
Border adjustment taxation – the implications

*An assessment of the impacts of a border adjustment style corporate tax
in the United States*

A report by Capital Economics for the Retail Industry Leaders Association

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1 EXECUTIVE SUMMARY

- The border adjustment tax would purportedly provide significant revenues at no cost to American firms and consumers, while satisfying a desire for more protectionism.
- However, like all things that seem too good to be true, it is. The attraction rests on the currency markets immediately raising the value of the dollar by 25 per cent.
- There are many reasons to believe that this adjustment is unlikely to occur, especially in the short run, but even over the medium to long run. Moreover, empirical evidence is lacking.
- Given a lack of similarly priced domestic alternatives and low margins plus intensive competition in retail sectors, the burden of the tax will fall on American consumers.
- We expect that over two-thirds of the burden of the tax will be passed on to consumers, meaning that near term prices could increase by 2.1 per cent over and above the underlying inflation rate, with large price increases for specific types of goods, such as apparel.
- It is likely that the impacts will be regressive in nature, with low to middle income consumers (proportionately) most affected and real living standards would drop.



2 THE PROPOSED TAX AND THE KEY ISSUES

2.1 Current system and the suggested changes

American firms currently pay tax on their worldwide profits, i.e. revenues minus costs, although the tax payable on overseas profits can be deferred until that income is repatriated. The 35 per cent United States corporate tax rate, which is one of the highest in the world, gives multinational firms a strong incentive to shift production overseas or to shift profits abroad via internal transfer pricing.

Separately, the United States is one of the few countries in the world that doesn't have an indirect consumption-based value added tax (VAT). VAT is applied to all imports as well as domestically produced goods and services that are consumed in-country. It is not, therefore, applied to exports, as these are not consumed domestically. In contrast to a sales tax, however, a value added tax is applied at each stage of production, with firms receiving rebates for the cost of their inputs. VAT is an indirect tax applied to the buyer rather than the seller of the good or service, although the seller is required to collect the tax and transfer it to the government.

In June 2016, House Republicans proposed plans for a radical transformation of the American corporate tax regime into a border adjustable destination-based cash flow tax. Under border adjustment, when calculating taxable profits, the value of exports would be excluded from taxable revenues (essentially a subsidy). At the same time, while domestic production costs would still be deductible, the value of imported goods and services would not be (essentially a new tax).

2.2 Effects of the tax and key questions

Since the United States currently runs a trade deficit, which amounted to roughly \$500 billion in 2016, the implementation of a border adjusted tax would increase tax revenues. In the House Republicans' plan, that increase in revenues would be used to partly fund a reduction in the statutory corporate tax rate from 35 per cent to 20 per cent. According to the Tax Policy Center, the switch to border adjustment would raise \$1.2 trillion over the next decade. In the first place, 20 per cent of the \$500 billion trade deficit is \$100 billion which, over ten years, would amount to \$1.0 trillion. Secondly, even if the trade deficit remains constant relative to output, assuming that gross domestic product was growing, the deficit would increase in dollar terms over the next decade. If the trade deficit was increasing, \$1.2 trillion would appear to be a reasonable estimate.

Clearly, this proposal, if enacted, would involve a significant potential shift in the tax burden from exporting to importing firms. However, supporters of border adjustment have claimed that firms who import more than they export will not be worse off because the dollar will appreciate by just enough to offset the additional tax. An appreciation of the dollar would push down the domestic (dollar) prices of imports, whilst their prices in overseas currencies remain constant. That fall in domestic prices of imports would allow importing firms to recoup the cost of the border adjustment tax. However, it would require a 25 per cent dollar appreciation to offset fully the impact of a 20 per cent border adjustment tax. This stems from the fact that, to reduce import costs



by 20 per cent (to make up for the 20 per cent tax now being imposed on them), we require a 20 per cent devaluation of the foreign currency, which equates to a 25 per cent appreciation of the dollar.¹

Basic economic theory suggests that this 25 per cent appreciation should occur. This stems from the fact that, if currencies are freely floating and currency traders have perfect foresight, the latter will realise that the tax would force importers to raise prices, thereby reducing the demand for imported goods, which reduces the demand for foreign currencies (Americans need to switch fewer dollars into foreign currency to pay for imports). At the same time, exporting firms would reduce prices in export markets, thereby raising the demand for those exports and, consequently, the demand for dollars (foreign buyers need to switch more of their foreign currency into dollars to pay for American exports). In a perfectly competitive market, if existing exporters didn't lower prices, other firms would see the excessive profits being earned and enter the market offering lower prices that undercut the existing exporters. Anticipating these shifts, the dollar would rise immediately to the point where importers and exporters no longer had any incentive to change prices.

Beyond this issue of exchange rate correction, there are two other key matters to consider. One is that, in the absence of complete currency adjustment, the extent of transmission of the tax to final consumers becomes very important. And the other is that of the compliance of the measure with World Trade Organization rules.

Figure 1: Key issues in the implementation of a border adjustment tax



Source: Capital Economics

2.3 Incidence of the tax – who pays?

This is the question at the heart of this proposal and the potential diverging answers to it mean that the tax could be regarded as a stroke of genius or a measure of insanity.

