The Case for Implementing a Value-Added Tax in the United States
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Abstract
The large United States federal government debt is a concern for many people. One way to reduce this national debt would be to increase tax revenue. If the U.S. adopted a federal consumption tax, it could increase tax revenue, and do so in such an efficient manner that income tax rates could be reduced. Currently 150 countries use a particular type of consumption tax known as a value-added tax (VAT). This paper proposes that the U.S. adopt a federal VAT using the credit-invoice system common in the developed world.

Introduction
This paper argues that adopting a federal value-added tax would be a good way for the United States government to reduce its budget deficit. The annual government deficit is the difference between government spending and tax revenue collected over a year. The government funds a deficit by borrowing, pushing the obligation for repayment onto future taxpayers. The national debt is the result of the accumulated borrowing by the federal government. To provide context, economists often compare the national debt to the annual Gross Domestic Product, the market value of all final goods and services produced within the country. In 2009, the United States national debt in the hands of the public was 53% of annual Gross Domestic Product. The ratio was 40% in 2008, and 35% in 2000 (Barlett, 2010).

The national debt is likely to increase in part because of programs like Medicare and Social Security. As the baby-boom generation retires, costs for both programs are projected to grow much faster than the economy (Actuarial Publications, 2010). Over the next 75 years, the expenditures on these programs are expected to exceed their payroll tax revenues by today’s equivalent of 46 trillion dollars (Bartlett). The government would likely have to cover the
difference by incurring more debt. A high level of future debt would place a large burden on society.

The budget deficit can be reduced by cutting government spending, increasing tax revenue, or both. If the government chooses to increase tax revenue, it would have the opportunity to introduce tax reform that creates a simpler and less distortionary tax system. This paper proposes that the government introduce a federal value-added tax (VAT). A VAT has a lower cost to society than an income tax, and therefore raises tax revenue more efficiently. While it is not likely that a VAT would come to entirely replace the income tax, it would allow for income tax rates to be lowered while still raising more revenue overall.

**The Income Tax Vs. the Consumption Tax**

The current federal income tax system causes a disincentive to save. Workers are taxed when they earn income, and then again when they receive interest on their savings. A worker who saves money in early years, consuming later, is penalized relative to a worker who consumes immediately.

In addition to causing a disincentive to save, the federal income tax is ineffective and inequitable because it has been undermined by loopholes. This erosion of the tax base has happened because private interests have lobbied for preferential treatment to minimize their income tax burdens (Herber, 1988). Although all income classes have had their taxes reduced as the result of loopholes, the highest and lowest income classes have benefited much more than the large middle-income class (Herber). The large economic power and political influence of the wealthy make it no surprise that most of the tax loopholes favor higher-income taxpayers. Because of tax base erosion, the federal income tax system is poorly organized, inequitable, and unable to provide stable government revenue.
The complexities and inefficiencies of the current federal income tax have prompted analysts and politicians to suggest replacing part of the income tax with a consumption tax (Graetz, 2007). A consumption tax is a tax on what people spend on goods and services. A consumption tax avoids the disincentive to save associated with an income tax. Compared to the income tax, a consumption tax would simplify the tax code and encourage savings. The extra savings would make it easier for firms to borrow, and the simplification would make it easier for firms to comply with the tax code.

**The Value-Added Tax**

In the United States, the retail sales tax is the most familiar consumption tax. In Europe, the VAT is the most familiar consumption tax. The VAT is levied on the value-added to a product at each stage of production. It is effectively a sales tax collected in small increments along the entire production and distribution process.

