I'm very pleased to be here to give the Martin Feldstein Lecture at the NBER Summer Institute. Of course, Marty was my dissertation advisor and a co-author and I learned a lot from him over the years. And indeed, I wanna start in talking about "The Taxation of Business Income in the Global Economy" with a couple of Marty's contributions over the years in the area. Not simply to remind us how versatile Marty was in his research, but also because the points he made in these papers relate to the material I'm gonna be talking about today. So the first of these contributions is, one, a paper that Marty wrote with David Hartman in the late 1970s in the "Quarterly Journal of Economics" in which Feldstein and Hartman derived optimal taxation of domestic and foreign source income for multinational companies. And a key thing in these results other than the results themselves was the implicit assumption that companies' residence is well determined and where they earn their income is also easily determined. And both of those things, while perhaps of quite sensible assumptions in the 1970s, are not so sensible today.

The second contribution of Marty's I wanna highlight is from a paper with Paul Krugman in an NBER Conference volume. And in this paper, the "International Trade Effects of Value-Added Taxation," there's a particular quote that I wanted to highlight. "The point of the analysis is more modest. We wanna show that commonly held belief that a VAT is a kind of disguised protectionist policy is based on a misunderstanding." That was a very important point to make then. Unfortunately, it's a point that still applies today when policymakers debate the merits of not only the value-added taxes but of other consumption-based or destination-based taxes. And that came up in the U.S. tax reform debate a few years ago and still plagues policy discussions in this area. And I'll come back and talk about that as well.

But to begin, let me start with a figure which is common to discussions of international taxation today. This is the G-7 corporate tax rates according to OECD data going back a few decades. And you would get similar picture if you looked at other groups of developed countries, it's not unique to the G-7. And what you can see is that corporate tax rates have been declining throughout the G-7 over this period, starting from a much higher range in the early to mid-1990s than they are now. And it's worth pointing out that although the United States drop in 2017 occurred during a Republican administration, in several of the other countries where tax rates have come down, they've done so under left-leaning governments. So, it really is a phenomenon that is not so much related to the specific politics of a time in a country, but rather to something more fundamental. And that fundamental thing that it relates to is the change in the economy, the world economy over this period. And so let me talk a little bit about that.

And the best way for me to start to illustrate what's happened in the world economy, in particular in the U.S. economy, is to think about the largest companies by market capitalization in the U.S. 50 years ago and today. Fifty years ago, the top five companies were mostly names that are still familiar: IBM, General Motors, AT&T, ExxonMobil, and Eastman Kodak. A couple of things to point out about this, first of all, ExxonMobil was actually at that time pre-merger with Mobil. And also AT&T wasn't the AT&T today, it was the enormous regulated monopoly providing telephone services and actually providing manufacturing and providing telephones. And in 1971, companies although they may have relied on technology, IBM was certainly a leading technology company at the time were companies that made things. They made things in identifiable locations. And then that's not just true of oil companies where the location of extraction of natural resources is clear, but it's also true of where General Motors made its cars.

If we shift to 2021, we see another five familiar names, all giant companies: Apple, Microsoft, Amazon, Alphabet, and Facebook. And all familiar, perhaps not Alphabet for some because Alphabet is the parent company of Google. And these companies are enormous and worldwide multinationals, and they rely very heavily on intellectual property, all of them in the services and the goods that they provide. Just to highlight that point, let me make a couple of observations based on data. In the last half-century during this same period when the identity of these five companies changed, and as I just showed you, the share of intellectual property measured in U.S. non-financial corporate assets, according to the Fed's Flow of Funds data more than doubled. That's probably a conservative estimate because the measurement of intellectual property is a fairly narrow one here. The share of before-tax U.S. corporate profits coming from overseas operations nearly quintupled. That is companies became much more...the U.S. corporate sector became much more multinational in character, not just selling things abroad, but making them abroad as well. And the share of cross-border equity ownership has steadily increased as indicated in the link here in this slide.