In evaluating this proposal, the key question is whether the exchange rate adjusts quickly and to the extent anticipated. If exchange rate offset is complete, American importers will pay no more in dollar terms than they did before the border adjustable destination-based cash flow tax, and exporters will likely charge the same foreign prices as before, since tax exemption will force a cut in dollar prices to cancel out dollar appreciation. In that event, the inescapable conclusion is that

¹ Suppose we have the situation of imports from the United Kingdom. If, initially, £1 = \$1, then a 20 per cent depreciation of the pound will mean that £1 = \$0.8, which will have the effect of reducing costs for American importers by 20 per cent. So, then, in that case, \$1 = £(1/0.8) = £1.25, so the dollar has appreciated by 25 per cent.



foreigners pay the tax, via the terms-of-trade impact of dollar exchange rate appreciation.² Foreign exporters selling into the United States should maintain their earnings in domestic currency, but their value in United States dollar terms will decline. Given the dollar's status as the world's primary reserve currency and that most used in international transactions, this ultimately represents a loss in wealth for foreigners and a transfer to the United States.

However, if there is no exchange rate offset, ultimate consumers of imported goods would bear the incidence of the tax, since intermediate business purchasers would mark up their own selling prices to recoup the higher after-tax cost of imported goods and services (the only circumstances in which this can be avoided are if importing firms are able to find similarly priced domestic alternatives or they are willing and able to bear the costs themselves). Meanwhile, exporters that enjoy tax relief might increase their profit margins in the short run and lower their foreign selling prices in the medium term. If there is no exchange rate offset, the trade deficit will almost certainly shrink over time, and with it the net tax collected by the Treasury (this means that those who assert that one of the goals of the tax is to reduce the trade deficit have implicitly accepted the argument that the exchange rate will not adjust, at least to some extent, and that prices of goods and services will therefore be affected by the enactment of the tax).

² Gary Hufbauer and Zhiyao Lu, "Border tax adjustments: assessing risks and rewards", Peterson Institute for International Economics, Policy Brief 17-3, 2017



3 KEY ISSUE 1: OBSTACLES TO APPRECIATION OF THE DOLLAR

Textbook economic theory implies that exchange rate adjustment will rapidly occur through rational expectations. However, as we set out below, the real world is considerably more complex and there are a wide range of obstacles that would act to prevent this from occurring. The list of these is extensive and includes the fundamental question of how exchange rates are determined.

1. **Price alterations in reality.** The rise in the value of the dollar is, in part, predicated on the notion that American exporters will be forced to reduce their prices in the wake of the introduction of the border adjustment tax. However, this is based on competitive pressures, from existing market participants or new entrants, forcing them to do so. It is doubtful whether that will occur in all, or even the majority, of industries. Relatedly, individual firms' circumstances could prevent them from adjusting their prices.

While importers would probably raise prices to keep profits unchanged, exporters are unlikely to reduce prices fully. This will lead to only partial adjustment in exchange rates even in the long run. Indeed, anticipating the possibility of these developments, currency traders may not act to appreciate the value of the dollar.

Looking at this more comprehensively, Willem Buiter has proposed that the exchange rate effects of this policy depend on the nature of pricing decisions made, in response, by firms. Exporting companies in the United States and overseas may react to the policy change by seeking to keep one of four key prices constant – their domestic currency pre-tax price, their domestic currency post-tax price, their foreign currency pre-tax price or their foreign currency post-tax price. The first two of these may be referred to as 'origin currency pricing' and the latter two as 'destination currency pricing'. As domestic and overseas firms may each choose any of these four strategies, there are theoretically sixteen possible combinations of pricing strategies. As Buiter notes, most analysis of this issue implicitly assumes that companies opt for constant domestic currency pre-tax prices, often without articulating the fact.³

Buiter shows that, with the nominal exchange rate dependent on simple relative price changes, only two of these sixteen possible scenarios (both domestic and overseas firms keeping constant their domestic currency pre-tax price or their foreign currency post-tax price) lead to an expected currency appreciation even with this simplified and highly responsive currency adjustment model. If both domestic and overseas firms instead targeted the domestic currency post-tax price or the foreign currency pre-tax price, we would, even with this very simple model of the movements of the dollar, expect the currency to fall rather than to rise. This stems from the fact companies in these cases would need to adjust prices in the opposite direction from what theory suggests, which then acts to induce the exchange rate to move in the opposite direction. Both of these scenarios also result in higher inflation in the United States. The other twelve combinations result in no, or an indeterminate, expected currency adjustment.

³ Willem Buiter, 'Exchange rate implications of Border Tax Adjustment Neutrality', *Economics Discussion Papers*, No. 2017-10, Kiel Institute for the World Economy, March 2017



Buiter notes that there is significant evidence of destination currency pricing occurring in practice, so this means that the normally assumed constant domestic currency pre-tax price case is doubtful.

2. **Managed exchange rates.** Many countries continue to manage their currencies in some way. Most notably, the largest exporter of goods and services to the United States, China, manages its currency to keep it unchanged in trade-weighted terms. Such constraints will restrict the ability of the value of the currency to fully adjust (in trade weighted terms, against all currencies). At the very least, pending updates to the parities of managed exchange rates, adjustment will be slowed. There are also countries, such as India, Malaysia, Singapore and Vietnam, that are important exporters to the United States and that engage in a more opaque form of exchange rate management. For all countries that intervene in the market for their currency, their reaction to the border adjustment measure is unclear, but likely to hamper dollar appreciation.

3. **Possibility of incomplete coverage of services.** It is easy to think of exports purely in terms of goods, but all trade in services must also be covered by the proposed tax if full currency adjustment is (even conceivably) to occur. Some service industries could be particularly difficult to tax correctly, such as tourism (in theory domestic firms serving tourists would be due a tax rebate, as those services count as an export) and complex cross-border financial services (where it may be difficult to impute a value for the domestic and overseas components of the service).

