# Does a VAT Promote Exports?

**By Joel Slemrod**

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How a VAT affects international trade is a good example of the disconnect between what economists believe to be true and what most other people believe. VAT regimes, as implemented around the world, are commonly thought to promote exports. Some Americans bemoan the competitive advantage this gives other countries relative to the VAT-less United States. The concern is usually not enough for them to advocate that the U.S. enact its own VAT, but it's often sufficient grounds to recommend some kind of offset such as an import tariff or WTO sanction.

Nearly all economists think a well-functioning VAT does not promote exports. Importantly, there is no partisan divide among economists on this issue, as there is for some other key issues such as the impact of higher tax rates on labor supply and savings.

For example, note that Martin Feldstein and Paul Krugman — two stranger bedfellows could hardly be found — once collaborated on an article which asserted that the claim that "countries that have a VAT have an advantage in international competition over countries that rely on income taxation . . . is wrong."[1] They went on to write that an "idealized VAT is neither pro-competitive nor anti-competitive: whatever your definition of competitiveness, it has no effect at all."[2]

Before I explain why economists think the way they do, let me lay out as best I can the argument many non-economists make. A

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[1]Feldstein, Martin and Paul Krugman. 1990. "International Trade Effects of Value-Added Taxation." Assaf Razin and Joel Slemrod (eds.), *Taxation in the Global Economy*. Chicago and London: University of Chicago Press, pp. 263-278.

[2]Feldstein and Krugman, p. 269.

quick Internet search uncovers the basic argument on many websites, and what follows is an adaptation from one such site. I have changed the numbers and the wording a bit, but have preserved the logic of the argument entirely.

> Consider a U.S.-manufactured car that sells for $20,000. When the car arrives in Germany, a 19 percent VAT will be added on to the $20,000 price, meaning the car will be sold in Germany for $23,800.
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> Yet no tax comparable to a VAT is imposed on a German-manufactured car imported into the United States. Consider a German car that is sold in Germany for $20,000 after the 19 percent VAT is imposed. When the German car is imported to the U.S., Germany rebates the 19 percent VAT to the manufacturer, allowing the export value of the car to be $16,807 ($20,000/1.19). When the German car is imported to the U.S., no U.S. tax comparable to the VAT is assessed, so the car is allowed to enter the U.S. market at a price under $17,000.
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> In short, the U.S. manufacturer suffers price disadvantages when the U.S. car is exported to be sold in Germany, compared to the price advantages the Germany manufacturer receives when the German car is exported to be sold in the U.S.
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> In this example, U.S. producers are disadvantaged in two ways. On export, a U.S. product that otherwise sells for the same price in domestic markets starts off with a disadvantage of $3,800 because of Germany's VAT. At the same time, the German car — which sells at home for the same price as the U.S. car does in America — is sold to the U.S. for a price that is $3,193 less than the U.S. car.
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> When you add these two factors, U.S. car companies face a combined disadvantage (at home and abroad) that totals $6,993. In effect, the VAT rebate for German exports serves as a government export subsidy, while the imposition of VAT on the U.S. car serves as a tariff imposed on U.S. exports to Germany.

There is a grain of truth in this argument about how VATs operate with regard to imports and exports — that is, VATs are usually destination-based in their treatment of trade flows.

First take exports. While a firm's VAT base is sales minus purchases from other businesses, sales means sales to domestic businesses or consumers. Equivalently, the base is total sales net of exports minus purchases from other businesses. Or — also equivalently — tax liability is the tax rate times total sales minus purchases from other businesses, minus the tax rate times exports. Put this last way, it certainly looks like a VAT contains an export subsidy.

Now consider imports. While a firm's VAT base is sales minus purchases from other businesses, purchases means purchases from domestic businesses. Equivalently, the base is total sales minus total purchases plus the tax rate times the value of imports. Put this last way, it certainly looks like a VAT contains a tax on imports. Indeed, most countries collect VAT at the border on imports and then allow businesses to credit these tax remittances.

To see the flaw in the above argument, suppose that instead of VAT Germany imposed a 19 percent retail sales tax (RST) of the kind levied by most U.S. states. Assume that, before imposing the RST, both Germany and the U.S. produced cars that are sold for $20,000 in both countries.

With the German RST, the consumer price for both cars becomes $23,800, where the seller receives $20,000 and the German government receives $3,800. Because the tax liability is based on where the car is sold and not on where the car is produced, levying the tax does not change the relative attractiveness to a German of buying one car over the other. It also clearly does not affect the relative attractiveness of the two cars to an American consumer. The addition of a U.S. RST would not change this conclusion.

Juxtaposing these two examples should cause an extreme case of cognitive dissonance. According to the argument cribbed from the Internet, a destination-based VAT causes a whopping disadvantage to American-produced cars while an RST causes none at all. Yet a destination-based VAT and RST (assuming they work perfectly well) are exactly the same, other than which parties remit the money to the government. (Under an RST, only retailers

collect and remit tax; while under a VAT all businesses do.) Both VAT and RST levy a flat-rate tax on domestic consumption, and neither levies a tax on goods produced domestically but exported.