So what do all these facts imply? Well, there are a few important implications for tax policy that I'd like to draw. First of all, these changes have put increased pressure on tax systems that are based on corporate residence. It's natural, of course, to think of individuals as residents of particular countries, but our income tax system also identifies corporations by where they reside. And in

1971, it may have been pretty obvious what a U.S. company was and what it wasn't in terms of who owned the company and where it produced. That's much less true now. There's much greater multinational activity of companies that are said to reside in the United States and they have many more shareholders from abroad as well. And these two factors mean it's easier to engage in so-called corporate inversion, that is to change the corporate residence through corporate reorganization. As a company might wanna do if being a resident of a particular country or the U.S. or some other country is disadvantageous from a tax perspective.

The second implication for tax policy is that there's increased pressure on tax systems based on where companies produce. The location of production is easier to change now because companies already have internal supply chains. They're not just producing in the U.S., or mostly in the U.S., they're producing around the world already. And so, if they wanna shift production from one location to another, they already have existing operations to make that easier. Moreover, because they're manufacturing things like microchips and pharmaceuticals and indeed services versus heavy things like autos and steel, they don't have to worry about location as much in terms of transportation costs. And finally, there's increased pressure on tax systems based on where companies report their profits. And here, I'm emphasizing where they report their profits as opposed to where they produce. That is we normally think of companies as earning profits where they produced, but one of the problems that governments face today is that companies may produce in one location and then report the profits deriving from those activities in another.

And companies can shift profits among parts of their overall enterprise because they have operations in so many countries. And if some of these operations are in low-tax countries, having operations there already makes it easier for them to shift profits to where they report profits to those locations. And it's particularly easy when we're thinking about income being generated by an intellectual property because intellectual property has no logical location in the same way. We may know where a factory is, but it's a lot harder to say where a piece of intellectual property is, or is being used in production. Now, I should just add a point here. There have been some estimates in the literature recently of how much profit shifting there is suggesting that it's occurring on a vast scale. There's some potential problems with some of this research associated with difficulties of interpreting some government data. And I'll just flag that as something that one should think about when looking at some of the results in this literature. Nevertheless, it doesn't take away from the point that this is an important issue. And it's one that certainly drives thinking about tax reform.

So, we have a situation where the existing tax systems, the ones that we have traditionally used for decades in the U.S. and elsewhere to tax corporations based on where corporations reside, where they produce, where they earn their profits, this seems like an unstable situation because of the evolution of the world economy. So what are the options for reform? Well, there are several that have been tried and some that have been proposed. The most common one are so-called anti-avoidance rules. Tax officials simply come up with ways to get tough on companies. Tighten rules to limit profit shifting, put in place various rules that simply make life harder for companies that wanna shift where they report their profits. And there are a variety of mechanisms that are already in place to do this. But such mechanisms have adverse effects. If you make it harder for a company that's producing in the U.S. to report profits in a lower-tax country, that shifts more of the profits to the U.S. perhaps. It also increases the effective tax rate that the company faces and may make them more sensitive to the U.S. tax rate. That's not to say one shouldn't adopt anti-avoidance rules, but it's not an unmitigated benefit for tax authorities. Likewise, the U.S. has been trying to come up with rules to limit inversions. And these rules exist but they're becoming increasingly complicated as corporations come up with different ways and different strategies for changing residence.

A second approach that has been used, especially in Europe, has been to come up with so-called patent boxes or special favorable intellectual property regimes. The idea is if it's income associated with intellectual property that is particularly sensitive to different tax rates and typically difficult for tax authorities to locate, that maybe governments should impose lower tax rates on such income as a way of admitting that they're not going to be able to impose this higher tax rate. And also governments justify such favorable regimes using the argument that intellectual property development and use may produce social spillovers in terms of productivity for other parts of the economy. And here's just an illustration, a recent illustration of some of the patent boxes in place in Europe and the tax rates that apply.

Now, one of the problems with patent boxes is in a sense, it's a way of dealing with tax competition by giving up. That is saying tax competition is a problem, and so we're just going to engage in tax competition albeit for part of the income of companies, not all of it. But also, in terms of the other argument for patent boxes that there are social spillovers, research suggests that companies are responding to these favorable regimes by locating intellectual property income in favorable places, but not necessarily doing the kind of research and development in those places that would be associated with social spillovers. So this isn't an obvious fundamental solution to the problem of tax competition either. A recent proposal or a series of proposals and indeed policies adopted beginning in Europe has been to target multinationals, largely U.S. multinationals, tech multinationals with new separate taxes on gross receipts based on where their users are.