4. **Contracts in dollars.** A further complication would be caused by the fact that the vast majority (circa 90 per cent according to two studies⁴) of international trade transactions between the United States and other countries are invoiced in dollars (this is particularly true for commodities). To the extent that these are set at fixed prices that roll over from month to month (as many are), the effect of any appreciation of the dollar will take longer to be manifest for importers and would be disruptive for an extended time period. Some contracts may require difficult renegotiations.

5. **Failure of textbook exchange rate theories.** Basic economic theory with respect to exchange rates – as being determined by the balance of payments – performs very poorly in predicting what will actually happen to exchange rates in the real world in empirical tests. As the economist Kenneth Rogoff has affirmed:

The extent to which monetary models, or indeed, any existing structural models of exchange rates, fail to explain even medium term volatility is difficult to overstate. The out-of-sample forecasting performance of the models is so mediocre that at horizons of one month to two years they fail to perform better than a naïve random walk model (which says that the best forecast of any future exchange rate is today's rate).⁵

Furthermore, it has been noted that balance of payments surpluses or deficits in many countries do not appear to self-correct over time but rather remain in either surplus or deficit for long periods of time, thus throwing into question whether the volumes and prices of imports and exports really are the key determinants of the value of the exchange rate. Indeed, this seems to be a feature of the

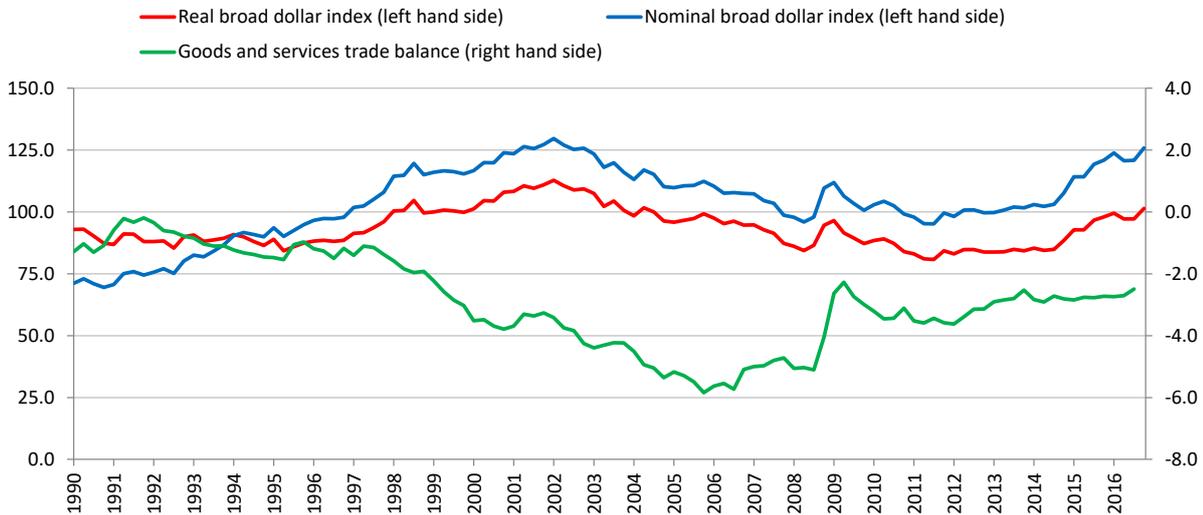
⁴ Shabtai Donnfeld and Alfred Haug, "Currency invoicing of US imports", York University, 2002 and Linda Goldberg and Cedric Tille, "The internationalization of the dollar and trade balance adjustment", Federal Reserve Bank of New York Staff Reports, Number 255, 2006

⁵ Kenneth Rogoff, "Perspectives on exchange rate volatility", in National Bureau of Economic Research, *International capital flows* (University of Chicago Press, Chicago), 1999



current global economy with persistent deficits for countries such as the United States and United Kingdom and persistent surpluses for the likes of Germany and China.

Figure 2: Nominal and real broad dollar index and United States trade balance as a percentage of gross domestic product, 1990 to present



Source: Thomson Datastream and Capital Economics

As shown in Figure 2, the United States has run a large trade deficit in goods and services and there is no clear relationship between that and the value of the dollar over the same period.

6. **Alternative exchange rate theories.** Robert Blecker has affirmed that several theories of exchange rate determination have been produced which would explain why the exchange rate value is the result of other factors and does not act as a price to clear the balance of payments markets. These include:

- Expectations about future exchange rates (speculative behaviour);
- Risk-adjusted interest rate differentials (arbitrage behaviour);
- News about policy shifts or political events (which affect investor confidence and risk premiums); and
- Perceptions of whether current exchange rates are sustainable or unsustainable in relation to macroeconomic fundamentals (e.g. the magnitude of current account deficits).⁶

⁶ Robert Blecker, "Financial globalization, exchange rates, and international trade", in Gerald Epstein, *Financialization and the world economy* (Edward Elgar Publishing, Cheltenham), 2005



In particular, the first of these, speculative bubbles, has been identified by several academic economists as a driver of the value of exchange rates, as global investors divert capital into different currencies to chase both real and perceived investment opportunities.⁷

Indeed, some authors have contended that such flows are the predominant exchange rate determinant:

The logic [of textbook theory] is impeccable, but the problem is that in the world today the volume of annual currency trading is around 80 times as large as the yearly value of foreign trade and long-term investment. The trade account makes up such a tiny fraction of total external transactions that it cannot possibly play a central role in determining the exchange rate. Either the exchange rate is fixed by the authorities, or it is determined in currency markets. With the rate determined one way or the other, domestic prices and output flows adjust so that markets for non-traded goods clear. The current account of the balance of payments comes out as a consequence.⁸

This is akin to stating that the exchange rate determines the balance of payments situation and not the other way around. There are reasons to believe that movements in the dollar in particular are significantly less determined by trade flows between the United States and other countries than is the case for other currencies. These reasons include the special role of the dollar in global finance and in being the world's reserve currency.⁹ A change in the relative prices of imports and exports will therefore have only a relatively small bearing on the value of the dollar in currency markets as they are dwarfed by the market in financial assets.

