reform presents an opportunity to inject more BTAs into the U.S. Tax system. This is because some of the tax reform models would shift the existing emphasis away from direct taxes on income to indirect taxes on sales or value added. Under international law, exports would be eligible for tax rebates and imports would be taxed at the U.S. rate.

The question is, would an increased reliance on indirect taxes and the allowance of more BTAs lead to an improvement in U.S. competitiveness? We will discuss this

issue by looking at the three most popular versions of fundamental tax reform: a National Sales Tax, the Flat Tax, and the Unlimited Savings Allowance (USA) Tax.

The National Sales Tax

The National Sales Tax (NST) is the most adaptable model for using BTAs. The NST would do away with both the individual and corporate income tax and substitute in their place a federal sales tax on the final, or retail value, of most goods and services. Supporters of the plan argue that NST rates between 16 percent and 18 percent would be sufficient to replace the current system.

explicitly enumerated as an indirect tax by international convention. Therefore, the national sales tax would pass the legal test for border tax adjustment.

The Flat Tax

The flat tax, a tax on income, is the least adaptable model for border tax adjustment. In fact, no provisions have been made for BTAs under the flat tax. The flat tax model would substantially reform our present system of personal income taxation by eliminating all but a single rate and doing away with many current deductions. At the same time, individuals would be able to exclude investment and savings income from the tax. A single tax rate of approximately 17 percent would replace the current progressive rate structure.¹⁰

A flat tax of 17 percent would also be placed on businesses, replacing the current 35 percent corporate income tax rate. The tax base for the business flat tax would also be different than under the current system. In fundamental ways, the tax base under the flat tax edges close to a VAT. Recall that value added is gross revenue minus inputs purchased from other firms. This means the VAT base for a firm includes all items between gross revenues and the value of the inputs bought from other firms. This would mean that all labor costs, interest expense and social insurance taxes would be included in the VAT base. By contrast, these items would be deductible expenses under a business income or profits tax, which is one reason that the VAT rate is considerably lower.

The flat tax on business, like the current business tax on profits, would deduct wages and salaries from gross revenues. However, like the VAT, fringe benefits, Social Security taxes, and interest expenses of businesses would not be deductible. Since the flat tax moves in the direction of a VAT, some have argued that the flat tax on business could be eligible for border tax adjustments. However, proponents of a flat tax, in the spirit of the origin principle, have made no plans for border tax adjustment, deeming it a minor concern.

Proponents of a flat tax, in the spirit of the origin principle, have made no plans for border tax adjustment, deeming it a minor concern.

Critics argue that the rate could be more than 30 percent.⁹ Regardless of the rate, the NST provides the basis for a rather smooth transition to a destination-based system of international taxation.

The NST is a natural for border tax adjustment. Sales taxes are not imposed on the wholesale value of a product. Therefore, no explicit export rebate is necessary on shipments abroad. Goods and services shipped from the U.S. would not carry any sales taxes and would be taxed at the rates that exist in the country of destination. Imports, by contrast, would be taxed at the NST rate, and thus face the same rate of taxation as domestic goods.

Compared to the present system, which does not allow an exporter to receive a rebate on corporate taxes paid, the NST would allow goods produced by American firms to go into other countries relatively tax-free. Likewise, imports would be subject to higher taxation than they are now, since importers currently do not pay the U.S. corporate income tax. Finally, the NST would be GATT-compatible, since sales taxes are

The USA Tax

The USA tax is commonly referred to as a consumed income tax. At the personal level, the USA tax would tax consumption but not income directed to savings and investment. The USA tax would require a person to report total income to the government, but deduct any income used for savings and investment. In this way, the USA tax is mostly a tax on consumption. The USA tax would have a top rate of about 40 percent.¹¹

Like the other plans, the USA tax would do away with the current 35 percent corporate income tax. The USA tax would substitute an 11 percent VAT that would be border adjustable. Exporters would receive a rebate on all VAT taxes paid on goods shipped out of the country and imports would be subject to the VAT when they arrive. In this way, the USA tax would be a border adjustable destination based system. Similar to the proponents of the national sales tax, USA tax supporters often claim that their plan will make American businesses more competitive in the international marketplace than under the present tax system.