The VAT was introduced in Europe as an alternative to the turnover tax, a tax on sales at each level of production. The turnover tax has the undesirable feature of charging taxes on an item more than once along the production and distribution process. For example, consider the production and distribution of a denim skirt under a turnover tax. Denim made by a fabric producer is taxed when it is sold to a clothing producer. When the skirt is sold to a clothing retailer, the denim is taxed again as a part of the skirt. The denim is taxed a third time when the skirt is sold to a consumer. This charging of taxes on taxes is known as cascading. Cascading encourages firms to incorporate activities otherwise performed by suppliers so that the firms can reduce their commercial transactions, and therefore their tax burden. In the above example, the clothing producer might choose to control the production of the fabrics they use, instead of
purchasing fabrics from a supplier. The integration of supplier and producer is a problem because a producer will likely not be as efficient at producing their inputs as a supplier would be.

Since 1954, when France became the first European country to adopt a VAT, 150 countries have introduced it. This number includes all members of the Organization for Economic Co-operation and Development (OECD), with the single exception of the United States. The OECD is a forum of 33 developed countries devoted to democracy and the market economy. On average, the revenue generated by the VAT makes up 18 percent of total tax revenues in OECD countries, making the VAT a significant source of their government revenue (Grinbert, 2006). Emulating the experience of other developed nations with implementing a VAT would allow the United States to incorporate the best practices from other tax systems. The VAT is also compatible with existing international taxes and trade agreements.

The VAT appeals to many economists because it is a stable source of government revenue relatively free of economic distortions. The VAT does not distort domestic production and distribution decisions, and is neutral in terms of foreign trade, not favoring either imports or exports (Cnossen, 1992). The VAT is a highly efficient tax because it causes so little distortion.

How the VAT and the Sales Tax Work

In theory, a VAT and a sales tax have the same impact. Consider the manufacture and sale of a computer. Suppose that without any tax, a computer manufacturer spends $300 on inputs. The computer manufacturer charges the retailer $350 for the computer, making a profit of $50. The retailer then sells the computer to a consumer for $450, making a profit of $100. With a 10% sales tax, the price tag on the computer is still $450, but the consumer pays $495=$450+(450 x 10%) at the cash register. The retailer sends $4550 x 10) to the government. The retailer would make the same profit as it would with no tax, $100=$495-$350-
$45. With a 10% value-added tax, the computer manufacturer pays $330 for inputs, $300+(300 x 10%). The manufacturer charges the retailer $385= 350 + ($350 x 10%), and pays the government $5=35-30. The manufacturer makes the same profit as it would under no tax, $50=385-330-5. The retailer charges the consumer $495=450+($450 x 10%) at the cash register, and pays the government $10= 45-35. It makes the same profit as it would under no tax, $100=495-385-10. Under both the 10% sales tax and the 10% VAT, the consumer pays 10% more than she would have without a tax. The government receives the same amount of tax revenue under either tax.

For simplicity, this example assumes that the number of computers sold and produced with a tax is the same as without a tax. More realistically, a tax would reduce the number of computers sold. However, the reduction would be the same under a VAT as under a sales tax.

**Why the VAT is better than the Sales Tax**

While in theory the VAT has the same economic effects as a sales tax, the VAT is easier to administer and enforce. The most common way to administer a VAT is the credit-invoice system, the method advocated for in this paper. Under this system, a VAT is charged on all taxable purchases by businesses and consumers. The firm then receives credit for any VAT paid on inputs to earlier production. In order to claim the tax credit, the firm must present an invoice showing that that the VAT has been paid by the supplier. This system avoids cascading.

Many economists consider the credit-invoice VAT to be a self-enforcing tax. With the credit-invoice VAT, a firm has an incentive to make sure that its suppliers have paid their taxes, so that the firm may receive the credit for the taxes paid by the suppliers. In order to keep track of their tax credits, firms are required to keep careful records. This record keeping makes the auditing process easier than if firms were not required to keep such careful records.
Another difference between a VAT and a sales tax is that the amount of tax liability for a transaction under the VAT is only a fraction of the total tax liability of the final good. Under a sales tax, the tax liability is entirely focused at the retail stage. Consider the previous example of the production and distribution of a computer. Under a VAT, the tax is collected in three different installments: when the computer manufacturer purchases inputs, when the retailer purchases the computer, and when the consumer purchases the computer. Under a sales tax, the entire tax is collected when the consumer purchases the computer. If tax evasion occurs at this retail stage, all of the tax revenue is lost under a sales tax. Under a VAT, only the retail portion is lost. Tax revenue was already collected when the computer manufacturer purchased inputs, and when the retailer purchased the computer.