This point has been reiterated in recent debates. David Woo, head of global rates and foreign exchange strategy at Bank of America, has commented that daily trading of goods and services between the United States and the rest of world accounts for only around 0.3 per cent of the dollars transacted in the global currency market each day. Instead, the majority of currency flow is dictated by the impulses of traders as they respond to changes in monetary policy, economic growth and political risk. These can cause the dollar to trade at levels that are not consistent with what economists would consider to be appropriate based on measures such as purchasing power parity.¹⁰ It has been recognised by Janet Yellen, Chair of the Board of Governors of the Federal Reserve, in congressional testimony that “there is more than trade that affects a country's exchange rate”.¹¹

Overall, the confusing literature on exchange rate determination suggests that any exchange rate offset from border adjustment isn't as predictable or as clear-cut as its proponents suggest because basic textbook theory is, at best, a gross simplification of the complexity of today's currency

⁷ Jeffrey Frankel and Andrew Rose, “Empirical research on nominal exchange rates”, in Gene Grossman and Kenneth Rogoff, *Handbook of International Economics Volume III*, (Elsevier, Amsterdam) 1995

⁸ John Eatwell and Lance Taylor, “Capital flows and the international financial architecture: A paper from the project on development, trade, and international finance”, The Council on Foreign Relations, New York, 2000

⁹ Caroline Freund and Joseph Gagnon, “Effects of consumption taxes on real exchange rates and trade balances”, *Peterson Institute for International Economics Working Paper 17-5*, April 2017

¹⁰ David Woo, head of global rates and FX strategy at Bank of America as reported in: Andrea Wong, “Currency traders spot fatal flaw in Republicans' border tax plan”, Bloomberg News, 19 April 2017

¹¹ Andrea Wong, “Currency traders spot fatal flaw in Republicans' border tax plan”, Bloomberg News, 19 April 2017



markets. Given the large redistribution of wealth from importers to exporters that would happen in the absence of exchange rate adjustment and the many economic ramifications that could result from that, the policy is, at the very least, highly risky.

7. **Adjustment through the real exchange rate.** Some analysts have drawn attention to the need to consider the implications for the real exchange rate and pointed out that changes in policy may be accommodated by changes in the real, rather than nominal, exchange rate in the long run.¹² The real exchange rate measures the value of a country's goods or services against those of another country, or the rest of the world.¹³ While the nominal exchange rate is what is frequently quoted in markets, for example saying that one United States dollar buys 0.92 euros, the real exchange rate tells us whether that one dollar can buy more goods or services in the United States than it can in, for example, France, once it has been exchanged into euros.

If the impacts of policy changes are accommodated by changes in the real exchange rate, it means that the appreciation may come through higher inflation instead of a stronger dollar.¹⁴ This would occur if retailers pass on the tax to consumers or if sellers of locally produced goods raise prices to take advantage of increased demand. We would then see an adjustment of the real exchange rate (or inflation-adjusted exchange rate), rather than the nominal rate.

Caroline Freund and Joseph Gagnon have assessed the effects of border-adjusted consumption taxes (mainly VATs) on the real exchange rate. They analysed movements in economic variables, such as the real exchange rate, around times when countries first implemented, or increased, a VAT. Their research found evidence that the real exchange rate does adjust to these taxes, but that most of the adjustment comes through consumer prices rather than changes in the nominal exchange rate.¹⁵

8. **Empirical evidence.** With a lack of credible economic theories concerning exchange rate determination and many factors potentially in play, it should be instructive to consider actual empirical evidence of other similar taxes or policy measures that ought to have had a given impact on the exchange rate, given textbook theory. Unfortunately, direct empirical evidence of exchange-rate responses to the suggested border adjustment tax is limited as such a tax has not been implemented in other countries.¹⁶

As a result, relevant analyses are thin on the ground and focused on value added taxes. Mihir Desai and James Hines considered what impact value added taxes had on imports and exports for a set of countries with such taxes. Of course, VAT is not the same as the suggested border adjustment tax, but the same textbook economic theory should apply – i.e. the impact of such taxes

¹² Caroline Freund and Joseph Gagnon, "Effects of consumption taxes on real exchange rates and trade balances", *Peterson Institute for International Economics Working Paper 17-5*, April 2017

¹³ Luis Catao, *Why real exchange rates?* (International Monetary Fund, Washington D.C.), 2007

¹⁴ Daniel Hui, global FX strategist at JP Morgan, as reported in: Andrea Wong, "Currency traders spot fatal flaw in Republicans' border tax plan", *Bloomberg News*, 19 April 2017

¹⁵ Caroline Freund and Joseph Gagnon, "Effects of consumption taxes on real exchange rates and trade balances", *Peterson Institute for International Economics Working Paper 17-5*, April 2017

¹⁶ Congressional Research Service, *Border-adjusted consumption taxes and exchange rate movements: theory and evidence* (Congressional Research Service, Washington D.C.), 18 April 2017



on imports and exports as a share of gross domestic product ought to be nil, due to the compensating movement of exchange rates.