Would BTAs Really Make a Difference?

Is all the fuss over BTAs worth it? Would they improve U.S. competitiveness? Not surprisingly, there is no overwhelming consensus on the answers to these questions. We have already established the theoretical fact that a destination-based system of BTAs and an origin-based system of market adjustments are economically equivalent. However, as also mentioned above, there are real transition, compliance cost, and political economy issues involved with an increased use of BTAs associated with fundamental tax reform. We shall explore these issues by using some relatively simple cases to show the range of possible impacts of fundamental tax reform proposals that implement or ignore BTAs.

Shifting and Incidence Considerations

In order to see the potential impact of fundamental tax reform and border adjustability, we must consider how the change from our present tax system to the reform models affects domestic prices. This analysis depends, in large part, on the shifting and incidence of taxation, i.e., who ultimately bears the burden of the tax. Put in more personal terms, do consumers pay the tax at the cash register in the form of higher prices, or do workers and shareholders absorb the tax in the form of lower paychecks and smaller dividend checks (or perhaps some combination of the above)?

It is commonly asserted that sales taxes are *shifted forward* to the consumer in the form of higher prices. This has an intuitive appeal since consumers commonly see the sales tax added onto the total price of an item or bill. For example, assume that a restaurant meal in a state without a sales tax is \$10. The state then decides to adopt a new sales tax of 10 percent. If the tax is shifted completely forward to the consumer then the price of the meal will rise to \$11. The final resting-place of the tax would

Do consumers pay the tax at the cash register in the form of higher prices, or do workers and shareholders absorb the tax in the form of lower paychecks and smaller dividend checks, or perhaps some combination?

be on consumers, who have to pay higher prices for their meal.

On the other hand, some economists argue that sales taxes are actually *shifted backward* to the factors of production. In the above example, this implies that the restaurant does not have the ability to increase prices. The pre-tax price of the meal would drop to about \$9.10 and the 10 percent sales

tax would bring the final price to its original level of \$10. The consumer may think he is paying the sales tax since he sees another 90 cents added to his bill, but in reality, the factors of production are absorbing the tax since the final price after tax is still \$10. The consumer would only understand this if he could remember that the old price, before the state had a sales tax, was \$10.

We will now apply these different shifting and incidence assumptions to different forms of taxation, through the computer chip model introduced earlier in this paper. Again, we assume that the original price of the computer chip is \$10 in the United States. We also assume that the price of a computer chip in South Korea is 10KRW and that the exchange rate is initially set at \$1 to 1KRW.

In a world without taxes, we assume that the return on sales to the factors of production are split evenly—labor receives \$5 and capital receives \$5. The federal government decides to levy a 50 percent tax on computer chips. If we assume the tax is completely shifted forward, then the price of the computer chip rises to \$15; the consumer bears the full burden of the tax. The \$15 is returned equally in \$5 payments to the federal government, labor and capital. Note that the computer chip is now split three ways with one-third going to the government, one-third to labor, and one-third to capital.

A similar state of affairs would emerge if the tax were completely shifted backward. Complete backward shifting simply means that the final price remains the same (\$10) and the factors of production take lower payments. In our case, the pre-tax price of the computer chip would fall to \$6.67 with labor and capital taking a payment of \$3.33 each. The 50 percent tax would then be applied to the pre-tax price of \$6.67 to yield a final price of \$10. In this case, the \$10 computer chip value is returned equally in \$3.33 payments to the government, labor and capital. In the end, each claimant receives the same share of output, one-third a computer chip.¹²

The major difference between the forward and backward shifting cases is that the price level rises under forward shifting. This is an important consideration since it means that the shift to a different tax reform model could increase domestic prices relative to the international markets. This would suggest a possible need for BTAs.

Now we shall consider BTAs and the most popular tax reform proposals described above in light of four different sets of assumptions.

- (1) Income taxes are shifted backward, consumption taxes are shifted forward.
- (2) Income taxes are shifted backward, consumption taxes are shifted backward.
- (3) Income taxes are shifted forward, consumption taxes are shifted forward.
- (4) Income and consumption taxes are partially shifted forward and partially shifted backward.