The cognitive dissonance can be eliminated by correcting just one key assumption in the Internet example. Recall that the example maintains that the U.S. car sells for $20,000 in either country, but the German car sold in Germany sells for $20,000 *after* the 19 percent VAT is imposed. Thus, net of tax, the German manufacturer receives just $16,807 — which the Internet example calls the ''export value.'' But this presumes both that the German manufacturer has some natural cost advantage over the U.S. manufacturer and that it would squander that advantage by selling cars for $16,897 in Germany when it could sell them for $20,000 in the U.S.

A more reasonable assumption is that, before tax, the two countries' manufacturers are equally cost efficient and both require $20,000 per car to cover their cost (and make a profit). Once we correct that mistake, the apparent disadvantage under a VAT goes away and we are back to the RST case. Specifically, the German manufacturer can sell its car for $23,800 in Germany, from which it receives $20,000. Or it can sell it for $20,000 in the U.S., pretax and posttax (because the U.S. has no VAT). The exact same choices are available to the U.S. manufacturer. Recognizing that Germany uses euros rather than dollars changes nothing in this argument.

To some, the argument by analogy to the effects of an RST may seem like sleight of hand. A VAT has explicit border adjustments in both directions; an RST has neither. So the argument goes that a VAT and an RST are not the same, and a VAT favors exports.

I suspect the underlying stumbling block is something known to economists as the Lerner symmetry theorem, posed by economist Abba Lerner in 1936. It demonstrates that, in equilibrium, an across-the-board export tax is equivalent *in all respects* to an across-the-board import tariff. This is probably the time for many readers to take a deep breath.

Although the Lerner theorem is an undisputed part of the canon of economics, it is counterintuitive to many because it asserts that exports can be subsidized equally well by applying a

subsidy to imports. Moreover, it implies that getting rid of the VAT export rebate while keeping the import tax would turn the VAT into an export tax (which is, by the above rationale, the equivalent to an import tariff).

The theorem relies on the fact that the import tariff and export tax identically alter the relative price of exports and imports, as the RST example shows. The tariff raises the price of imports, while the export rebate lowers the price of exports. In both cases the relative price of imports in terms of exports rises by the tax rate.

Crucial to the theorem is the so-called trade-balance condition, which holds that the value of what a country sells on world markets must equal what it buys. Not every year, but over the long run, in equilibrium, this condition will hold true. Of course, the trade-balance condition calls into question why one might want to have tax or trade policies that favor exports. Even if successful those policies would, in the long run, increase the value of imports as much as exports. But the wisdom of export promotion is not the topic of this paper.

From personal experience I know that, even for people who are sincerely trying to grasp these issues, invoking the trade-balance condition, long-run equilibrium, and exchange-rate adjustments are seldom persuasive to non-economists. For the nonspecialist, I return to the three-step argument by analogy. First step, understand why a uniform VAT is equivalent to a uniform RST; both levy tax on domestic consumption regardless of where goods or services were produced. Second step, calmly reassure oneself that, as is intuitive, an RST does not favor domestic over foreign production and neither encourages nor discourages exports or imports. This implies step three: that a VAT (like an RST) neither encourages nor discourages exports or imports. If step three fails, return to steps one and two until fully convinced.

Let me make two more points. Feldstein and Krugman claimed that an "idealized" VAT is neither pro-competitive nor anticompetitive. What idealized means is that the VAT applies uniformly to all goods and services. In practice, this is not true because of the noncoverage of some goods — either by design or difficulty of administration — or because of differentiated rates applying to different goods.

A non-uniform VAT may indeed affect the size of the traded goods sector. In fact, real world VAT regimes tend to offer more favorable treatment to non-traded goods such as services (for example, owner-occupied housing and medical services). A VAT that is non-uniform because it favors non-traded goods therefore levies a relatively higher tax rate on tradable goods, with the effect of increasing non-tradable consumption and production at the expense of tradable goods. Imports and exports are both reduced by such a non-uniform VAT.

Finally, we might go beyond economic theory to ask the natural empirical question: Do countries that rely more on VAT have larger export (and import) sectors? Finding that answer in the data might undermine confidence in the theoretical argument. It turns out that the answer is no. Another pair of eminent economists (though less ideologically mismatched than Feldstein and Krugman), Mihir Desai and James Hines, have examined this issue by analyzing data from 168 countries over the 50-year period between 1950 and 2000.[3] They conclude that countries with a VAT have substantially *fewer* exports than countries without a VAT. A recent paper by Michael Nicholson of the U.S. Department of Commerce also finds that VATs reduce trade volumes, including exports.[4] Desai and Hines conjecture this result may be due to the fact that VATs tend to be imposed at higher rates on traded goods than non-traded goods, and in practice exporters often receive incomplete VAT rebates.

To be sure, this is a tricky question to resolve with data analysis, in part because the causation might run in the opposite direction. That is, countries with a strong natural propensity to export may be more, or less, attracted to VAT as a way to raise revenue. But this careful analysis provides no evidence that adopting a VAT is a surefire way to expand a country's exports. ■

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[3]Desai, Mihir A. and James R. Hines Jr. 2005. "Value-Added Taxes and International Trade: The Evidence." *Available at* http://cdn.law.ucla.edu/SiteCollectionDocuments/workshops%20and%20colloquia/value-added%20taxes%20and%20international%20trade%20%20the%20evidence.pdf.

[4]Nicholson, Michael W. 2010. "Value-Added Taxes and U.S. Trade Competitiveness." *Available at* http://www.freit.org/WorkingPapers/Papers/TradePolicyGeneral/FREIT186.pdf.