However, this is not what Desai and Hines found. Instead, the behaviour of American multinational firms showed that ten percent greater overseas VAT collections are associated with three per cent fewer imports by local American-owned affiliates. This suggests that the exchange rate did not change sufficiently to offset the rise in import prices stemming from the tax and, as a result, importers cut their demand for imported products. Moreover, exported goods also experienced a shift in sales as a proportion of gross domestic product.¹⁷ In addition, research by Michael Nicholson has examined the impact on the United States of VATs in other countries. His dataset covered American trade with 146 countries and 93 per cent of that trade was subject to VATs. The research found that VATs reduce bilateral trade volumes, thus providing further evidence that the exchange rate does not change sufficiently to offset the impact of the tax.¹⁸

Conversely, other studies have found that VATs do not have an impact on trade balances. For example, a study by Ruud de Mooij and Michael Keen found that there was no significant effect on a country's trade balance in the short and long run, which is consistent with an exchange-rate response to border-adjusted taxation.¹⁹ A third study by Michael Keen and Murtaza Syed found that the results depended on the specification of the model used.²⁰ It has been proposed by Caroline Freund and Joseph Gagnon that, when exchange rate adjustments do occur, they happen mostly through the real exchange rate.²¹ This implies that changes in wages and prices could still have occurred in these latter studies, resulting in significant distributional effects, even though there was little change in countries' trade balances.

The Congressional Research Service has concluded that it is unclear if the findings of empirical studies of countries that have introduced border adjustments as part of a supplemental VAT are reliable and it provides several reasons as to why these studies may be limited in their usefulness.²² First, uncertainty in the timing of exchange rate responses to VAT changes means it is difficult to isolate the response to a policy. Second, these taxes are often implemented alongside other tax or spending reforms, adding an additional layer of complexity to the task of isolating the responses to VAT alone. Third, the studies concern countries with economies that are much smaller than the United States, which could affect the degree of exchange rate adjustment. Fourth, some of the countries analysed have fixed exchange rates and can't be used to truly evaluate the effects because the adjustment mechanism for trade flows is not possible.

¹⁷ Mihir Desai and James Hines, "Value-added taxes and international trade: the evidence", University of Michigan, 2002

¹⁸ Michael Nicholson, "Value-added taxes and U.S. trade competitiveness", Forum for Research in Empirical International Trade, 2012

¹⁹ Ruud de Mooij and Michael Keen, 'Fiscal devaluation and fiscal consolidation: the VAT in troubled times', *IMF Working Paper*, WP/12/85, March 2012

²⁰ Michael Keen and Murtaza Syed, 'Domestic Taxes and International Trade: Some Evidence', *IMF Working Paper*, WP/06/47, February 2006

²¹ Caroline Freund and Joseph Gagnon, "Effects of consumption taxes on real exchange rates and trade balances", *Peterson Institute for International Economics Working Paper 17-5*, April 2017

²² Congressional Research Service, *Border-adjusted consumption taxes and exchange rate movements: theory and evidence* (Congressional Research Service, Washington D.C.), 18 April 2017



In summary, the empirical evidence from this limited array of available studies is inconclusive on the subject of nominal exchange rates adjustment with VAT taxation regimes and there are also doubts about the applicability of such studies in the case of the quite different border adjustable destination-based cash flow tax. Noting the potentially large effects of the border tax proposal in the context of our current lack of empirical evidence on the drivers of exchange rate movements, Reuven Avi-Yonah and Kimberly Clausing comment:

We are not aware of any empirical evidence on the exchange rate mechanism, but that should be provided before adjustment is taken on faith. Indeed, it seems dangerous to “bet” entire sectors of the economy on such untested grounds, especially when no other major country has adopted this type of corporate tax. The only empirical study, by Desai and Hines, in fact suggests that trade effects may be counter to expectations.²³

Summary. The notion of the border adjustment tax causing dollar appreciation is based on a simplification of currency markets, which are highly complex. The proposed measure has not been tried in any other country and there are many issues that pose a large number of questions as to what the consequences would be. Available empirical and anecdotal evidence casts doubt on basic exchange rate theory. Multiple barriers to adjustment plus the fact that traded goods and services only have a limited – possibly small – influence in determining exchange rates in today’s world of speculative capital flows means that we expect that most of the proposed appreciation is likely to fail to occur. Some adjustment could occur, but, given the considerable obstacles, we expect it to be no more than 30 per cent of the anticipated total, and it could well be a good deal less than that.

²³ Reuven Avi-Yonah and Kimberly Clausing, “Problems with destination-based corporate taxes and the Ryan blueprint”, University of Michigan Law and Economics Research Paper, Number 16-029, 2017



4 KEY ISSUE 2: LIKELIHOOD OF TRANSMISSION OF COSTS TO CONSUMERS

If it is indeed the case, as seems likely, that exchange rate adjustment will be less than the 25 per cent necessary to compensate for the introduction of the tax, this means that much of the burden of the border adjustment tax will not be shouldered by foreign firms or consumers, but instead by domestic firms and consumers within the United States.

In theory, there are reasons why this burden may not be passed through to ultimate consumers. Most notably, importing firms may be able to substitute imported inputs with domestically produced alternatives. If those domestic alternatives are the same price or only slightly more expensive than the imports, then this may blunt the transmission of the burden of the tax to the American consumer. In this sense, the dependence of various sectors on imports is instructive, as shown in Table 1. Many consumer goods sectors are heavily dependent on imports, though food and drink is an exception. This is indicative of a lack of domestic alternatives. Even in the case of food and drink, it is likely that many imported food and drink products cannot be produced in the United States due to climate (or the lack of appropriate soils or terrains) and could only be so produced at excessive cost.