The first two cases imply that our current income-dominated system results in lower factor incomes but does not lead to significant increases in nominal, domestic prices. There are two main reasons for this assumption. First, capital and labor would absorb the tax because international competition would eventually keep prices from increasing. Second, labor, and to a lesser extent physical capital, is relatively immobile across nations and would therefore have great difficulty escaping the tax.

Case I - Income Taxes Shifted Backward; Consumption Taxes Shifted Forward

Suppose that the United States decides to switch its tax system from the income tax to a consumption tax, and assume that the consumption tax is shifted forward in the form of a higher price to consumers so that the price of the computer chip in our example rises from \$10 to \$15 in the United States. Government, labor and capital now receive factor shares of \$5 apiece. In real terms, each factor receives one-third of a computer chip.

Given that South Korea's computer chip remains at \$10, the shift to a consumption tax would immediately leave the United States at a competitive disadvantage. One can immediately see the merits of having BTAs. Exporters in the United States would receive a tax rebate of \$5, which means their products enter South Korea at 10KRW and pay its consumption tax, which we assume is zero. Consequently, American exporters would not confront any competitive disadvantage from the change in relative, nominal prices; in effect, the BTAs block out the price increase caused by the tax change. On the other hand, computer chips arriving from South Korea would be subject to the import BTAs and would pay the \$5 tax. The result is that domestic producers in the United States are shielded from the higher prices generated by the shift to a consumption tax.

Under these conditions, the BTAs level the playing field for exporters and domestic business. *They do not improve the international competitiveness of the country adopting the consumption tax. They simply preserve the original competitive position.*

Without the BTAs, Country A's \$15 price is much higher than is available on the international market - in this case, the 10KRW South Korean computer chip. Thus, we are back to the problem presented before with respect to origin based systems of taxation. In this case, essentially the origin-based system of taxation, many economists would claim that natural market adjustments would occur to restore nominal price competitiveness. One possibility is that exchange rates would adjust. In our example, the price of a South Korean computer chip is 33 percent less than an American chip. Consumers would seek out these lower prices, and consequently, the United State's currency would depreciate by 33 percent. One dollar would trade for 0.67KRW of South Korean currency; it would take \$1.50 to trade for 1KRW. This would mean that the 10KRW South Korean computer chip now costs \$15 so there is no advantage for a consumer in the United

States to import from South Korea. Likewise, the \$15 computer chip costs only 10KRW so there is no disadvantage for South Korean consumers to import from the United States. In effect, the exchange rate adjustment eliminates any price disadvantage introduced by fundamental tax reform.

The other "natural" adjustment that could occur is that factor prices could fall just enough to restore the previous price of an American chip to \$10. Nominal price competitiveness would be restored by the shifting backward of the tax over the long term.

Natural market adjustments including exchange rates and factor prices serve the same role as BTAs, to eliminate any price disadvantage introduced by fundamental tax reform. The differences are 1) BTAs are a legislative fix and market adjustments are an economic fix and 2) market adjustments take some time.

Case II - Income Taxes Shifted Backward; Consumption Taxes Shifted Backward

Another possible assumption is that all taxes are eventually shifted backward with the burden born by the factors of production including labor and capital. In consequence, the shift from an income tax to a consumption tax does not alter final nominal prices. The reasons why this may occur have been alluded to above. Using our example we assume that the 50 percent income tax was shifted backward and so the price of the computer chip in the United States is \$10. We also assume that the price of a computer chip in South Korea is 10KRW and that the exchange rate is set such that \$1 equals 1KRW. We now change the tax system from income taxes to consumption taxes in the United States. Under the assumption that the consumption tax is also shifted backward, the price of the computer chip remains at \$10 in the United States. Under these assumptions, prices do not change and international competitiveness is unaltered. If this assumption holds then the issue over BTAs is a red her-

ring. After all, if the switch to a new tax system does not change prices then there is no need for BTAs.