The argument is companies like Google or Facebook have lots of users and, you know, just a company like Germany or France and yet by traditional income tax rules, they don't have what's called nexus in those countries. They don't really engage in any traditional production operations there. And therefore, by standard income tax rules, they don't owe anything to those countries which doesn't make those countries very happy. And so, they've simply come up with an ad hoc solution, digital service taxes to tax them based on where their users are. And several individual countries, starting in Europe but not exclusively European countries, have adopted these and indeed the European Union as a whole has been moving forward with such an idea. And here are examples of countries at various stages of adoption of digital service taxes.

A fourth approach is destination-based taxes. And it's related to the digital services idea, but it's a much more fundamental one. It's not based simply on the provision of digital services. It could apply to any company. It's the focus of the tax base, not on where companies reside, where they report their profits, where they produce, but on where their sales are, where their consumers are because consumers are relatively immobile. And so, by imposing a tax based on destination, it's likely to be less susceptible to competition over tax rates among countries because competing for corporate profits or for production location is likely to be much more intense than trying to get people to move across borders to take advantage of lower tax rates. And the main existing tax based on destination, the value-added tax, shows little susceptibility to the tax rate competition like the kind I showed you for the corporate tax. And indeed, here is a slide for value-added taxes in the G-7.

Of course, there are only six countries represented here because the United States, alone among the G-7 and indeed alone among the larger group of developed countries, does not have a value-added tax, does not have a national destination-based consumption tax. But you'll see here, there is no obvious downward trend in these taxes. And indeed some of the blips down would represent countercyclical policies such as the United Kingdom during the global financial crisis. And if you omit those drops, there's probably an upward trend, if any trend at all, in these rates. So that confirms that you don't see the same kind of tax competition here as you do for corporate tax rates. And that's not necessarily because it's a tax on consumption rather than a tax on income, but because it's a tax based on destination rather than on the location of earnings.

Now, because of the reduced focus on residence or location in production, the unilateral adoption by one country might actually push other countries in that direction. If the U.S., for example, were to move its income current corporate tax to one based on destination, it would encourage more companies to produce and report their profits in the United States because they would no longer be subject to tax based on those actions. And that might be self-reinforcing to get other countries to do it too. It's a form of tax competition, but it doesn't necessarily require a low-tax rate, simply a different kind of tax base. And it reflects what I think is an important and overlooked objective in international tax policy discussions, which is the idea that in addition to all the other things we'd like tax systems to have: efficiency, equity, ease in administration, incentive compatibility is important too. That is countries perceiving it to be in their own best interest to adopt a tax system without having to be coerced by others.

Now, this role of destination-based taxation in tax reform and the importance of incentive compatibility is something that's emphasized in the book that I and several collaborators have shown here, recently published with Oxford University Press. And indeed this book is not only available from Oxford University Press in hard copy, but if you're willing to live with a PDF file instead, you can download it for free by arrangement with Oxford University Press. And in this book which we produced over a period of several years, we put forward in addition to the general idea of destination-based taxation being an important potential step in tax reform, we hammered out two specific proposals of how to get there. One big, one small. The small one is, that is small relative to the current system is the idea of taxing residual profits based on the location of sales income, income from sales, which we call the RPAI. The other is a destination-based cash flow tax, DBCFT, which came up in policy discussions in the United States a few years ago. And that would represent a bigger change toward destination-based taxation.

Let me explain each of these a little bit. The RPAI is a hybrid system. It would say, for routine operations that companies do where they're just doing traditional production easily identified using tangible assets and probably not earning a particularly high rate of return, the old system probably still works pretty well, and we can tax that based on where companies report that they are producing and earning profits. But then there are a lot of residual earnings that will remain for companies after these routine profits are taken out. And that's especially true for the kind of companies that are the biggest companies in the U.S., the tech companies that I showed you earlier. Allocating routine earnings for these companies would not account for a very large share of their earnings. And for them, for those earnings, we would allocate based on the location of net sales revenues. So, it's a form of partial apportionment system, which for those of us who live in the United States is familiar from the way states tax corporate income.