Table 1: Foreign content in meeting domestic (consumption and investment) demand in key consumer goods sectors in the United States, 2012

Industry	Foreign content in demand (per cent)
Apparel, leather and allied products	93
Computer and electronic products	77
Motor vehicles, bodies, trailers and parts	57
Petroleum and coal products	46
Food, beverage and tobacco products	21

Sources: United States Department of Commerce, Economics and Statistics Administration and Capital Economics

The other way in which the final consumer may not be hit with the burden of the tax in spite of exchange rate non-adjustment is if the domestic companies that purchase imported products for onward selling to American consumers are able to avoid passing the additional cost on to those consumers. They may be able to do this by reducing other costs (perhaps by raising efficiencies and / or reducing their headcount) or perhaps by accepting lower profits themselves. However, if the former opportunities exist, it would be expected that firms would be doing them already. With respect to the latter, that is more plausible, but it is likely to critically depend on the existing profit margins in affected industries.

As shown in Table 2, there are a wide range of profit margins in American industries. With respect to retail industries, margins are comparatively low. Compared to an average across all industries of 6.2 per cent, retailing margins, with one exception, range from 1.9 to 3.6 per cent. Thus, looking at retail industries, it appears that the propensity for companies to accept lower margins is low to non-existent.



Table 2: Net margins in selected industries in the United States, 2017

Industry	Net margin
Retail sectors	
Retail (Automotive)	3.63
Retail (Building Supply)	6.25
Retail (Distributors)	3.52
Retail (General)	2.60
Retail (Grocery and Food)	1.89
Retail (Online)	2.97
Retail (Special Lines)	3.17
Other sectors	
Financial services	21.77
Healthcare products	9.95
Oil and gas	0.56
Utilities	9.41
Whole economy	6.22

Sources: New York University Stern School of Business and Capital Economics

We have investigated the academic literature on the extent to which companies respond to various types of cost increases by passing these through to final consumers.

- One way to assess this is to examine the literature on the impact of the value of the dollar on consumer prices. A depreciation of the dollar causes import prices to rise. According to Federico Diez and Gita Gopinath, following a one per cent dollar depreciation, in the short run import prices excluding petroleum would increase about 0.32 per cent while consumer goods (excluding autos) prices would increase by 0.15 per cent. After eight quarters, the increases would be 0.45 percent and 0.25 per cent respectively.²⁴ However, it is recognised that American firms are typically less responsive to exchange rate induced price changes than those in other countries. An alternative study by Jose Campa and Linda Goldberg looked at a basket of OECD countries and found that the pass through on a one unit change in import prices is 0.61 in the short run and 0.77 in the long run.²⁵
- Various other studies have attempted to identify the extent to which cost increases in general are passed on to final consumers. Most economic literature in this field has focused on the degree to which the intensity of competition in an industry will affect the extent to which costs are passed through. Paul Zimmerman and Julie Carlson found that the pass-through rate, from a theoretical point of view, ranges from 50 per cent to 100 per cent, depending on whether the industry concerned is dominated by a single monopolist firm or

²⁴ Federico Diez and Gita Gopinath, "The effects of a stronger dollar on US prices", Federal Reserve Bank of Boston Current Policy Perspectives, Number 15-9, 2015

²⁵ Jose Campa and Linda Goldberg, "Exchange rate pass-through into import prices: macro or micro phenomenon?", IESE Business School, Research paper number 475, 2002



is perfectly competitive.²⁶ For example, Donghun Kim and Ronald Cotterill investigated the extent of costs being passed through in processed cheese. They ascertained that, under collusion, the pass-through rates for all cheese brands fall between 21 per cent and 31 per cent while, under more competitive markets, the range of pass-through rates are between 73 per cent and 103 per cent.²⁷

Retail sectors in the United States are not dominated by monopoly firms. Though some sub-sectors are oligopolistic (having several large firms), they tend to be characterised, however, by fearsome competition based on price and service offerings. Therefore, retail markets are likely to experience the kinds of pass through rates seen in competitive markets. This means that the proportion of the expected exchange rate appreciation that does not occur (which we expect to be 70 per cent or more), which is the proportion of the tax that is passed onto American importing firms, is then likely to be passed on to ordinary consumers.

Due to these likely price increases, the border adjustment tax will amount to a tax on consumers. It will have the effect of raising consumer prices, which will reduce real incomes and in turn living standards. Moreover, as with any tax on spending, it is probable that the impacts will be regressive in nature. That is, poorer consumers, who tend to save a lower proportion of their income and spend proportionately more, will be the hardest hit from the price rises stemming from the tax.

Businesses may, perhaps, be able to blunt some of the price rises by reducing their own employment levels, though this would bring an additional wave of attendant concerns – the retail industry directly and indirectly supports 42 million jobs.²⁸ Finally, the story does not necessarily end with higher consumer price inflation. That higher inflation may encourage the Federal Reserve to raise interest rates further and faster. So, this would lead to a second round negative impact on consumer spending and wealth.