This sort of analysis could also apply to the flat tax reform model. The flat tax would replace the present income tax system with a flat rate of approximately 17 percent. If the income taxes are shifted backward then the move to a flat tax would not change final price since one form of a backward shifted income tax is substituted for another. Thus, the fact that the flat tax is not border adjustable should be of no consequence to international competitiveness.

Nonetheless, some advocate BTAs even under backward shifting assumptions and a move to a consumption tax. In this case, the price of a computer chip in the United States remains at \$10. The use of BTAs would then confer a temporary competitive advantage in the United States. For example, if an exporter in the United States could receive an export BTA then he could send his computer chip into South Korea at a price below 10KRW. However, we would expect that this advantage would lead to an increase in the demand for dollars. The eventual appreciation of the dollar would tend to eliminate this short-term advantage, just as described under case I above.

Case III - Income Taxes Shifted Forward; Consumption Taxes Shifted Forward

Most economists would consider a scenario in which all taxes are shifted forward in the form of higher prices to be the most unlikely case. However, such a case is important to understand because the underlying assumption of forward shifting is relatively intuitive and popular in business and political circles.

The forward shifting assumption leads to the popular claim that U.S. goods trade at a competitive disadvantage since the corporate income tax raises prices. But, under international rules, American exporters cannot receive a rebate for such taxes. In consequence, U.S. products would be priced

artificially higher than those of our trading partners who are able to rebate their VAT taxes on exports at the border. The truth is, however, that the United States has had a corporate income tax system without either export rebates or import levies for a very long time and it is quite likely that exchange rate and price flexibility movements over this time have corrected any disadvantages that emerge.

If the United States moves from a hypothetical 50 percent corporate income tax to a 50 percent VAT without BTAs there would be no change due to nominal price differentials in the competitive equilibrium that already exists. If BTAs were instituted along with the new VAT, then American producers would immediately see a benefit. Because markets have adjusted to the previous tax system, the BTAs come as a "bonus" to American producers. This advantage would only be temporary, however, because the pre-shift balance between the United States and South Korea would be quickly restored through exchange rate movements and/or price flexibility.

Once again, the transitional benefits of BTAs must be considered against the costs of administering such a system.

Case IV - Partial Shifting of the New Tax

We will now examine a case where a country switches from an income tax to a consumption tax but the incidence of the tax lies somewhere in between full forward and full backward shifting. Each of the previous cases assumes that certain taxes are completely shifted either forward or backward. While there is no consensus among economists as to the direction in which taxes are shifted, there is a general understanding that most taxes are not completely shifted one way or the other. In nearly every case, depending on current economic conditions and the nature of the industry affected, consumers and the factors of production share the burden of a tax. Therefore, this case, in which there is a partial shifting of the new tax, is the most realistic.

Instead of the \$10 computer chip in the United States remaining at \$10 (full backward shifting) or rising to \$15 (full forward shifting) as in the cases above, assume it ends up somewhere in between, at \$12 for example. In this case, both consumers and factors of production absorb a part of the tax.

At a final price of \$12, the pre-tax price would be \$8 with labor and capital receiving payments of \$4 apiece.¹³ The new 50 percent consumption tax would be applied to the pre-tax price of \$8, yielding a \$4 payment to the government. The \$4 tax would be marked-up in the final price of \$12. Again, the government, labor and capital each receive one-third a computer chip. No matter how the tax is shifted we end up in the same real position in terms of factor shares since supply and demand conditions in factor markets control such shares.

While tax shifting does not alter anyone's "real" share of output it can change domestic prices and so change international competitiveness. The price of American computer chips would be \$12, putting it above the 10KRW price in South Korea. Computer chips manufactured in the United States would suffer from a temporary disadvantage. However, if BTAs are applied, an American exporter could send a computer chip to South Korea for \$8, since he would be rebated the \$4 consumption tax. American firms go from having a temporary disadvantage (\$12 American computer chip v. 10KRW South Korean computer chip) to a temporary advantage (\$8 American computer chip v. 10KRW South Korean computer chip). This advantage could ultimately disappear as a result of price and exchange rate movements. In particular, the dollar could appreciate by 20 percent to restore competitive balance.