The VAT provides an added degree of flexibility compared to a sales tax, especially for goods such as food or medicine that society has decided should be exempt from tax collection. Under a sales tax, a commodity can either be classified as taxed or exempt. There is a third option for the VAT. Because credit is not issued for purchased inputs which are exempt under a VAT, a commodity can also be zero-rated. With zero-rating, a firm files all the paperwork for the VAT, but applies a rate of zero to their gross sales before claiming credit for the VAT paid at previous levels. If a tax exemption is wanted for social reasons, such as for a religious organization or a charity, the VAT can be eliminated by zero-rating the commodity at the retail level. But if a retailer must be left out of the tax system for administrative reasons, such as if small businesses are exempt, it is still possible to use an exemption to capture the tax on the value-added before the retail level.

With a credit-invoice VAT, the option of zero-rating and the careful record keeping the tax requires mean that the tax can be rebated at a country’s border. International trade laws
prevent the taxes on an export from being rebated unless the exact amount of the tax embedded in the price is known. Exports can be zero-rated under a credit-invoice VAT, so that no tax is collected at the time of exportation, but credit is given for the tax paid on purchased inputs. A VAT would improve the competitiveness of U.S. exports because they would enter the international market unencumbered by domestic taxes.

The credit-invoice VAT makes exempting business inputs easier, compared to a sales tax. A tax that applies to business inputs is not a consumption tax, but is more like a haphazard income tax, so that the efficiency gains for a consumption tax don’t apply (Zodrow). If some business inputs are taxed and others aren’t, cascading will occur in some industries and not others. Cascading affects both investment and consumption decisions. Under a sales tax, firms are issued exemption certificates which allow them to purchase inputs on a tax-exempt basis. This system allows for widespread abuse with the filing of false claims for business purchases of dual use goods, or goods which can be used either as a business input or for final consumption. The credit-invoice VAT is less vulnerable to this form of evasion because firms are required to report such false claims directly to tax authorities, while under a sales tax firms only need to report these false claims to the sellers of dual use goods (Zodrow, 1999). Under a sales tax, sellers have an incentive to not investigate or report suspicious claims because accepting such claims allows them to increase sales. To avoid the erosion of the tax base under state sales taxes due to the filing of false claims for dual-use goods, states have restricted which goods are eligible for exemption. The problem is that they have not been successful in ensuring that most business inputs are not taxed.

**Considerations for a VAT in the United States**

**Coordination with State Sales Taxes**
The ability to coordinate a federal VAT with state-level sales taxes would be important for a VAT in the United States. Of the countries that have implemented a VAT, only Canada had sub-national sales taxes at the time when they introduced a federal VAT. In 1991, when Canada introduced a new federal credit-invoice VAT, it did not force provincial sales taxes to change (Bird, 2006). Instead, it left provinces control of their traditional tax base. Although the resulting system is complex, Canada has successfully administered a federal VAT in coordination with provincial sales taxes.

One lesson that can be taken from Canada is that the administrative costs for governments and the compliance costs for businesses are related to the degree of coordination between state taxes and federal taxes. State and federal legislators may choose to face higher costs in order to preserve their fiscal autonomy. States can offset, or reinforce, a federal-level VAT. Therefore, political accountability is important when dealing with different levels of government with competing interests, such as when the federal and state governments are trying to control the same tax base (Bird).