²⁶ Paul Zimmerman and Julie Carlson, “Competition and cost pass-through in differentiated oligopolies”, Munich Personal RePEc Archive, Paper number 25931, 2010

²⁷ Donghun Kim and Ronald Cotterill, “Cost pass-through in differentiated product markets: the case of US processed cheese”, *The Journal of Industrial Economics*, Volume 56, Number 1, pp. 32-48, 2008

²⁸ PricewaterhouseCoopers LLP, “The economic impact of the US retail industry”, 2014



5 KEY ISSUE 3: LACK OF WORLD TRADE ORGANIZATION COMPLIANCE

WTO rules allow for border adjustment in indirect consumption taxes such as a VAT, but don't permit a discriminatory adjustment in the direct taxation of firms, which is what this proposal would constitute. Therefore, if the United States was determined to press ahead with these changes, it would have to convince its WTO partners that they should change the rules, be in a state of non-compliance or it might otherwise have to leave the WTO.

If the United States did insist on introducing a border adjustment to its corporate tax system, it would likely be immediately flooded with formal complaints at the WTO by other trading partners. Those with significant trade relations with the United States could respond by immediately taking retaliatory action in the form of raising tariffs on American goods, others might wait until a WTO court judgement, which could take years.

According to Chad Brown of the Peterson Institute for International Economics, were the United States to lose the case — as many observers expect — it could lead to some \$385 billion a year in retaliation measures.²⁹ If the WTO did rule against the border adjustment tax, there is then the question of how Congress would respond. It is possible that Congress would simply ignore the ruling and just accept any retaliation. The United States Trade Representative, Robert Lighthizer has previously argued that the United States should not feel duty-bound to follow WTO rules, believing that “derogation may be the only way to force change in the system”. However, this could potentially provoke a crisis for the WTO-driven world trading order.

²⁹ Financial Times, “EU and others gear up for WTO challenge to US border tax”, 13 February 2017



6 RECENT ESTIMATES OF THE IMPACTS

6.1 Dollar appreciation

As this proposal has gained attention recently, a number of studies have been produced that look at the specific effects of the border adjustment tax.

Several of these, supportive of the proposal, contend that the dollar will adjust. However, these studies conspicuously simply assert that the adjustment will occur and provide little real world evidence and analysis that such an adjustment is likely.³⁰ Even a paper by the Office of Tax Analysis at the Department of the Treasury, published in January 2017, claims that “we’ve seen that the real exchange rates move – after-tax domestic prices rise relative to foreign prices by the amount of the tax”, without providing any evidence to support this.³¹

Other studies have been more cautious and recognised that only partial adjustment may occur due to some of the reasons discussed in this report. Indeed, Janet Yellen, Chair of the Board of Governors of the Federal Reserve, has previously said that “a strong set of assumptions is needed to believe that markets would fully offset those changes” caused by the tax.³² Goldman Sachs believes that the tax would cause “meaningful but imperfect dollar appreciation and price adjustment”. In this context, they note that “the required price increases would be fairly large for some net importing industries and probably very large for some firms in those industries”. They also highlight apparel as being particularly vulnerable.³³ Other market analysts are also expecting a partial adjustment. Morgan Stanley forecast that the dollar may appreciate by ten to fifteen per cent, TD Securities Inc. estimate ten per cent – so around or slightly less than half of the appreciation that is needed and JP Morgan estimate that the dollar might appreciate by as little as six per cent against major trading partners.³⁴ (See Table 3.)

Table 3: Estimates of the impact of the border adjusted tax on the United States nominal exchange rate

Forecaster	Dollar appreciation (nominal terms, per cent)
Morgan Stanley	10-15
TD Securities Inc.	10
JP Morgan	6

Source: Capital Economics

³⁰ Alan Auerbach and Douglas Holtz-Eakin, “The Role of Border Adjustments in International Taxation”, American Action Forum Research, 2016

³¹ Elena Patel and John McClelland “What would a cash flow tax look like for US companies? Lessons from a historical panel”, Department of the Treasury, Office of Tax Analysis, Working Paper 116, 2017

³² Andrea Wong, “Currency traders spot fatal flaw in Republicans’ border tax plan”, Bloomberg News, 19 April 2017

³³ Goldman Sachs Economics Research, “US Daily: what would the transition to destination-based taxation look like?”, 8 December 2016

³⁴ Bloomberg, “Trump’s border tax threat may weaponize the dollar”, 11 January 2017 and Andrea Wong, “Currency traders spot fatal flaw in Republicans’ border tax plan”, Bloomberg News, 19 April 2017



6.2 Other economic impacts

Beyond the concerns of firms that import goods into the United States, this measure could have other negative consequences. If it did actually achieve the dollar appreciation that its supporters assert, a large move in the dollar triggered by changes in domestic tax policy could have unforeseen effects. Most notably, many companies worldwide, especially banks and those in emerging markets, have debt denominated in dollars, which would become a much larger burden after dollar appreciation.

In addition, there would be large wealth transfers between individuals and firms. Most notably, a big dollar rise would shift trillions of dollars in wealth from American investments overseas toward global investors with assets in the United States. The overseas cash flows of American multinational retailers and other companies would fall significantly in dollar terms.