We have apportionment in the U.S. among the states of all income, not just residual income, and we have been moving steadily as the states choose their own ways of apportioning toward using sales apportionment. That is, there's no coercion or national coordination among states. States have been choosing how to apportion income among them. And they have chosen sales, they've chosen destination because of the attractiveness that exists for using destination as a way of determining where to tax income. And that confirms the idea of incentive compatibility. That is, states have gotten to sales apportioned taxation of income without any kind of national coordination.

The destination-based cash flow tax would start by imposing a cash flow tax on domestic operations. It would impose so-called border adjustments eliminating the import deduction and the tax on exports. These border adjustments would work precisely as they do under existing value-added taxes. And what border adjustment does is two things. First of all, it shifts the location of tax from production to consumption. That is things consumed in the United States would be taxed in the United States even if produced elsewhere and things produced in the United States but consumed elsewhere wouldn't be taxed. That's what border adjustments do. But of equal importance, border adjustments would eliminate profit shifting opportunities because transactions with related parties in other countries would not be part of the tax calculation the companies would do. And therefore, any misstatement of where the profits are earned, or how big the profits are, or borrowing and lending that companies do among related parties, none of those things would have any impact on the taxes due when a country adopted a DBCFT.

Now, the DBCFT is a profits tax but it's equivalent to a value-added tax with one important difference, which is it doesn't tax the wage component, the wage and salary component of value-added. And in that sense, it's a tax on profits rather than a tax on value-added. And that makes it much more progressive. Indeed, one can show that the destination-based cash flow tax is equivalent to a one-time tax on the wealth of residents through taxing the future cash flows that they receive. Now, the DBCFT, as I mentioned, was proposed in the United States in 2016 during the discussion leading up to the Tax Cuts and Jobs Act passed in 2017. It was not implemented because of several concerns, some including the short-run effects associated with exchange rate adjustment that would have needed to occur, and I think, legitimate concerns, and there were differences in opinion of how important these were. Concerns about possible WTO reaction. And I think here, I would just highlight that the problems have to do really with the way the WTO rules are structured in the sense of emphasizing form over substance. Because the equivalence of the DBCFT to a perfectly acceptable tax systems under WTO rules should have made the DBCFT acceptable as well, but there were reasonable concerns that that wouldn't have been true given the way the WTO operates.

And finally, and I have to emphasize this, and this relates to the Feldstein-Krugman quote that I gave you earlier, there was just a general lack of understanding of the plant's operation, its incidence, and its economic impact. Indeed, there was a view that it was protectionist, that it was very pro-export and very anti-import. Things that economists generally understand are not true but were very hard to convey in the public discussion.

And the final approach in terms of things that have been tried or suggested as a way of dealing with the current problems of our tax system is The Kitchen Sink, which is how I would describe the Tax Cuts and Jobs Act because it had a little bit of everything. It reduced the corporate tax rate just simply continuing tax competition. It introduced some additional tax avoidance measures by introducing a global minimum tax on U.S. companies because it was just a U.S. tax law. So, it introduced something with the acronym GILTI, taxing income earned abroad by U.S. companies if that income was taxed to lower rate. It introduced investment expensing and targeted border adjustments on exports and imports borrowing from the DBCFT. So even though that wasn't introduced in law, some of the ideas and the reasons for those ideas did find their way into the Tax Cuts and Jobs Act. So, it didn't have a unified logical basis, it borrowed from different ideas. But also it's not really a stable situation. It's not a stable situation for the U.S. and it's not stable for the world either.

It generated a tax revenue loss for the United States which, you know, we certainly need revenue at this point, and there was concern about that. It discourages U.S. residents because the minimum tax was adopted by the U.S. alone and not by other countries and therefore, it could be avoided by not being a U.S resident company. And finally, there was no measure in it to deal with digital services, which was less of a concern for the U.S., but remember, these are U.S. companies that largely would be hit by the digital services tax as being proposed elsewhere. And so not coming up with a solution for that is certainly something that will not leave other countries happy with the outcome.