**Taxing Financial Services**

Due to the difficulty in identifying an appropriate tax base, financial services have generally been exempt under VAT systems everywhere. Finding an alternative approach to the usual exemption of financial services would be a priority for the design of a VAT in the United States. Financial intermediaries create value by reducing the cost of transactions in financial markets and transactions in real goods and services. Such institutions charge for their services both explicitly through fees and commissions, and implicitly through a margin, such as the spread between the interest a bank asks from borrowers and offers to savers (Poddar, 1970). The underlying problem with taxing financial services under a credit-invoice VAT is the difficulty
associated with identifying and isolating the financial intermediation margin of a transaction.

This paper recommends using a cash-flow VAT to define the tax base for financial transactions in a way that is compatible with a credit-invoice VAT (Refer to Appendix A for a discussion of the cash-flow VAT). The cash-flow VAT is able to treat the cash flow from financial transactions in the same way that non-financial transactions are treated under a credit-invoice VAT. Under the cash-flow method, cash inflows are treated as taxable sales, and cash outflows, such as a loan, are treated as purchases of taxable inputs (Poddar).

**Arguments against the VAT**

**The Regressivity of the VAT**

A traditional concern regarding the VAT is that because a VAT is a tax on consumption, and the poor consume a higher percentage of their annual income than the rich, the poor would spend a greater percentage of their annual income on the VAT than the rich. If this assumption is true, it would mean that the VAT is regressive--the tax rate decreases as the amount being taxed increases.

Early studies which suggested the VAT was regressive used annual time frames for analysis. This approach has been criticized, and alternative models for the distributional impact of consumption taxes have been considered. These models use lifetime income, rather than annual income, as a measure of economic well-being. Lifetime income may be a better measure of economic well-being than annual income because people will generally earn their highest income in their middle age, and their lowest income in their youth and old age. Therefore, in a cross-sectional annual analysis, lower income groups will likely include some young and elderly people who would not be considered poor over their lifetime. These groups would also likely include people with volatile incomes who are temporarily at a point of low income. High-income
groups would experience a similar distortion, including people at the peak of their ability to earn who would not be considered wealthy from a lifetime perspective (Caspersen, 1994). The regressivity of the VAT looks significantly lower using lifetime income, rather than annual income, as an economic measure of well-being (refer to Appendix B for a more detailed explanation). When zero ratings are included in the tax, such as for food, housing, and health expenditures, the tax is found to be even less regressive (Caspersen).

**Is the VAT a Money Machine?**

Another concern of some opponents of the VAT is that it is simply too easy a way for the government to generate revenue. For this reason, some people call the VAT a money machine. Because this vague term is difficult to address, it is useful to consider separately the two arguments it represents. The first argument says that governments with a VAT raise more revenue when compared to those without, all else being equal. The second argument claims a stronger relationship between the size of government and the presence of a VAT, saying that a VAT actually causes an increase in government size. Empirical work by Keen and Lockwood (2006) indicates that within the OECD, although the impact of the VAT is largely determined by country-specific characteristics, there is a positive relationship between the presence of the VAT and the ratio between tax revenue and the GDP. However, this relationship is found to be quite small. The work by Keen and Lockwood also shows that while the VAT is a very effective tax, the associated impact on the size of government is not clear or straightforward.

Keen and Lockwood took two approaches to test for causality between the presence of the VAT and an increase in the size of government. The first approach used a Granger causality test, a statistical technique which determines the effectiveness of one variable in predicting another. When Keen and Lockwood included country controls in the model, they found that
causality runs in only one direction, from total revenue to VAT revenue. These results indicate that there is no strong statistical support for the argument that the VAT has itself caused the growth of governments.

The second approach to testing for causality is based on the idea that if the greater efficiency of the VAT is directly responsible for the growth of government, then the greater efficiency of the VAT should lead to a reduced reliance on other tax systems. The reduced reliance on other tax systems would result in the offsetting of the revenue from the VAT by reduced revenues from other taxes. Therefore, any increase in total revenue should be less than the revenue generated by the VAT. The offsetting of VAT revenues by the reduction in other tax revenues does seem to occur. The associated long-run increase in total tax revenues from the presence of the VAT is 2.4 percent of GDP in the average OECD country, while the revenue generated by the VAT is about 7.2 percent of GDP.