If BTAs were not applied, then the American made computer chip would be \$12 compared to 10KRW South Korean produced chips. However, this disadvantage could eventually erode due to price and exchange rate movements. In this case, the dollar could depreciate by 20 percent to

restore competitive balance.

Again, we reach the conclusion that, after a transition period, a destination-based system of BTAs and origin-based market adjustments are economically equivalent. BTAs may alleviate some of the costs associated with the transition, but these have costs of their own including compliance and administrative requirements.¹⁴

BTAs and Uniform Taxation

Our use of elementary examples allows us to gain some additional insights into the BTA issue. BTAs can alleviate some transition costs and competitive disadvantages that may arise with tax reform. In fact, under the assumptions of Cases II and III (in which all taxes are shifted in the same di-

After a transition period, a destination-based system of BTAs and origin-based market adjustments are economically equivalent. BTAs may alleviate some of the costs associated with the transition, but these have costs of their own including compliance and administrative requirements.

rection) BTAs can actually generate short-run advantages. However, the unavailability of BTAs would not lead to serious long-run inequities. For example, the shift to a flat tax may leave competitive conditions unimpaired if the backward shifting assumption holds. Moreover, even under less favorable conditions, any disadvantage generated by tax reform is likely to be corrected by price flexibility and exchange rate movements. In other words, BTAs may not matter over the long run.

Beyond these fundamentals, however, complexities could affect the analysis. One important issue concerns uniformity. The examples above assume that the shift to a

particular system affects all goods equally. The 50 percent tax we assumed on computer chips would apply to all other goods and services offered in the economy. A problem emerges if the shift to a particular tax system treats individual sectors of the economy differently. The simplest case to envision is a country moving to a new VAT with multiple tax rates in which the new taxes are shifted forward to the consumer in higher prices. For example, the basic VAT might be 50 percent, but certain other sectors of the economy may have a higher VAT, say in the range of 60 percent.

If BTAs are not available, the country adopting the VAT would see its prices rise (assuming the original tax was backward shifted and the new VAT is forward shifted), and thus become less competitive. However, exchange rates could depreciate to restore competitive advantage. In the example, the exchange rate would likely change by about 50 percent, since the prices for most products under these assumptions would rise by 50 percent because of the 50 percent VAT. This depreciation would make most sectors competitive again. However, some sectors may face higher tax rates. For example, legislators may decide to levy a 60 VAT on beer producers as a sin tax. Beer exporters would still face a disadvantage, albeit a smaller one than before the depreciation. This illustrates that exchange rate movements are a rather blunt corrective mechanism, since it corrects for the aver-

age distortion, but not all distortions. This problem could be avoided by choosing a uniform VAT. However, if a new tax system is not able to achieve such uniformity, then it is possible that some sectors may be disadvantaged.¹⁵

In the case of uneven taxes, BTAs would allow each industry to finely adjust its final price so that its products face no competitive disadvantage. The hypothetical beer exporter mentioned above who faces a 60 percent VAT, for example could claim a rebate equal to the full 60 percent tax. Consequently, beer enters the world market without the 10 percent tax disadvantage (the difference between the VAT on beer and the average VAT rate of 50 percent, which has been corrected for through natural market mechanisms).

BTAs would be somewhat helpful in the case of uneven consumption taxes. However, even then, uniformity problems may exist. One example would be information products that are sent across countries through the Internet. As efforts in Europe and amongst the states in the U.S. demonstrate, electronic commerce is difficult to tax because of technical, legal, and jurisdiction issues. If certain forms of commerce go untaxed altogether, these will be at a competitive advantage compared to other transactions that are subject to taxes, even in the presence of BTAs.

Conclusions

Most of the United States' major trading partners make much greater use of BTAs than the U.S. since they rely more heavily on indirect taxes. The natural question that arises is: Will U.S. companies be more competitive in international markets if the federal government copies European countries? In other words, can fundamental tax reform that moves the U.S. from income taxes toward sales or VAT taxes coupled with BTAs make U.S. companies more competitive in international markets?

Since the 1950s, economists have come to the conclusion that after a transition period, BTAs have little effect on the competitive capabilities of domestic producers. Natural market adjustments, including exchange rate movements, tend to level the international playing field with or without BTAs. In other words, a destination-based system of BTAs and origin-based market adjustments are economically equivalent.