And finally, that brings us to where we are now, which is the initiative taking place over many years, reaching a crescendo this year, a process put in place by the OECD, which they refer to as a two-pillar proposal. Now, I have to pause here and say that we don't normally think about the tax system in the U.S. as having pillars. And when I've heard this discussion of two pillars and how it would work, presumably the idea is that there's two pillars that are going to hold up the world tax structure, but a different picture comes to my mind based on the, you know, story from the Old Testament, which is the story of Samson and the two pillars. And, of course, Samson, his activity with the two pillars was not to use them to hold anything up, but rather to bring down the temple of the Philistines and the Philistines with that action. I'm not sure that the OECD would necessarily appreciate this analogy, but if one continues it a little bit longer and thinks about whom Samson might be in this situation, perhaps it might be the Republic of Ireland or one of the other countries that is not yet signed on and become a member of the coalition of the willing in this initiative. And I'll come back and talk about that process shortly.

Let me describe how this would work. Pillar one is essentially a replacement for the digital service taxes that many countries, especially in Europe and the European Union itself have proposed. It would allocate to market countries a fraction of profits above a threshold. So 20% to 30% of profits above 10% of sales revenues, but only of extremely large companies. Those with over 20 billion euros a year in annual revenues. And it would exclude financial services companies and extractive industry, some of which are also very large. So, by its nature, it really is targeted very much at tech companies, and indeed U.S. tech companies. Pillar 2 would be a global minimum tax. Along the lines of what the U.S. adopted in 2017 with some important differences, it would be at least 15% imposed above a threshold, 7.5% of tangible assets plus payroll for large multinationals. Not as large as Pillar 1, but greater than 750 million euros a year in annual revenues. And for Pillar 2 also includes some other provisions, which would encourage countries to adopt it because remaining outside of the general agreement would impose a penalty on those countries.

To say a little bit more about Pillar 1, estimates suggest that if the aim was to target large U.S. multinationals, it seems pretty successful. These estimates suggest around close to two-thirds of global tax revenues would be generated by U.S. companies. And half of that amount would come from five companies, Apple, Microsoft, Alphabet, Intel, and Facebook. It does relate to one of the other proposals I suggested in being destination-based, like the RPAI proposal, the hybrid proposal that my group and I put forward, but it's much more limited. It only applies to a small number of extremely large tech companies, and it allocates only 20% to 30% of excess profits rather than all. However, as I'll come back to it, one might think of this as the first step in direction adopting the principle more broadly.

Pillar 2 is, as I said, a little bit like the U.S. GILTI Provision, but it would be tougher because it would impose a higher tax rate. On the other hand, it doesn't go as far as a proposal put forward by the Biden administration earlier this year, which would have had a tax rate of 21% and indeed would have had no threshold over which taxes would be assessed. And really that was aimed much more not just at companies shifting profits to low-tax countries, but really at companies shifting production activities themselves. And so it was aimed at a broader array of activities of companies that involve tax competition.

Well, this brings us to an important question. Can the agreement work? Should it work? There are immediate questions one should ask about this. That is, we might never get off the ground. Among these are, whether the U.S. can get treaty approval for Pillar 1. The U.S. has a variety of treaties with other countries indicating who has the right to tax income, and Pillar 1 as an income tax but one based on destination, would be seeding taxing authority to countries, which as I said, have no taxable nexus under standard income tax rules for collecting tax from these companies. In order for this to work and for the U.S. to allow other countries to do this, there would have to be a renegotiation of treaties. And even though the Biden administration has come out in favor of Pillar 1, the Biden administration alone doesn't get to decide whether we have a new treaty. It has to be approved by two-thirds of the Senate. This is not something that can go through reconciliation most likely, and therefore, is likely to be difficult.

And it's important to keep that in mind because many of the countries who have agreed to the overall package, including Pillars 1 and 2, agree to Pillar 2 in exchange for getting Pillar 1. So, if Pillar 1 doesn't happen, we don't know what will happen to Pillar 2. A second question just from the U.S. perspective is whether the U.S. can get the minimum tax being proposed through reconciliation, which would require 50 votes in the U.S. Senate. We know it can't get it through a regular legislative process outside of reconciliation because the U.S. doesn't have 60 votes in the Senate to approve that. But even 50 votes is tight and it's hard to know whether that'll happen.

And finally, can Europe achieve unanimity? The European rules for adopting this kind of tax reform require unanimity. And I highlighted Ireland before, but Ireland isn't the only member of the member country of the European Union that has yet to sign on to this agreement. And without Europe being able to coerce or bribe these holdouts, it's not clear how Europe would join this agreement, even though in principle had decided it will.