These models suggest that the VAT could be considered a so-called money machine in the sense that countries with a VAT do tend to generate more revenue, compared with those that don’t, all else being equal. While the VAT can also be called a money machine in the sense that the efficiency of the VAT has led to a reduced reliance of the government on other taxes, the VAT does not seem to have actually caused an increase in government size.

Is the VAT Inflationary?

Some opponents of the VAT claim that it is inflationary. However, this statement confuses a one-time increase in prices with a continuous increase in prices. Whether or not a VAT would even cause a one-time rise in prices depends on the response of the Federal Reserve. A loose, accommodating monetary policy would allow for prices to adjust upwards by the
amount of a tax. A tight monetary policy could keep average prices the same, while reducing the costs of production relative to the prices of the inputs.

**Conclusion**

A fundamental issue for the debate on tax reform in the United States is whether the federal government should have an income tax, a consumption tax, or both. The advantage of a consumption tax is that it is a simple policy with few economic distortions. While a sales tax is the most familiar consumption tax in the United States, the administrative features of the credit-invoice VAT suggest that it may be a better policy. Analysts have re-evaluated many of the concerns regarding the VAT, including its regressivity, so that a VAT in the United States may be more politically feasible today than it has been in the past. A credit-invoice VAT is a robust tax policy which would generate revenue to reduce the United States national debt and provide room for income tax rates to be reduced.

**Appendix A: The Cash Flow Method**

The cash flow method is an alternative method for implementing a VAT based on the cash flow equation for a firm. There are two sources of cash for a firm, capital inflows, such as new equity and borrowing, and proceeds from the sale of goods and services. This cash is then used to make payments for labor and intermediate goods, and for capital outflows, such as dividend and interest payments. These relationships are represented by the equation:

\[
\text{Labor} + \text{Capital Outflows} + \text{Intermediate Goods} = \text{Sales} + \text{Capital Inflows}
\]

The cash flow equation can be rearranged to show that:

\[
\begin{align*}
\text{Value Added} & \equiv \text{Sales} - \text{Intermediate Goods} \\
& = \text{Labor} + \text{Capital Outflows} - \text{Capital Inflows}
\end{align*}
\]
Under the cash flow method, value-added is found as the difference between the sum of labor and capital outflows, and capital inflows (Metclaf, 1995).

**Appendix B: Regressivity**

Consumption taxes look less regressive under a lifetime tax incidence analysis than under an annual income framework. The reason they look less regressive can be shown by comparing annual income to lifetime income (Caspersen, 1994). Equation one shows a simplified equation for annual income. Equation 2 shows the consumption tax as a fraction of annual income. When the consumption tax is passed forward to consumers, the tax appears regressive in an annual context by the amount that the savings rate increases with income.

Equation 1: \( \text{Annual Income} = \text{Consumption} + \text{Savings} \)

Equation 2: \( (r) \frac{\text{Consumption}}{\text{Annual Income}} = r(1 - \frac{\text{Savings}}{\text{Annual Income}}) \)

*\( r \) is the tax rate on consumption*

Within the lifetime tax incidence framework the tax appears to be proportional. Equation 3 shows that lifetime income is equal to the sum of present value of consumption, the consumption of each time period discounted back to today at the rate of interest. Equation 4 shows the present discounted value of lifetime tax payments. This equation can be rearranged to show that the average tax rate, or the lifetime tax divided by lifetime income, is simply equal to the tax rate, \( r \). Therefore, the tax is found to be proportional.

Equation 3: \( \text{Lifetime Income} = \sum_t \frac{\text{Consumption}}{(1 + \rho)^t} \)

Equation 4: \( \text{Lifetime Income} \ast r = \sum_t r \ast \frac{\text{Consumption}}{(1 + \rho)^t} \)

(Caspersen)
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