What's more, the potential scale of adjustment required by the proposed tax is much larger than anything that has occurred following the implementation of other taxes. Other countries have raised border-adjusted consumption taxes in small increments, which have therefore required small price increases or exchange rate appreciations. This proposal would require a 20 per cent adjustment through wage and price changes or a 25 per cent appreciation of the nominal exchange rate. The magnitude of this change could create additional concerns for the global financial system and for consumer price and wage inflation.³⁵

³⁵ Caroline Freund and Joseph Gagnon, "Effects of consumption taxes on real exchange rates and trade balances", *Peterson Institute for International Economics Working Paper 17-5*, April 2017



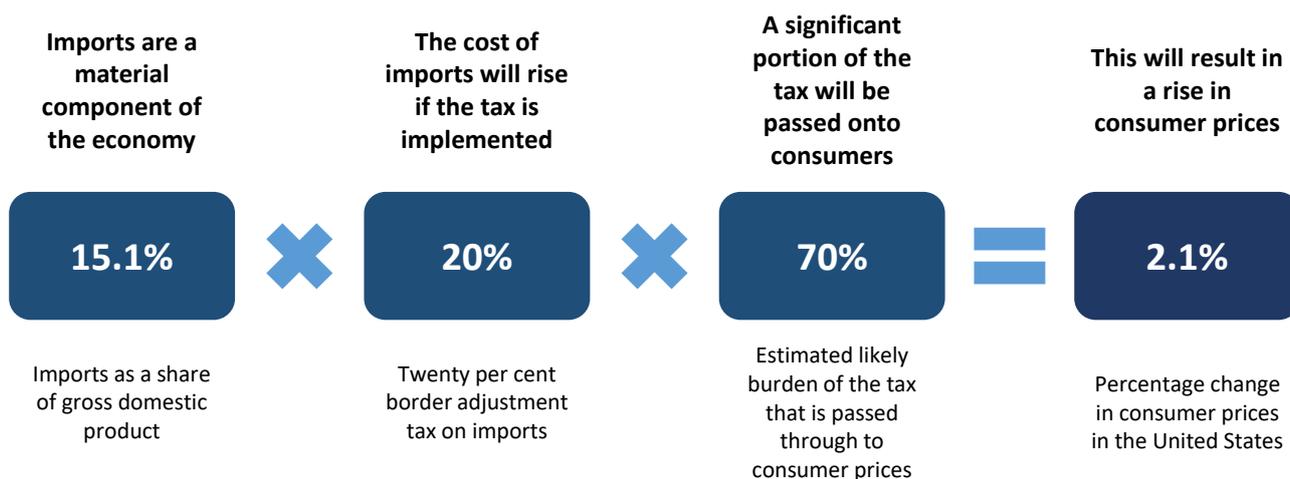
7 CONCLUSION

For its proponents, the border adjustment tax has some ostensible attractions – to satisfy an appetite for increased protectionism and to provide sufficient revenues to finance cuts in the overall corporate tax rate whilst leaving, if the dollar does appreciate in value, American firms and consumers no less well off. However, these attractions hinge on the currency markets reacting to the potential changes in import and export prices by immediately raising the value of the dollar by 25 per cent. There are substantial reasons for believing that this will not occur, especially in the short run, but even over medium to long run timeframes and therefore it is not worth the risk of attempting it.

For, without dollar appreciation, and assuming no similarly priced domestic alternatives are available, the burden of the tax will fall on American consumers or firms. In the case of retail industries, due to low margins and intensive competition, there is strong evidence to believe that cost increases, including the burden of this tax, will be largely passed on to final consumers. Based on the findings of other authors regarding dollar appreciation plus the additional hurdles to exchange rate adjustment we have identified in this report, we expect that well over half of the burden of the tax will be passed on to American consumers in retail business lines – with a likely range of 70 to 100 per cent.

Looking to the economy overall, imports constitute about fifteen per cent of United States gross domestic product. It is probable that the pass through of costs for other sectors may be less than it is in the case of retailing, but, if 70 per cent of the burden of this tax were to be transmitted to consumer prices, American inflation in the near term could increase by 2.1 per cent versus what it would otherwise be. (See Figure 3.)

Figure 3: Estimated impact of border adjustment style corporate tax on overall consumer prices in the United States



Source: Thomson Datastream and Capital Economics. Import share is average of 2015-16.

This number we consider to be at the low end of the feasible range as (i) the import share in consumer goods could be higher than that in gross domestic product overall³⁶ and (ii) the proportion of the tax that is passed through could be higher than 70 per cent. Looking at the

³⁶ Gross domestic product contains government services, which are more likely to be domestically sourced.



typical expenditure of a consumer unit or household in the United States each year, a 2.1 per cent increase in consumer prices is equivalent to an increase in costs to consumers of \$1,218 on average, based on extrapolated 2017 consumer expenditure levels.³⁷ If pass through of costs was instead complete (100 per cent), the increase would be as high as \$1,739.³⁸

Additionally, the impacts on consumers will be disproportionate, with consumers buying (durable and non-durable) goods being more affected than those who spend more on services such as healthcare and housing (which, inevitably, are more domestically sourced). As noted above, given that the incidence of this tax will fall on consumer spending and goods in particular, it is likely that the impacts will be regressive in nature, with poorer consumers (proportionately) most affected.

We note the paucity of analogue examples of similar tax changes in other countries. However, the balance of available evidence suggests that the value of the dollar will only partially adjust, whilst highly competitive retail markets will ensure an efficient pass through of costs to American consumers. All told, rather than being the magic bullet that many of its supporters allege, it is more likely that the impact of this measure would be to reduce real living standards, thus hurting ordinary Americans, particularly those on low to middle incomes.

³⁷ The average 'consumer unit', which is also referred to as a family or household, spent \$56,258 in 2015-16 (third quarter of 2015 to second quarter of 2016). Given inflation up to April 2017, this figure is now equivalent to \$57,652 in today's prices. Multiplying this \$57,652 by 2.1 per cent results in the \$1,218 increase in consumer costs. See Bureau of Labor Statistics, *Table 1502, Consumer Expenditure Survey* (Bureau of Labor Statistics, Washington D.C.), 2016 for details of consumer expenditure.

³⁸ \$1,218/0.7