The passage or exclusion of BTAs as part of fundamental tax reform, does make a difference in the short-run. Specifically, under the assumption that all taxes are shifted in the same direction, BTAs may provide American producers with a temporary advantage. Under all other assumptions, BTAs would alleviate certain costs associated with the transition to a consumption-based tax code. The alleviation of these costs must be weighed against the inherent costs of BTAs. They require administration and compliance. Moreover, BTAs may dampen opposition to future tax increases, which may lead to economically-burdensome taxes in the future. Therefore, the possibility of transitional benefits associated with BTAs must be weighed against potentially larger and lasting costs.

The theory and research presented in this paper suggest that the merits of a particular tax reform model should be primarily judged by criteria other than its border adjustability. Border adjustability is not likely to have a great deal of impact on the U.S.'s competitive position in world markets. Much more important is how tax re-

The theory and research presented in this paper suggest that the merits of a particular tax reform model should be primarily judged by criteria other than its border adjustability.

form would improve underlying economic incentives, such as rewarding risk, savings, and investment, which in turn would boost productivity. There has never been much of a mystery on this score. Eliminating the double tax on savings and investment and reducing rates in general would spur economic growth and make U.S. companies much more competitive in the world market. Tax reform models should be measured on these grounds, and not primarily on whether they are border adjustable.

Notes

¹ It is important to understand that this is merely an illustrative example.

² This is a common assumption about tax shifting. It also has intuitive appeal. While the shifting issue is debatable, the forward shifting assumption forms the basis for the rationale that consumption taxes should be border adjustable. Other possibilities, including backward shifting, are explored later in this paper.

³ Our discussion of the origin principle is largely based on Harry Johnson and Mel Krauss, "Border Taxes, Border Tax Adjustments and the Balance of Payments," *Canadian Journal of Economics*, Vol. 3, No. 4 (November 1970), pp. 595–602.

⁴ Our example assumes that the shares received by government, labor, and capital stay the same regardless of how the tax is shifted. This means each factor always receives one third of output. This simplifying assumption enables us to isolate the effects of BTAs.

⁵ Much of our discussion on the history and operation of the destination principle comes from Gary Hufbauer's fine book, *Fundamental Tax Reform and Border Adjustments*, The Institute for International Economics, January 1996. (Washington, D.C.) While this book is illuminating, it takes a more favorable view of the destination principle than what appears in this paper. (see p. 48).

⁶ Tax Foundation, Guenter Schindler, ed. *Tax Harmonization in Europe and U.S. Business*, Research Publication No. 16, (New York, NY: Tax Foundation), 1968.

⁷ In more formal terms, the \$5 rebate would find its way down the chain so that all stages would receive a portion of the rebate equal to their portion of the tax. When the chair is sent to another country for \$60, the VAT of the importing country would apply to the final price.

⁸ Hufbauer, p. 4.

⁹ See Bruce Bartlett, *The Consequences of Replacing Federal Taxes with a Sales Tax*, Joint Economic Committee.

¹⁰ Robert E. Hall and Alvin Rabushka, *The Flat Tax, Second Edition*, (Stanford, CA: Hoover Institution Press), 1995.

¹¹ Hufbauer, p. 73–78.

¹² It is important to note that workers and shareholders are also consumers. Therefore, even in a complete forward-shifting scenario, workers and shareholders face higher consumer prices themselves and therefore do not escape the impact of the tax completely. Likewise, in the backward-shifting scenario, the workers and shareholders that bear the immediate impact of the tax also bear the burden in their capacity as consumers because they have less disposable income. In the forward-shifting case, the tax represented 33 percent of the final price, and this dilutes real factor income much the same as the 33 percent reduction in nominal factor incomes that occurs with backward shifting.

¹³ We assume that factors continue to receive a one-third portion of output. This assumption is made to isolate the effects of BTAs. There is no reason to expect that different forms of tax shifting lead to different factor shares.

¹⁴ Hufbauer, pp. 4–5. Figures for OECD come from OECD website.

¹⁵ Hufbauer, pp. 23–25.