So, these are all short-run concerns that could cause the agreement to not reach fruition. But there's also a more fundamental challenge in the longer term arising from the attempt to preserve a tax system which is fundamentally based on concepts that don't really work anymore, that are ill-defined and endogenous. Corporate residence and the location of production and profits is something that tax authorities have taken to calling the location of value creation as if somehow that is easily identified. And because it relies on these ill-defined concepts and concepts that are difficult to measure, it's really not going to be very sustainable unless countries adopt and adhere to similar rules that lessen incentives for companies to shift production, profits, or residence.

And what does that require? It requires that countries adopt similar minimum tax rates and bases across home countries so that the base and the rate together provide similar effective tax rates to lessen the incentives for companies to shift corporate residence because the residents determines which minimum tax applies to you. And so if the rates are similar, there's no strong incentive to move corporate residence, but only if the rates are similar.

You need similar corporate tax rates and tax bases in the countries themselves, the regular corporate tax rates and bases to prevent companies from shifting their production and profits location from one country to another. You know, even if these countries are not low-tax countries that would be subject to the minimum tax, differences in tax rates between the U.S. and some other economy without a very low tax rate, there might still be big enough differences in these tax rates and tax bases to encourage shifting of profits and production. And finally, you need a similar regular tax rate in the country itself and the minimum tax rate that country applies to keep companies that are resident in those countries from shifting their profits and their production abroad. And this is relevant, for example, for the United States where we've agreed to a 15% minimum tax, but the Biden administration at least currently is still proposing a 28% tax rate on domestic income, a big difference from the minimum tax rate.

Well, what should these values be? There's been so much focus on...that is these common values, there's been so much focus on the objective here of limiting tax competition that one can easily lose sight of the fact that limiting tax competition isn't the only or the major objective of tax policy. There are many other objectives as well. And one needs to think about the other objectives to think about whether the corporate tax rate should be 21%, 28%, 35%, whether the minimum tax rate should be 15%, 21% as it was originally proposed, whether the tax base should have a threshold or not. These are all questions that can only be answered if one thinks about what governments are trying to achieve, what they're trying to achieve in terms of encouraging saving and investment, how much revenue they need from the corporate sector.

And these are not questions that are addressed in simply agreeing to have the same values. But unfortunately, you know, wanting to pursue other objectives as well as reducing tax competition is likely to lead countries in different situations with different objectives in different directions. Now, if countries instead had moved in the direction or more in the direction of destination-based taxation, governments could pursue different objectives without worrying about tax competition. For example, if the U.S. had adopted a destination-based cash flow tax, it could have kept its 35% tax rate in 2017. It wouldn't have had to worry about tax competition and lowered its tax rate to 21%. And other countries seeking more revenue or less revenue could adjust their tax rate up or down. So, countries would have a freedom that they don't have in the current situation or under the proposed two-pillar agreement.

So where does that leave us? Well, I'm not going to make the mistake of trying to predict what happens in the short run, how far we get with Pillars 1 and 2 and the proposed international agreement. But what I will say is that I think over the longer term, whatever the success in the short run in getting this agreement adopted widely, there will continue to be pressures of the type I just discussed for countries to move in opposite directions. And I think part of that movement will be a further movement in the direction of destination-based taxation. I mentioned that the 2017 Tax Cuts and Jobs Act did include certain pieces taken from the destination-based cash flow tax. And I think that such ideas will continue to be a part of tax policy and perhaps expanded. I think it's quite possible that Pillar 1, although very narrow as proposed, because it's really just meant to replace the digital service taxes that have been proposed and adopted can grow, and countries, once they see that it works pretty well, may want to lower the threshold and make it so that it applies to a much larger group of companies.

Once these movements toward destination-based taxation take place, it's going to not only give countries more revenue from these sources, but it's gonna lessen the need for other measures like minimum taxes because minimum taxes really aren't needed when countries are relying more on destination and less on location of production and profits. And I think that's going to put less revenue needed because of more revenue from destination-based taxation and the less need to backstop the tax system because of destination-based taxation will put further pressure on minimum taxes to whatever extent they're adopted as countries see them as a nuisance that doesn't really serve any necessary purpose as the tax systems naturally evolve worldwide. So, with that, I thank you again for listening to this talk.